



VISHAY INTERTECHNOLOGY, INC.

INTERACTIVE

data book

CERAMIC RF POWER AND HV CAPACITORS

VISHAY DRALORIC

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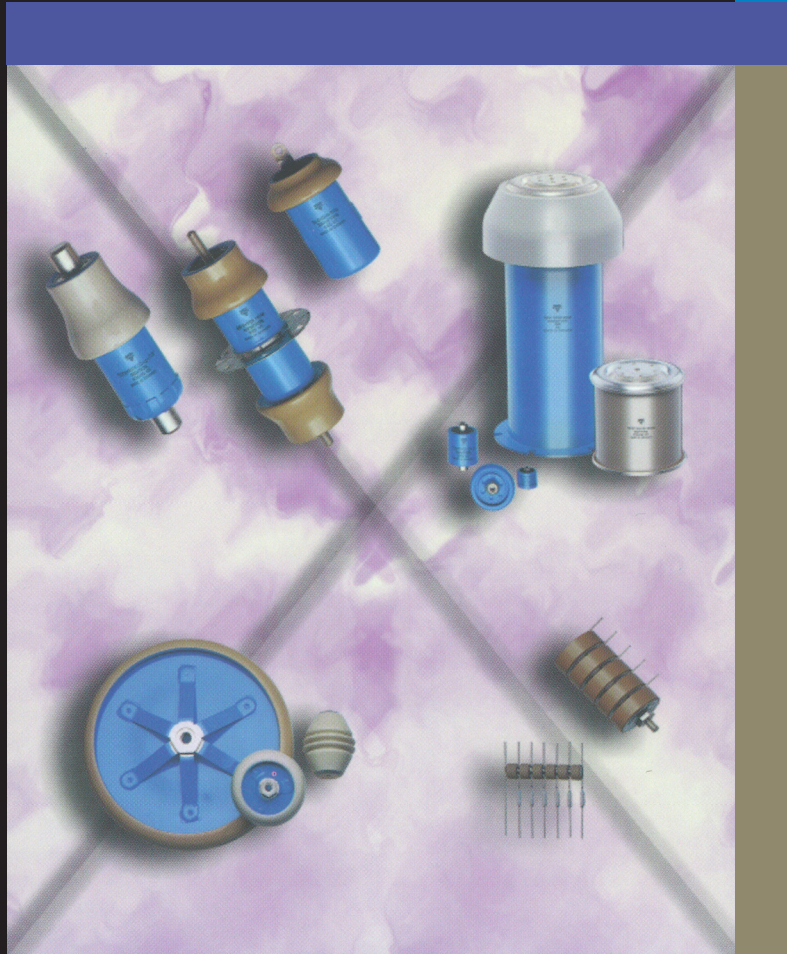
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VISHAY INTERTECHNOLOGY, INC.

DATA BOOK



CERAMIC RF POWER AND HV CAPACITORS

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VISHAY INTERTECHNOLOGY, INC.

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Ceramic RF Power and HV Capacitors

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Not all products listed in this catalog are generally recommended for use in life support systems where a failure or malfunction of the component may directly threaten life or cause injury.

The user of products in such applications assumes all risks of such use and will agree to hold Vishay Intertechnology, Inc. and all the companies whose products are represented in this catalog, harmless against all damages.



Ceramic RF-Power Capacitors
Ceramic High Voltage Capacitors

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Ceramic RF-Power Capacitors

GENERAL DESCRIPTION:

The Ceramic RF-Power Capacitor can be defined as an electrical device consisting of a ceramic dielectric with conductive noble-metal electrodes, terminations and a protective coating. The spectrum of capacitance values extends from the lower picofarad range up to the nanofarad range. The rated voltages range from 636 V (peak) up to 40,000 V (peak). Typical frequencies of application range from 20KHz to 100MHz. These capacitors can be operated with DC and AC voltage both individually and in combination. The electrical power-handling capacity is largely determined by the three parameters, VOLTAGE, CURRENT and POWER. These parameters essentially depend on the CAPACITANCE, the OPERATING FREQUENCY and the AMBIENT TEMPERATURE.

APPLICATIONS:

Typical uses for ceramic RF-Power capacitors are:

- INDUCTIVE HEATING EQUIPMENT (Operating frequencies above 20KHz)
- DIELECTRIC HEATING EQUIPMENT (Operating frequencies above 5MHz)
- IMPEDANCE TUNING CIRCUITS
- RF FILTER and PULSE FORMING CIRCUITS
- DC VOLTAGE BLOCKING, RF-VOLTAGE DIVIDERS
- RADIO TRANSMITTING EQUIPMENT
- VOLTAGE MULTIPLIERS (Capacitor stacks)

ELECTRICAL PARAMETERS:

The electrical performance is determined by four parameters: CAPACITANCE, VOLTAGE, CURRENT and REACTIVE POWER.

CAPACITANCE:

Rated capacitance C_R is the nominal capacitance value.

CAPACITANCE MEASUREMENTS:

The capacitance of all Ceramic RF Power Capacitors - except where deviations are agreed upon in the ordering procedure - are measured under the following conditions:

MEASURING FREQUENCY:

- Class 1-Ceramic dielectric (1 ± 0.2) MHz or (100 ± 20) kHz
- Class 2-Ceramic dielectric (1 ± 0.2) kHz (Field strength max. 3kV_{RMS} per millimeter)

MEASURING VOLTAGE:

- Class 1-Ceramic dielectric ≤ 5.0V_{RMS}
- Class 2-Ceramic dielectric ≤ 1.2V_{RMS}

CLIMATIC CONDITIONS OF MEASUREMENTS:

- Temperature (23 ± 3)°C, for reference measurements (20 ± 1)°C
- Relative humidity ≤ 75%

CAPACITANCE TOLERANCE:

CLASS 1 - CERAMIC DIELECTRIC

TOLERANCE	± 0.25pF	± 0.5pF	± 1pF	± 2pF	± 5%	± 10%	± 20%
CODE LETTER	C	D	F	G	J	K	M
Applicable Nominal Capacitance	< 10pF				≥ 10pF		

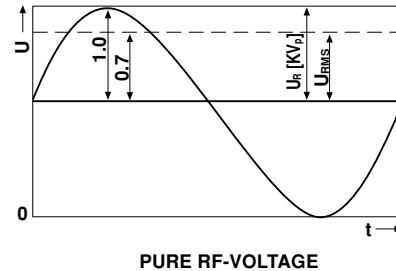
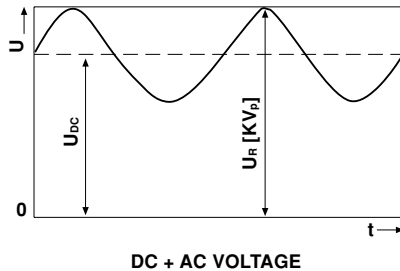
CLASS 2 - CERAMIC DIELECTRIC

TOLERANCE	± 5%	± 10%	± 20%	- 20 + 50%	- 20 + 80%
CODE LETTER	J	K	M	S	Z

Tolerances other than those stated in this catalog are subject to special agreement.

RATED VOLTAGE:

The rated voltage U_R is either the peak value of the approximate sinusoidal AC voltage or the sum of both the DC voltage and the approximate sinusoidal AC voltage for which the capacitor has been designed. The rated voltage is stated in KV_{peak} (KV_p) or V_{peak} (V_p).



If the capacitor is operated above the lower limit frequency f_L , the rated voltage has to be restricted so the rated power will not be exceeded (see next page).

RATED CURRENT:

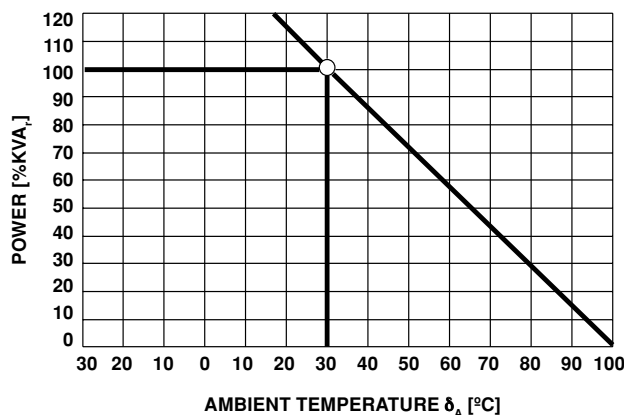
The rated current I_R is the maximum effective value of the sinusoidal current for which the current paths of the capacitor are designed. This rated current is reached only at the upper frequency limit f_o (see next page).

RATED POWER:

The rated power Q_R is the reactive power for which the capacitor has been designed taking into account its dielectric losses. The rated power Q_R (KVA_r) stated in the following charts refers to an ambient temperature of 30°C. When used without forced cooling, above 30°C, the rated power has to be reduced according to the following formula:

$$Q_N (\delta_A > 30^\circ\text{C}) = Q_N (\text{catalog value}) \cdot \frac{100^\circ\text{C} - \delta_A}{70^\circ\text{C}}$$

Reactive power as a function of the ambient temperature:



The following formula can be applied to determine whether a capacitor is operated within the permissible limits of reactive power and rated current:

$$U_{RMS} \cdot 2 \cdot \pi \cdot f \cdot C \leq I_R$$

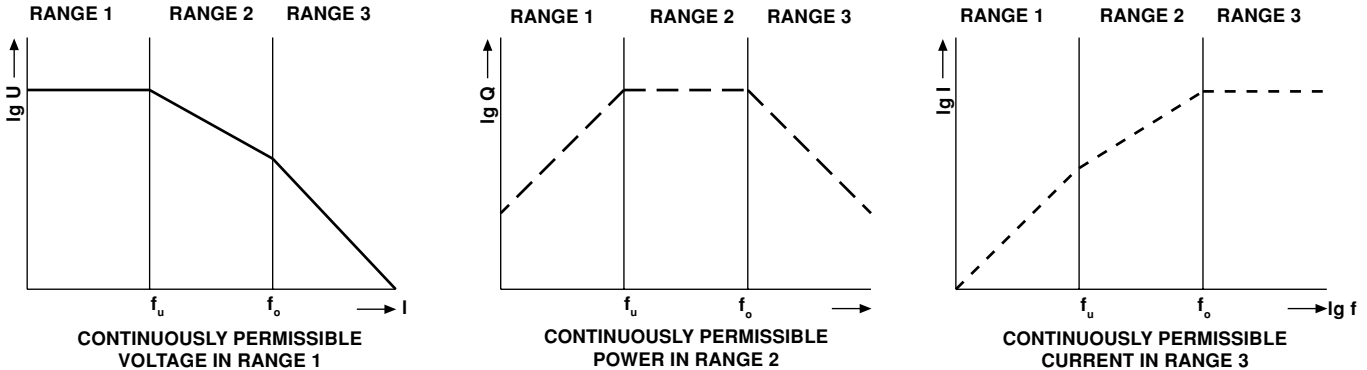
$$U_{RMS}^2 \cdot 2 \cdot \pi \cdot f \cdot C \leq Q_R$$

U_{RMS} in Volt
 f in Hertz
 C in Farad



FREQUENCY:

The power handling capability of a capacitor with respect to voltage, power and current varies at different frequencies. Three frequency ranges can be defined in terms of the upper (f_o) and lower (f_u) limit frequencies. In each range one of the electrical parameters limits the maximum wattage of the capacitor.



The limit frequencies f_u and f_o can be calculated for each capacitor with the following formula:

$$f_u = \frac{318 \cdot Q_R}{U_R^2 \cdot C}$$

$$f_o = \frac{159 \cdot I_R^2}{Q_R \cdot C}$$

f	in MHz
C	in pF
U	in KV _p
Q	in KVA _r
I	in A

For several capacitors series, this can be seen from the diagrams on the individual datasheets. For other capacitors, charts showing the maximum permissible levels of voltage, power and current for continuous operation at 30°C ambient temperature can be provided on request.

INSULATION RESISTANCE:

The insulation resistance is the DC resistance of a capacitor, resulting under the conditions specified below, from the bulk resistivity of the dielectric material and the surface resistance. Within the range of the permissible operating temperatures, the bulk resistance of ceramic dielectric is extremely high so that mainly the surface resistance is measured.

	CLASS 1 CAPACITORS	CLASS 2 CAPACITORS
Limiting Values of the Insulation Resistance	min. $1 \cdot 10^{10}$ Ohm	min. $5 \cdot 10^9$ Ohm

INSULATION - RESISTANCE MEASURING CONDITIONS

MEASURING VOLTAGE:

Class 1- and Class 2-Ceramic dielectric 100V_{DC}

DURATION:

(60 ± 5) s

CLIMATIC CONDITIONS OF MEASUREMENTS:

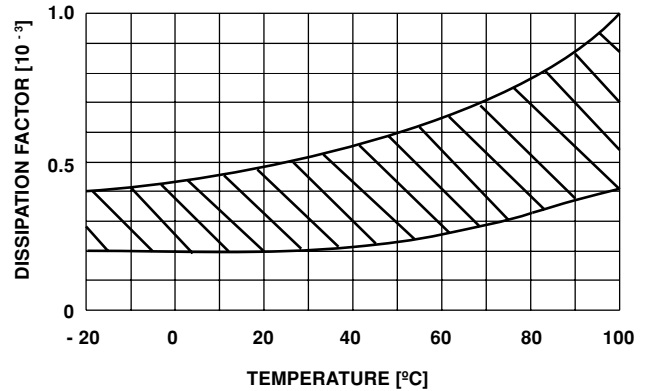
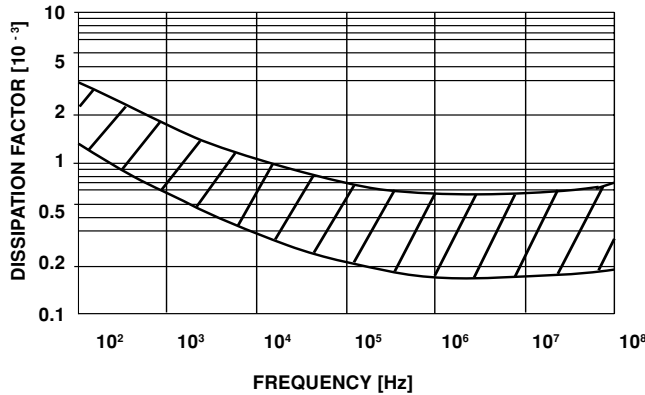
Temperature (23 ± 3)°C, for reference measurements (20 ± 1)°C
 Relative humidity ≤ 75%



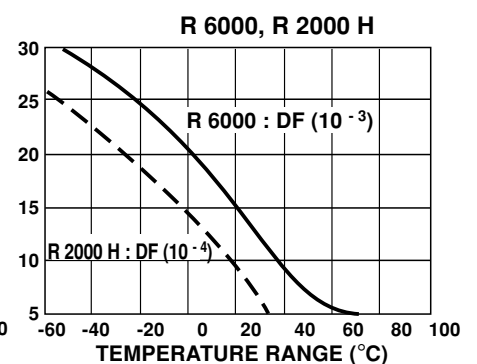
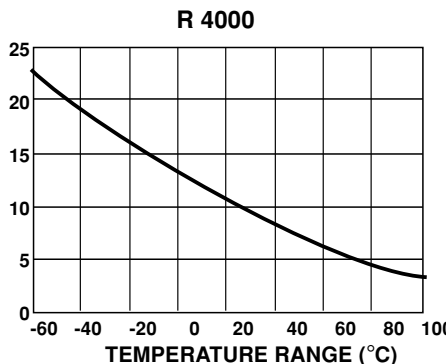
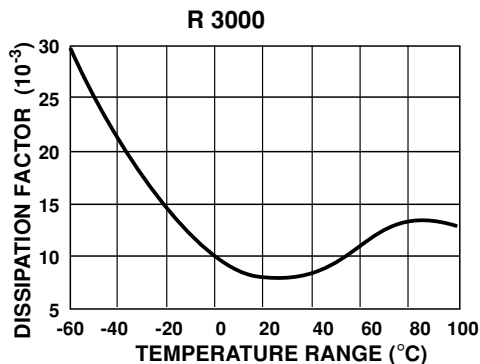
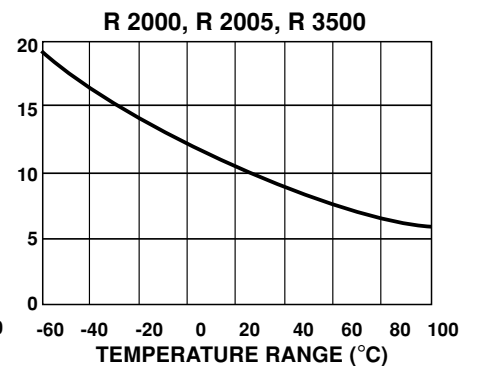
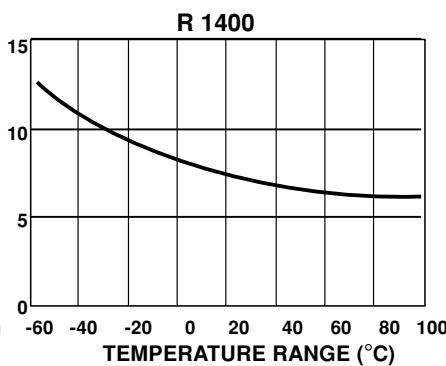
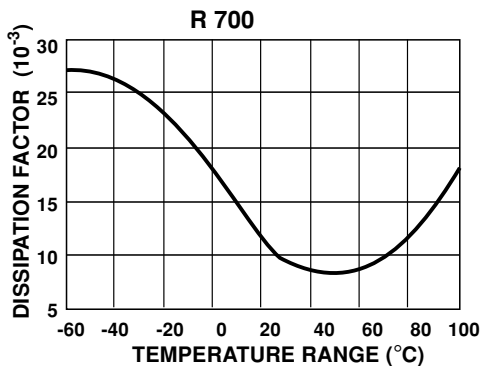
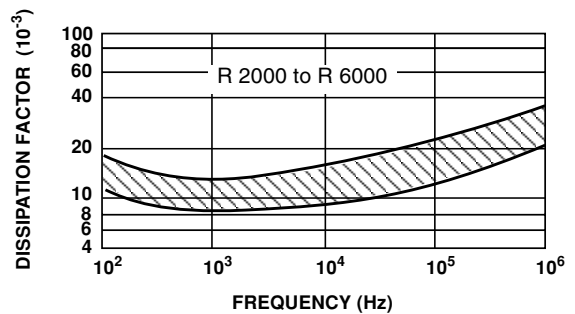
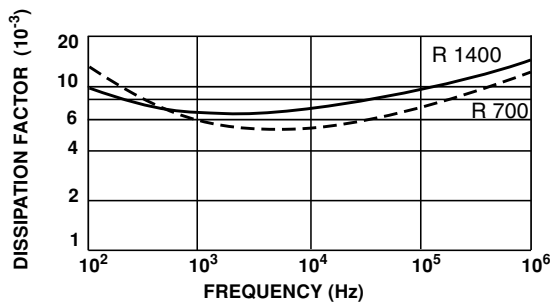
DISSIPATION FACTOR:

The dissipation factor TAN δ is the effective to reactive ratio at a sinusoidal voltage of predetermined frequency. This ratio is dependant upon the dielectric material as well as on temperature and frequency. The curves below show the dissipation factor as a function of frequency and temperature for the preferred ceramic materials.

CLASS 1-CERAMIC DIELECTRIC (R 7, R 16, R 42 and R 85 typical)



CLASS 2-CERAMIC DIELECTRIC



DISSIPATION FACTOR - MEASURING CONDITIONS:

The dissipation factor of all Ceramic RF-Power Capacitors - except where deviations are agreed upon in the ordering procedure - are measured under the following conditions.

MEASURING FREQUENCY:

Class 1-Ceramic dielectric ($C < 1000\text{pF}$): (1 ± 0.2) MHz or (100 ± 20) KHz

Class 1-Ceramic dielectric ($C \geq 1000\text{pF}$): (300 ± 50) KHz

Class 2-Ceramic dielectric: (1 ± 0.2) KHz (Field strength max. 3KV_{RMS} per millimeter)

MEASURING VOLTAGE:

Class 1-Ceramic dielectric $\leq 10\text{V}_{\text{RMS}}$

Class 2-Ceramic dielectric $\leq 5\text{V}_{\text{RMS}}$

CLIMATIC CONDITIONS OF MEASUREMENTS:

Temperature $(23 \pm 3)^\circ\text{C}$, for reference measurements $(20 \pm 1)^\circ\text{C}$

Relative humidity $\leq 75\%$

CAPACITANCE "AGEING" OF CERAMIC CAPACITORS:

Following the final heat treatment, all Class 2 ceramic capacitors reduce their capacitance value approximately according to a logarithmic law due to their special crystalline construction. This change is called "ageing". If the capacitors are heat treated for example when soldering, the capacity increases again to a higher value and the ageing process begins again. (Note: The level of this de-ageing is dependant on the temperature and the duration of the heat; an almost complete de-ageing is achieved at 150°C in one hour: These conditions also form the basis for reference measurements when testing). The capacitance change per time decade (ageing constant) differs with the various types of ceramic but typical values can be taken from the table below.

CERAMIC DIELECTRIC	R 700	R 1400	R 2000	R 2000H	R 2005	R 3500	R 4000	R 6000
AGEING CONSTANT(K)	- 1%	- 2%	- 2%	- 3%	- 3%	- 3%	- 4%	- 4%

CERAMIC DIELECTRIC	X7R	Y5U	Z5U
AGEING CONSTANT(K)	- 3%	- 3%	- 5%

$$K = \frac{100 \cdot (C_{t1} - C_{t2})}{C_{t1} \cdot \log_{10} \frac{t_1}{t_2}}$$

$$C_t = C_{1000} \cdot \left(1 - \frac{k}{100} \cdot \log_{10} t\right)$$

C_t = Capacitance after start of aging (pF)
 C_{1000} = Capacitance 1000 hours after start of aging (pF)
 k = Ageing constant per decade (%)
 t = Time passed since start of aging (h)

REFERENCE MEASUREMENT:

Due to ageing, it is necessary to quote an age for reference measurements which can be related to the capacitance with fixed tolerance. According to EN 130700, this time period is 1000 hours. If the shelf-life of the capacitor is known, the capacitance for $t = 1000\text{hours}$ can be calculated with the ageing constant. In order to avoid the influence of the ageing, it is important to de-age the capacitors before stress-testing.

The following protection is adopted (see also EN 130700):

De-ageing at 150°C , 1 hour
 Storage for 24 hours at normal climate temperature
 Initial measurement
 Stress
 De-ageing at 150°C , 1 hour
 Storage for 24 hours at normal climate temperature
 Final measurement



OPERATION CONDITIONS:

The user should ensure that the permissible operating conditions are not exceeded. Concerning the applied maximum voltage the following subjects should be taken in consideration.

- Harmonic modulation and parasitic frequencies
- Transient over-voltages
- Differences in capacitance and distribution of power when capacitors connected in series
- Assymetric HF fields

Concerning over-heating, the following subjects should be taken into consideration:

- Ambient temperature and radiation from other heat sources
- Differences in capacitance and distribution of power when capacitors connected in series
- RF induction fields and parasitic currents
- Humidity, condensation, moisture deposit

MOUNTING

The user should take care in the mechanical mounting to ensure that mechanical and thermal stresses are minimized. The connection to one electrode must be flexible in order to prevent the generation of physical forces which could damage the capacitor elements. Such forces are often generated by the dimensional differences resulting from the normal physical tolerances of the components.

The capacitor elements must not be used as a mechanical support for other devices or components. For further mounting guidelines see on the individual datasheets.

SOLDERING RECOMMENDATIONS (CAPACITORS WITH LEADS)

Mounting of the component should be achieved using SN 60/40 or silver bearing SN 62/36/2AG solder, whereby solder wire, cream or preforms are acceptable. Only a mildly active, resin flux should be used.

We recommend the use of a heat sink adjacent to the component body, if possible.

As ceramic capacitors are very sensitive to rapid changes in temperature (thermal shock), a pre-heat and post-heat cycle is strongly recommended.

Both the component and ground plate should be heated up to 120°C (Heat must not be applied directly to the ceramic body and the temperature on the component surface should not be allowed to increase faster than 100°C per minute).

After the pre-heat cycle, the mounting plate temperature should be raised to achieve solder flow. The solder flow state should be maintained for a minimum period (recommendation: less than 5s) and the tip temperature should be maintained for a minimum period (recommendation: less than 5s) and the tip temperature should be as low as possible (max. 260°C).

The assembly should be allowed to cool at a rate not exceeding 100°C per minute.

SOLDERING SPECIFICATIONS		
Soldering test for capacitors with wire leads: (according to IEC 60068-2-20, solder bath method)		
	SOLDERABILITY	RESISTANCE TO SOLDERING HEAT
Soldering Temperature	(235 ± 5) C	(260 ± 5) C
Soldering Duration	(2 ± 0.5) sec	(10 ± 1) sec
Distance from Component Body	≥ 2mm	≥ 5mm

CLEANING

The components should be cleaned with vapor degreasers, immediately following the soldering operation.



CERAMIC MATERIALS:

Ceramic dielectrics are inorganic materials, sintered at temperatures above 1000°C, and developed especially for the manufacture of capacitors.

Ceramic RF-power capacitors are subdivided into two classes, in accordance with recommendations of IEC (International Electrotechnical Commission) with respect to the chemical composition of the dielectric and electrical characteristics.

Class 1 or low-K (NDK) are mainly manufactured of titanium dioxide or magnesium silicate.

Class 2 or high-K capacitors (HDK) contain mostly alkaline earth titanates.

Listed in the tables below are general physical and electrical characteristics of the ceramic dielectric used.

CLASS 1 CERAMIC MATERIALS					
ABBREVIATION FOR DIELECTRIC	R 7	R 16	R 16 HIGH Q	NP 0	R 42
Relative Dielectric Constant $[\epsilon_r]$	~ 7	~ 16	~ 17	~ 32	~ 40
Ceramic Type According to IEC 60672-3	C 221	C 320	C 320	C 320	C 331
Temperature Coefficient of the Capacitance $[10^{-6}/K]$	+ 130 + 70	+ 130 + 70	+ 115 + 85	- 30 + 30	- 200 - 300
Dissipation Factor $[10^{-3}]$	≤ 0.5 [1MHz]	≤ 0.4 [1MHz]	≤ 0.15 [1MHz]	≤ 5 [1MHz]	≤ 0.5 [1MHz]
Insulation Resistance $[\Omega]$	$\geq 10^{10}$	$\geq 10^{10}$	$\geq 10^{11}$	$\geq 10^{10}$	$\geq 10^{10}$
Permissible Temperature Range $[^{\circ}C]$	- 55 to + 100	- 55 to + 100	- 55 to + 100	- 55 to + 85	- 55 to + 100
Max. Relative Air Humidity [%]	75%	75%	75%	75%	75%

CLASS 1 CERAMIC MATERIALS					
ABBREVIATION FOR DIELECTRIC	R 85 (N 750)	R 230	N 2200	N 3300	N 5600
Relative Dielectric Constant $[\epsilon_r]$	~ 90	~ 230	~ 225	~ 310	~ 475
Ceramic Type according to IEC 60672-3	C 310	C 340	C 340	C 340	C 340
Temperature Coefficient of the Capacitance $[10^{-6}/K]$	- 650 - 850	- 750 - 1000	- 1700 - 2700	- 2800 - 3800	- 4600 - 6600
Dissipation Factor $[10^{-3}]$	≤ 0.5 [1MHz]	≤ 0.5 [1MHz]	≤ 1.5 [1MHz]	≤ 2 [1MHz]	≤ 2 [1MHz]
Insulation Resistance $[\Omega]$	$\geq 10^{10}$	$\geq 10^{10}$	$\geq 10^{10}$	$\geq 10^{10}$	$\geq 10^{10}$
Permissible Temperature Range $[^{\circ}C]$	- 55 to + 100	- 25 to + 100	- 55 to + 100	- 25 to + 85	- 25 to + 85
Max. Relative Air Humidity [%]	75%	75%	75%	75%	75%



CLASS 2 CERAMIC MATERIALS				
ABBREVIATION FOR DIELECTRIC	R 700	R 1400	R 2000	R 2000 H
Relative Dielectric Constant [ϵ_r]	~ 720	~ 1500	~ 2200	~ 2200
Ceramic Type According to IEC 60672-3	C 350	C 350	C 351	C 351
Temperature Dependence	*	*	*	*
Dissipation Factor [10^{-3}]	≤ 25 [1KHz]	≤ 25 [1KHz]	≤ 25 [1KHz]	≤ 5 [1KHz]
Insulation Resistance [Ω]	$\geq 10^{10}$	$\geq 10^{10}$	$\geq 10^{10}$	$\geq 10^{10}$
Permissible Temperature Range [$^{\circ}\text{C}$]	- 25 to + 85	- 25 to + 85	- 25 to + 85	- 25 to + 85
Max. Relative Air Humidity [%]	75%	75%	75%	75%

ABBREVIATION FOR DIELECTRIC	R 2005	R 3500	R 4000	R 6000
Relative Dielectric Constant [ϵ_r]	~ 2600	~ 3600	~ 3800	~ 6300
Ceramic Type According to IEC 60672-3	C 351	KER 350	C 351	C 351
Temperature Dependence	*	*	*	*
Dissipation Factor [10^{-3}]	≤ 25 [1KHz]	≤ 25 [1KHz]	≤ 25 [1KHz]	≤ 25 [1KHz]
Insulation Resistance [Ω]	$\geq 10^{10}$	$\geq 5 \cdot 10^9$	$\geq 5 \cdot 10^9$	$\geq 5 \cdot 10^9$
Permissible Temperature Range [$^{\circ}\text{C}$]	- 25 to + 85	- 25 to + 85	- 25 to + 85	- 25 to + 85
Max. Relative Air Humidity [%]	75%	75%	75%	75%

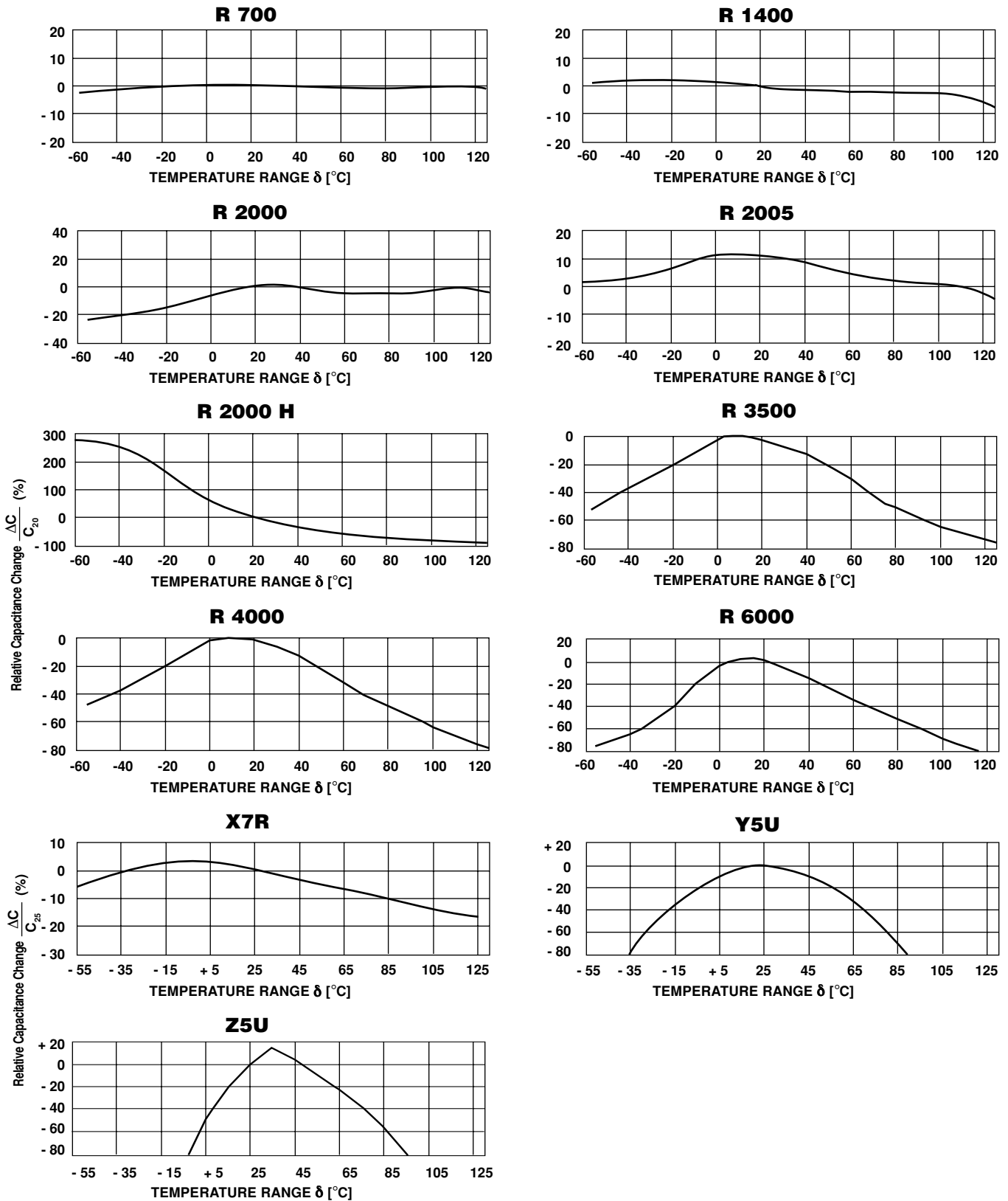
ABBREVIATION FOR DIELECTRIC	X7R	Y5U	Z5U
Relative Dielectric Constant [ϵ_r]	~ 4500	~ 8500	~ 5000
Ceramic Type According to EIA 198	II	III	III
Temperature Dependence	*	*	*
Dissipation Factor [10^{-3}]	≤ 20 [1KHz]	≤ 20 [1KHz]	≤ 20 [1KHz]
Insulation Resistance [Ω]	$\geq 10^{11}$	$\geq 10^{11}$	$\geq 10^{11}$
Permissible Temperature Range [$^{\circ}\text{C}$]	- 30 to + 85	- 30 to + 85	- 30 to + 85

* See curves on next page for temperature dependence of capacitance for these Class 2 ceramic materials.



TEMPERATURE DEPENDENCY OF THE CAPACITANCE WITH CLASS 2 CAPACITORS

C_{20} : Capacitance at 20°C without DC Measuring frequency: 1KHz Measuring voltage: $\leq 1.2V_{RMS}$

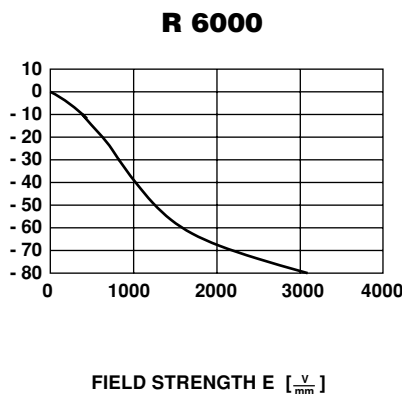
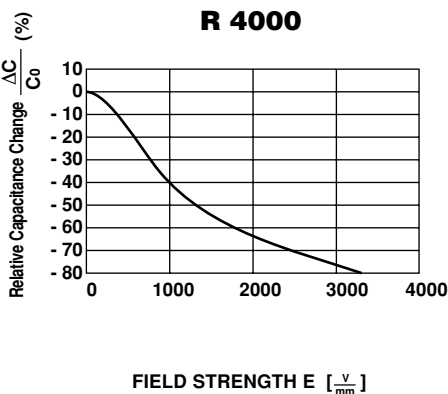
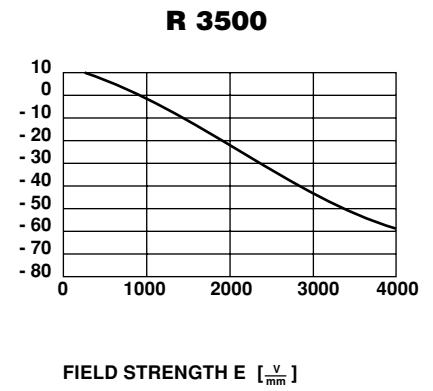
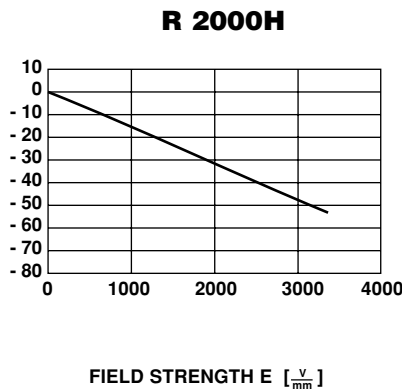
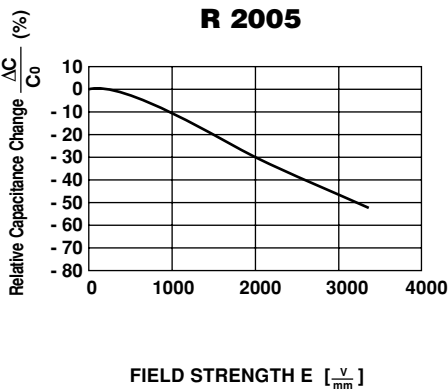
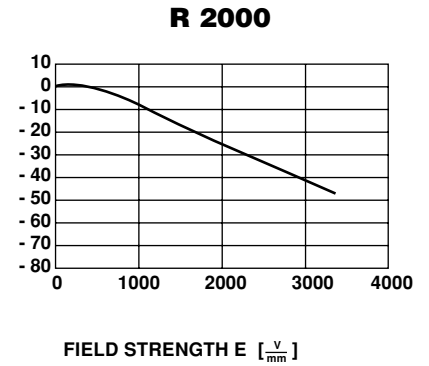
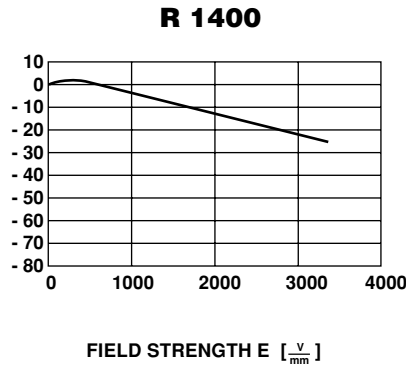
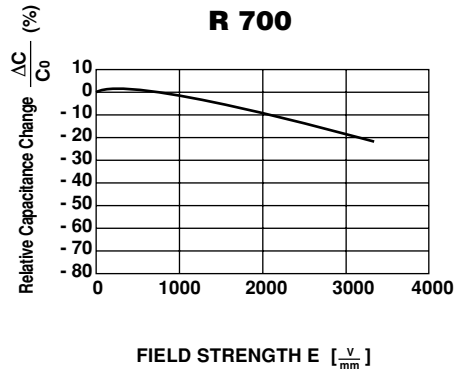




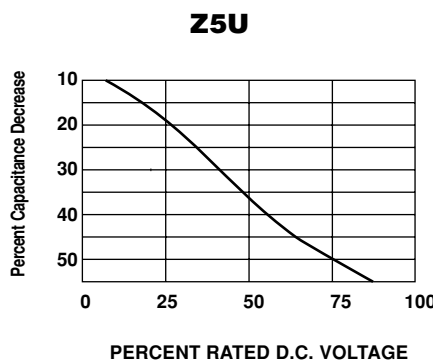
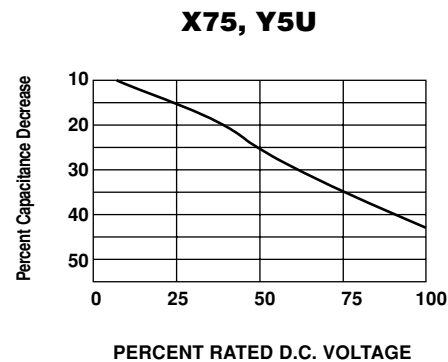
DC-VOLTAGE DEPENDENCY OF CAPACITANCE (TYPICAL VALUES)

The capacitance of Class 1 capacitors scarcely changes when DC-voltage is applied.

The relative capacitance change of Class 2 ceramic dielectric vs. applied field strength is given in the curves below.



C_0 : Capacitance without DC-voltage
 Measuring frequency: 1KHz
 Temp. of measurement: $(23 \pm 3)^\circ\text{C}$
 Measuring voltage: $\leq 1.2V_{\text{RMS}}$
 Capacitance Decrease vs.D-C Voltage Bias





QUALITY CONTROL AND TESTING:

The quality of our RF-power capacitors is assured by numerous tests carried out at every stage of production. The finished capacitors are subjected to the individual 100% tests given below.

CAPACITANCE:

Class 1 ceramics at 0.1MHz, with $20V_{RMS}$, $(25 \pm 5)^{\circ}C$

Class 2 ceramics at 1KHz, with $\leq 5V_{RMS}$, $(25 \pm 5)^{\circ}C$

DISSIPATION FACTOR:

Class 1 ceramics ($C_R < 1000pF$) at 1MHz, with $10V_{RMS}$, $(25 \pm 5)^{\circ}C$

Class 1 ceramics ($C_R \geq 1000pF$) at 300KHz, with $10V_{RMS}$, $(25 \pm 5)^{\circ}C$

Class 2 ceramics at 1KHz, with $\leq 5V_{RMS}$, $(25 \pm 5)^{\circ}C$

INSULATION RESISTANCE:

at $100V_{DC}$, $(25 \pm 5)^{\circ}C$

DIELECTRIC WITHSTANDING:

Standard test with 200% U_R , AC 50Hz, 5 minutes. (As repeated test admissible only once with a step-up voltage reduced by 10% for three minutes).

RF-HEATING TEST

This 100% test is carried out with Watercooled Pot Capacitors, Multilayer Power Capacitors and those components made from R 230 dielectric only.

The units are tested in the tank circuit of a RF-test generator with at least 130% to 150% rated power for 5 to 10 minutes.

For all other types, this RF-power test is subject to special agreement.

For details of Watercooled Capacitors see individual datasheets.

VISUAL CONTROL AND DIMENSIONS:

OUTLINE DRAWINGS:

All dimensions are given in millimeters and inches (in brackets).

As a result of continual efforts to improve mechanical design, components supplied may vary in detail from those described or illustrated in the outline drawings of this catalog.

STANDARDS AND SPECIFICATIONS:

GENERAL STANDARDS	
IEC 60062	Marking codes for resistors and capacitors
IEC 60068	Basic environmental testing procedures
SPECIAL STANDARDS FOR CERAMIC CAPACITORS	
EN 130600 and IEC 60384-8	Fixed capacitors of ceramic dielectric, Class 1
EN 130700 and IEC 60384-9	Fixed capacitors of ceramic dielectric, Class 2



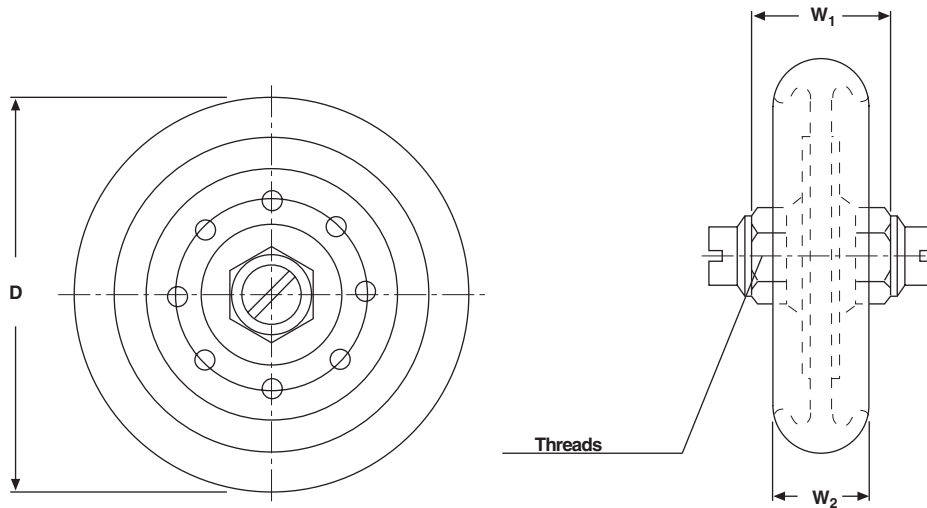
Plate Capacitors

Contents

PS 20, 30, 40, 55 - Class 1 Plate capacitors with contoured rim, Class-1 ceramic 5KV _p to 7.5KV _p 5.6pF to 2000pF.....	14
P.70, 100, 140, 200 Plate capacitors with contoured rim, Class-1 ceramic 11KV _p to 15KV _p 25pF to 6000pF.....	16
FPS 60, 80 Plate capacitors with flat rim, Class-1 ceramic 3.5KV _p to 12KV _p 100pF to 1000pF.....	18
PEF 220 Plate capacitors for higher voltages, Class-1 ceramic, with moisture protection 12KV _p to 20KV _p 100pF to 10000pF.....	19
FPE 210 Plate capacitors for higher voltages, Class-1 ceramic 30KV _p to 7.5KV _p 1000pF to 1500pF.....	19
FPE 210 Plate capacitors for higher voltages, Class-1 ceramic 30KV _p 1000pF to 1500pF.....	19
FPZ 140 Plate capacitors for higher voltages, Class-1 ceramic 27KV _p to 30KV _p 50pF to 500pF.....	20
PEZ 140 Plate capacitors for higher voltages, Class-1 ceramic 15KV _p to 30KV _p 600pF to 2500pF.....	21
PS20, 30, 40, 55 - Class-2 Plate capacitors with contoured rim, Class-2 ceramic 2KV _p to 4KV _p 1000pF to 27000pF.....	22

Plate Capacitors with Contoured Rim - Class 1 Ceramic

PS 20 5 KV_P
PS 30 5 KV_P to 7.5 KV_P
PS 40 5 KV_P
PS 55 5 KV_P



• Dimensions in millimeters (inches)

MODEL	PS 20	PS 30	PS 40	PS 55
D	25 max. (0.984 max.)	35 max. (1.378 max.)	45 max. (1.772 max.)	57 max. (2.244 max.)
W ₁	22 max. (0.866 max.)	22 max. (0.866 max.)	21 max. (0.823 max.)	21 max. (0.823 max.)
W ₂	14 max. (0.551 max.)	14 max. (0.551 max.)	14 max. (0.551 max.)	14 max. (0.551 max.)
Threads	M 5		M 6	

MATERIAL:

Capacitor elements made from Class 1 ceramic dielectric with noble metal electrodes.
 Connection Terminals: Copper/brass, silver plated.

FINISH:

Noble metal electrodes and contoured rim completely lacquered.

MARKING:

Type designator, Capacitance value and tolerance, Rated voltage (peak value), Production date code, Ceramic material code, DRALORIC.

ACCESSORIES ADDED:

Screws and washers.

ORDERING INFORMATION				
PS 30	5 KV _P	68 pF	± 20 %	R 42
MODEL	RATED VOLTAGE	CAPACITANCE VALUE	TOLERANCE	CERAMIC



PS 20, 30, 40, 55 - Class 1

Plate Capacitors with Contoured Rim - Class 2 Ceramic Vishay Draloric

PS 20				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _P]	RATED POWER* [KVA _r]	RATED CURRENT [A _{RMS}]
R 7	5.6	5	5	5
	6.8			
R 16	8.2	5	10	5
	10			
	12			
	15			
R 42	18	5	15	5
	20			
	22			
	27			
	33			
R 85	39	5	25	5
	47			
	56			
	68			
	82			
	100			
N 2200	120	5	10	5
	150			
	180			
	220			
	270			

PS 30				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _P]	RATED POWER* [KVA _r]	RATED CURRENT [A _{RMS}]
R 7	10	5	8	10
	12			
	15			
	18			
R 16	20	5	15	10
	22			
	27			
	33			
	39			
R 42	47	5	20	10
	56			
	68			
	82			
R 85	100	5	30	10
	120	7.5		
	150	5		
	180			
	200			
N 2200	220	5	15	10
	270			
	330			
	390			
	470			
	560			

PS 40				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _P]	RATED POWER* [KVA _r]	RATED CURRENT [A _{RMS}]
R 7	22	5	12	15
	27			
R 16	33	5	20	15
	39			
	47			
	56			
	68			
R 42	82	5	25	15
	91			
	100			
	120			
R 85	150	5	35	15
	180			
	200			
	220			
	240			
	250			
	270			
	330			
360				
N 2200	390	5	20	15
	470			
	560			
	680			
	820			
1000				

PS 55				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _P]	RATED POWER* [KVA _r]	RATED CURRENT [A _{RMS}]
R 7	22	5	15	18
	27			
	33			
	39			
	47			
R 16	56	5	40	18
	68			
	82			
	100			
R 42	120	5	40	18
	150			
	180			
	220			
	270			
R 85	330	5	55	18
	390			
	470			
	500			
	510			
	560			
	600			
	680			
	820			
	1000			
N 2200	1200	5	25	18
	1500			
	1800			
	2000			

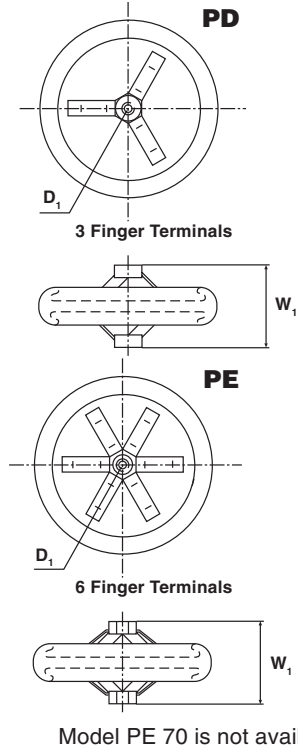
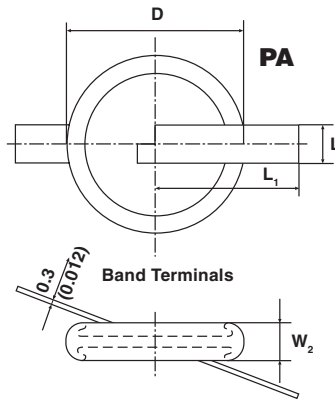
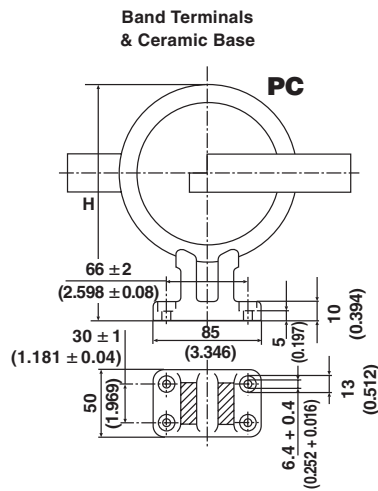
CAPACITANCE TOLERANCES:

< 10 pF: ± 2 pF, ± 1 pF, ± 0.5 pF
 ≥ 10 pF: ± 20 %, ± 10 %, ± 5 %

* The surface temperature of 100 °C must not be exceeded.

Plate Capacitors with Contoured Rim - Class 1 Ceramic

- P. 70** 11 KV_p to 14 KV_p
- P. 100** 11 KV_p to 15 KV_p
- P. 140** 12 KV_p to 15 KV_p
- P. 200** 12 KV_p to 15 KV_p



• Dimensions in millimeters (inches)

MODEL	PA 70 PC 70 PD 70	PA 100 PC 100 PD 100 PE 100	PA 140 PC 140 PD 140 PE 140	PA 200 PC 200 PD 200 PE 200
D	70 (2.756)	100 (3.518)	140 (5.512)	200 (7.874)
D ₁	M6 thread	M8 thread	M8 thread	M10 thread
W ₁	35 ± 1 (1.378 ± 0.039)	40 ± 1 (1.575 ± 0.039)	40 ± 1 (1.575 ± 0.039)	45 ± 1 (1.772 ± 0.039)
W ₂	30 max. (1.181 max.)	30 max. (1.181 max.)	30 max. (1.181 max.)	32 max. (1.260 max.)
L ₁	100 (3.937)	140 (5.512)	140 (5.512)	200 (7.874)
L ₂	15 (0.591)	30 (1.181)	30 (1.181)	30 (1.181)
H	116 (4.567)	146 (5.748)	186 (7.323)	246 (9.685)

MATERIAL:

Capacitor elements made from Class 1 ceramic dielectric with noble metal electrodes.
 Connection terminals: Copper (PA, PC model),
 Copper/ brass, silver plated (PD, PE model).

FINISH:

Noble metal electrodes completely lacquered. Contoured rim glazed.

MARKING:

Type designator, Capacitance value and tolerance, Rated voltage (peak value), Production date code, Ceramic material code, DRALORIC Logo.

ORDERING INFORMATION				
PE 100	13 KVp	1000 pF	± 20 %	R 85
MODEL	RATED VOLTAGE	CAPACITANCE VALUE	TOLERANCE	CERAMIC



P. 70					
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _P]	RATED POWER* [KVA _r]	RATED CURRENT [A _{RMS}]	
				PD	PA PC
R 7	25	14	15		
	30				
R 16	40	14	20	16	10
	50				
	60				
	80	12			
R 42	100	14	20	16	10
	120	13			
	160				
R 85	200	14	20	16	10
	250				
	300				
	400	13			
	500				
	600	12			
	800	11			

P. 100						
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _P]	RATED POWER* [KVA _r]	RATED CURRENT [A _{RMS}]		
				PE	PD	PA PC
R 7	50	15	30			
	60					
R 16	80	15	40	35	25	15
	100					
	120					
	160	13				
	200	15				
R 42	250	14	40	35	25	15
	300	13				
	400	14				
500						
600						
800	13					
1000						
1200						
R 85	1600	11	40	35	25	15

P. 140						
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _P]	RATED POWER* [KVA _r]	RATED CURRENT [A _{RMS}]		
				PE	PD	PA PC
R 7	100	15	67.5			
	120					
R 16	160	15	90	45	30	20
	200					
	250					
	300	14				
R 42	400	15	90	45	30	20
	500	14				
	600	13				
	800					
R 85	1000	14	90	45	30	20
	1200					
	1600					
	2000	13				
	2500					
	3000					
R 230	3000	16	90	45	**	**

P. 200						
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _P]	RATED POWER* [KVA _r]	RATED CURRENT [A _{RMS}]		
				PE	PD	PA PC
R 7	160	15	112	60	40	25
	200					
	250					
	300	14				
	400	12				
R 16	500	15	150			
	600					
R 42	800	15	150	60	40	25
	1000	14				
	1200					
	1600					
R 85	2000	14	150	60	40	25
	2500					
	3000					
	4000	13				
	5000					
	6000					
	6000					

* The surface temperature of 100°C must not be exceeded

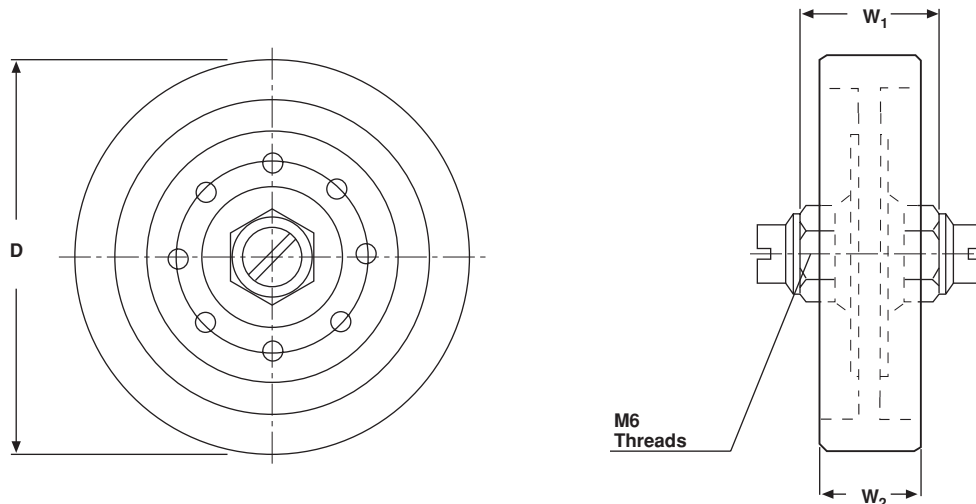
** only PE model available

CAPACITANCE TOLERANCES: ± 20 %, ± 10 %, ± 5 %

Plate Capacitors with Flat Rim - Class 1 Ceramic

FPS 60
FPS 80

10KV_p to 12KV_p
3.5KV_p to 7KV_p



• Dimensions in millimeters (inches)

FPS 60							
CERAMIC	CAPACITANCE VALUE	RATED RF VOLTAGE	RATED POWER	RATED CURRENT	D	W ₂	W ₁
	[pF]	[KV _p]	* [KVA _r]	[A _{RMS}]		±1 (±0.04)	±1 (±0.04)
R 42	100	12	10	13	62 max. (2.44 max.)	20 (0.787)	29 (1.142)
R 85	200	12				21 (0.827)	30 (1.181)
	250	12				20 (0.787)	29 (1.142)
	300	12				18 (0.709)	27 (1.063)
	500	10				16 (0.630)	25 (0.984)

* The surface temperature of 100°C must not be exceeded

FPS 80							
CERAMIC	CAPACITANCE VALUE	RATED RF VOLTAGE	RATED POWER	RATED CURRENT	D	W ₂	W ₁
	[pF]	** [KV]	* [KVA _r]	[A _{RMS}]	(±10%)	±3 (±0.118)	±3 (±0.118)
R 85	500	7	15	13	80	15 (0.591)	29 (1.142)
	1000	3.5	15	16	(3.150)	11 (0.433)	27 (1.063)

* The surface temperature of 100°C must not be exceeded

** Peak-to-peak value

CAPACITANCE TOLERANCES: ± 10%

MATERIAL:

Capacitor elements made from Class 1 ceramic dielectric with noble metal electrodes.
Connection Terminals: Copper/brass, silver plated.

MARKING:

Type designator, Capacitance value and tolerance, Rated voltage (peak value), Production date code, Ceramic material code, DRALORIC Logo.

FINISH:

Noble metal electrodes and flat rim completely lacquered.

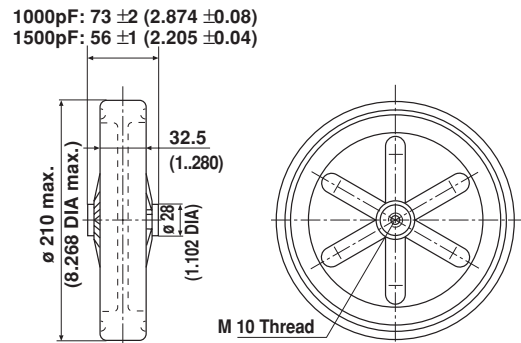
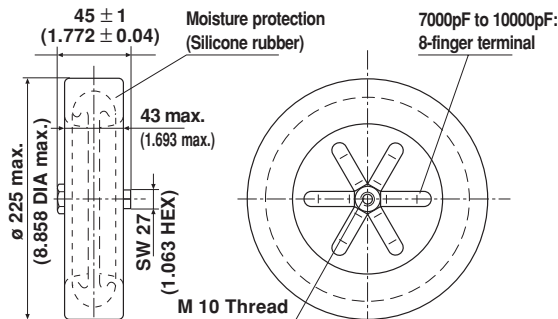
ACCESSORIES ADDED:

Screws and washers.

ORDERING INFORMATION				
FPS 80	7KV _p	500pF	± 10%	R 85
MODEL	RATED VOLTAGE	CAPACITANCE VALUE	TOLERANCE	CERAMIC

Plate Capacitors with Moisture Protection

Plate Capacitors for Higher Voltages

PEF 220 12KV_p to 20KV_p
FPE 210 30KV_p


• Dimensions in millimeters (inches)

PEF 220				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _p]	RATED POWER* [KVA _r]	RATED CURRENT [A _{RMS}]
R 7	160	20	110	60
	200			
	250			
	300			
	400			
R 16	500	18	140	60
	600	16		
R 42	800	20	140	60
	1000			
	1200			
R 85	1600	14	140	60
	2000	20		
	2500			
	3000	17		
	4000	13		
R 230	5000	12	140	60
	6000	20		
	7000	15		
	8000			
	10000	13		100
FPE 210				
R 85	1000	30	max. 160	max. 60
	1500		max. 90	max. 90

*The surface temperature of 100°C must not be exceeded

CAPACITANCE TOLERANCES: ± 20%, ± 10%

MATERIAL:

Capacitor elements made from Class 1 ceramic dielectric with noble metal electrodes.

Connection Terminals: Copper/brass, silver plated.

FINISH:

Noble metal electrodes completely lacquered. Flat rim glazed. Contoured rim with additional moisture protection at model PEF 220.

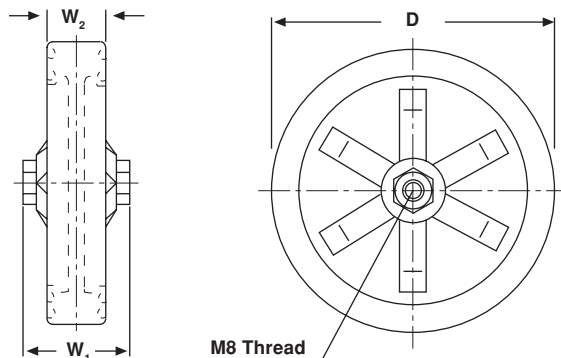
MARKING:

Type designator, Capacitance value and tolerance, Rated voltage (peak value), Production date code, Ceramic material code, DRALORIC Logo.

ORDERING INFORMATION				
FPE 210	30KV _p	1000pF	± 10%	R 85
MODEL	RATED VOLTAGE	CAPACITANCE VALUE	TOLERANCE	CERAMIC

Plate Capacitors for Higher Voltages

FPZ 140 27 KV to 30 KV



FPZ 140										
CERAMIC	CAPACITANCE VALUE	RATED RF VOLTAGE **	RATED DC VOLTAGE AT 50°C	RATED DC VOLTAGE AT 70°C	RATED POWER AT 50°C *	RATED POWER AT 70°C *	RATED CURRENT	D ± 10%	W ₂ ± 3 (±0.12)	W ₁ ± 3 (±0.12)
	[pF]	[KV]	[KV _{DC}]	[KV _{DC}]	[KVA _r]	[KVA _r]	[A _{RMS}]			
R16	50	30	25	20	90	60	max.35	140 (5.51)	33 (1.300)	52 (2.047)
	100	30					max.35		29 (1.142)	52 (2.047)
	200	27					max.27		27 (1.063)	50 (1.969)
R42	250	30					max.27		29 (1.142)	52 (2.047)
	300	30					max.27			
R85	400	30					max.35			
	500	30	max.35							

*The surface temperature of 100°C must not be exceeded

**Peak-to-peak value

CAPACITANCE TOLERANCES: ± 10%

MATERIAL:

Capacitor elements made from Class 1-ceramic dielectric with noble metal electrodes.
 Connection Terminals: Copper/brass, silver plated.

FINISH:

Noble metal electrodes and flat rim completely lacquered

MARKING:

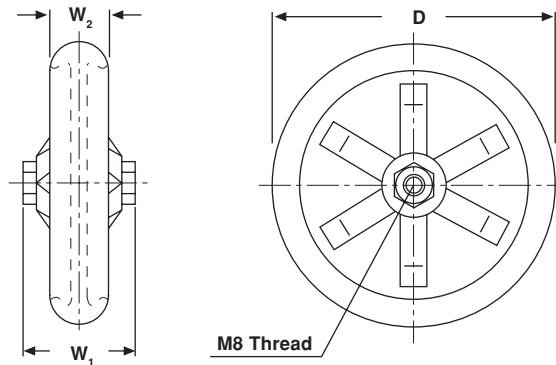
Type designator, Capacitance value and tolerance, Rated voltage (RF), Rated voltage (DC value at 50°C), Production date code, Ceramic material code, DRALORIC Logo.

ACCESSORIES ADDED:

Screws and washers

ORDERING INFORMATION				
FPZ 140	30KV	500pF	± 10%	R 85
MODEL	RATED VOLTAGE	CAPACITANCE VALUE	TOLERANCE	CERAMIC

Plate Capacitors for Higher Voltages

PEZ 140 15KV to 30KV


PEZ 140										
CERAMIC	CAPACITANCE VALUE	RATED RF VOLTAGE **	RATED DC VOLTAGE AT 50°C	RATED DC VOLTAGE AT 70°C	RATED POWER AT 50°C *	RATED POWER AT 70°C *	RATED CURRENT	D ± 10%	W ₂ ± 3 (±0.12)	W ₁ ± 3 (±0.12)
	[pF]	[KV]	[KV _{DC}]	[KV _{DC}]	[KVA _r]	[KVA _r]	[A _{RMS}]			
R 85	600	30	25	25	90	60	max.35	140 (5.51)	30 (1.181)	52 (2.047)
	800	30	25	20			max.45		30 (1.181)	51 (2.008)
	1000	25	21	17			max.45		30 (1.181)	49 (1.788)
	1500	15	13	10			max.45		27 (1.063)	46 (1.678)
	2000	15	13	10			max.45		26 (1.024)	
	2500	15	13	10			max.45		26 (1.024)	

*The surface temperature of 100°C must not be exceeded

**Peak-to-peak value

CAPACITANCE TOLERANCES: ± 10%
MATERIAL:

Capacitor elements made from Class 1-ceramic dielectric with noble metal electrodes.

Connection Terminals: Copper/brass, silver plated.

FINISH:

Noble metal electrodes and Contoured rim glazed

MARKING:

Type designator, Capacitance value and tolerance, Rated voltage (RF), Rated voltage (DC value at 50°C), Production date code, Ceramic material code, DRALORIC Logo.

ACCESSORIES ADDED:

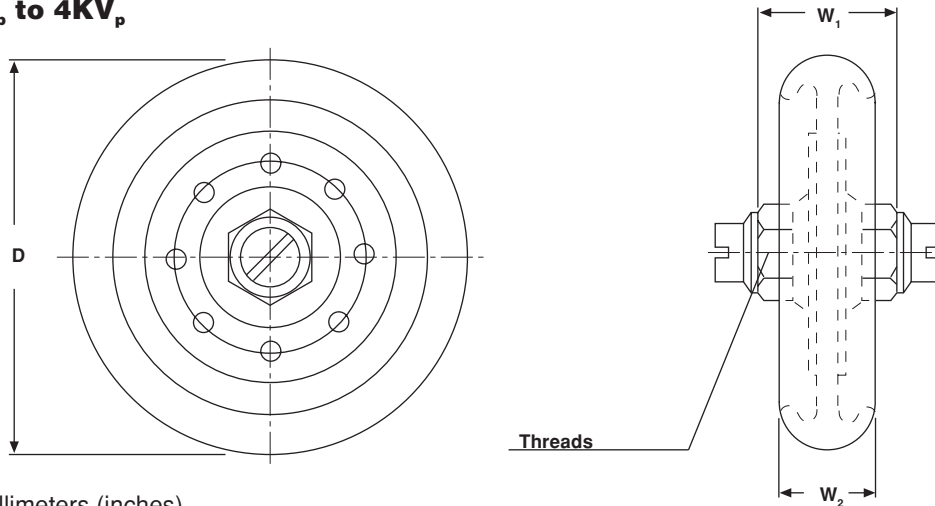
Screws and washers

ORDERING INFORMATION				
PEZ 140	30KV	600pF	± 10%	R 85
MODEL	RATED VOLTAGE	CAPACITANCE VALUE	TOLERANCE	CERAMIC

Vishay Draloric

Plate Capacitors with Contoured Rim - Class 2 Ceramic

PS 20 3.5KV_p
 PS 30 3.5KV_p
 PS 30 3.5KV_p
 PS 55 2KV_p to 4KV_p



• Dimensions in millimeters (inches)

MODEL	PS 20	PS 30	PS 40	PS 55
D	25 max. (0.984 max.)	35 max. (1.378 max.)	45 max. (1.772 max.)	57 max. (2.244 max.)
W ₁	26 max. (1.024 max.)	25 max. (0.984 max.)	23 max. (0.906 max.)	22 max. (0.866 max.)
W ₂	17 max. (0.669 max.)	17 max. (0.669 max.)	15.5 max. (0.610 max.)	14.5 max. (0.571 max.)
Threads	M 5		M 6	

MATERIAL:

Capacitor elements made from Class 2 ceramic dielectric with noble metal electrodes.

Connection Terminals: Copper/brass, silver plated.

FINISH:

Noble metal electrodes and contoured rim completely lacquered.

MARKING:

Type designator, Capacitance value and tolerance, Rated voltage (peak value), Production date code, Ceramic material code, DRALORIC Logo.

ACCESSORIES ADDED:

Screws and washers

ORDERING INFORMATION				
PS 30	3.5KV _p	3300pF	- 20 + 40%	R 3500
MODEL	RATED VOLTAGE	CAPACITANCE VALUE	TOLERANCE	CERAMIC



PS 20, 30, 40, 55 - Class 2

Plate Capacitors with Contoured Rim - Class 2 Ceramic Vishay Draloric

PS 20				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _P]	RATED POWER* [KVA _r]	RATED CURRENT [A _{RMS}]
R 3500	1000	3.5	0.25	max. 5
	1500			

PS 30				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _P]	RATED POWER* [KVA _r]	RATED CURRENT [A _{RMS}]
R 3500	2200	3.5	0.5	max. 10
	3300			

PS 40				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _P]	RATED POWER* [KVA _r]	RATED CURRENT [A _{RMS}]
R 3500	4700	3.5	1.0	max. 15
	5600			
	6800			

PS 55				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _P]	RATED POWER* [KVA _r]	RATED CURRENT [A _{RMS}]
R 3500	10000	4.0	1.0	max. 18
	15000	3.5		
	22000	3.5		
	27000	2.0		

*The surface temperature of 100°C must not be exceeded

CAPACITANCE TOLERANCES:

- 20 + 40%

APPLICATION:

PS 20 to PS 55 plate capacitors made from Class 2 ceramic dielectric can be used as coupling and bypass capacitors where low power ratings are required and larger capacitance changes with temperature can be tolerated.





Barrel Style Capacitors

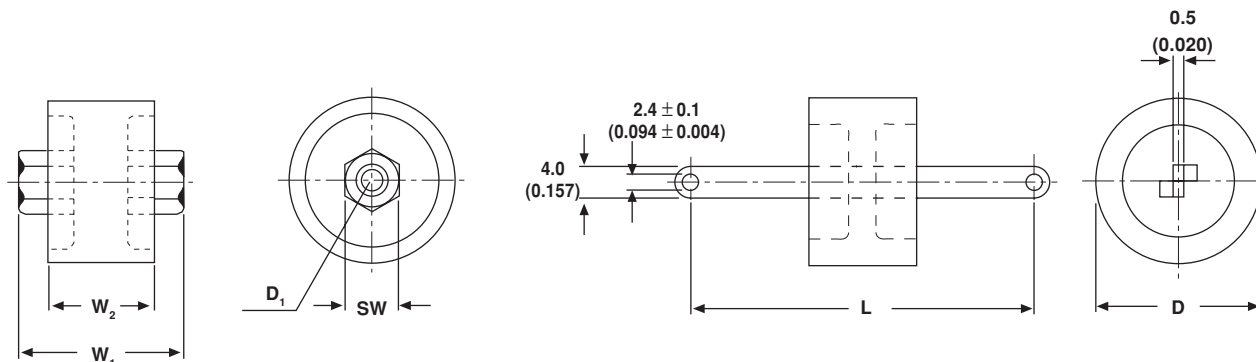
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TO. 016010, TO. 025016 Barrel style capacitors, Class-1 ceramic 5KV _p to 9KV _p 1.5pF to 1000pF.....	26
TOS 020016, TOS 030033 Barrel style capacitors, Class-1 and Class-2 ceramic 7.5KV _{DC} to 15KV _{DC} 160pF to 10000pF.....	28
TOSZ, TOSW Barrel style capacitors for dielectric heating equipment 9KV _p to 30KV _p 1000pF to 1500pF.....	30
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Barrel-Style Capacitors - Class 1 Ceramic

TOS 016010 5KV_p
TOS 025016 9KV_p

TOF 016010 5KV_p
TOF 025016 9KV_p



• Dimensions in millimeters (inches)

MODEL	TOF 016010	TOS 016010	TOF 025016	TOS 025016
D	16 (0.630)	16 (0.630)	25 (0.984)	25 (0.984)
D ₁		M 5 thread 4.5 (0.177) depth		M 6 thread 7 (0.276) depth
W ₁		23 max. (0.906 max.)		35 max. (1.378 max.)
W ₂	10 (0.394)	10 (0.394)	16 (0.630)	16 (0.630)
L	49 max. (1.929 max.)		55 max. (2.165 max.)	
SW		8.0 (0.315)		10 (0.394)

MATERIAL:

Capacitor elements made from Class 1 ceramic dielectric with noble metal electrodes.

Connection Terminals: Copper/brass, silver plated.

FINISH:

Noble metal electrodes and insulating rim completely lacquered.

MARKING:

Type designator, Capacitance value and tolerance, Rated voltage (peak value), Production date code, Ceramic material code, DRALORIC Logo.

INSTALLATION GUIDELINES:

We recommend the use of a wrench when tightening and fastening screws of the TOS model.

ORDERING INFORMATION

TOS 025016	19KV _p	100pF	± 20%	R 85
MODEL	RATED VOLTAGE	CAPACITANCE VALUE	TOLERANCE	CERAMIC



TOF 016010, TOS 016010				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV_p]	RATED POWER* [KVA_r]	RATED CURRENT [A_{RMS}]
R 7	1.5	5	3	max. 3
	2			
	3			
	4			
R 42	5	5	4	max. 4
	6			
	7			
	8			
	10			
	12			
	16			
R 85	20	5	4	max. 5
	25			
	30			
	40			
	50			
TOF 025016, TOS 025016				
R 7	2	9	5	max. 5
	3			
	4			
	5			
	6			
	7			
R 16	8	9	8	max. 6
	10			
R 42	12	9	8	max. 6
	16			
	20			
	25			
R 85	30	9	10	max. 10
	40			
	50			
	60			
	70			
	80			
	100			

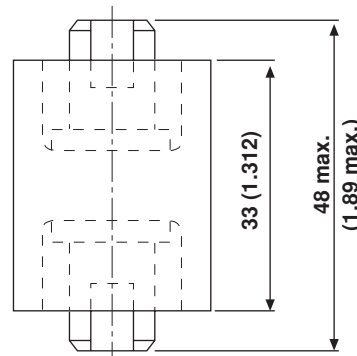
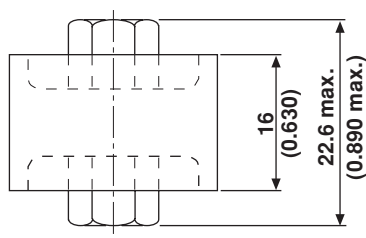
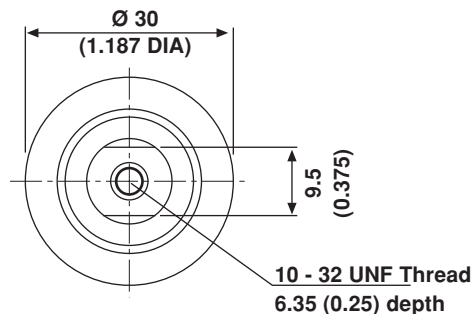
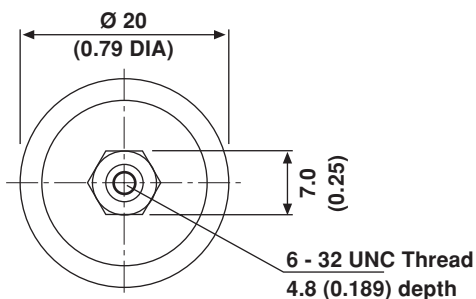
*The surface temperature of 100°C must not be exceeded

CAPACITANCE TOLERANCES:
 < 10pF: ± 2pF, ± 1pF, ± 0.5pF
 ≥ 10pF: ± 20%, ± 10%, ± 5%

Barrel-Style Capacitors - Class 1 and 2 Ceramic

TOS 020016 7.5KV_{DC}

TOS 030033 15KV_{DC}



• Dimensions in millimeters (inches)

MATERIAL:

Capacitor elements made from Class 1 or Class 2 ceramic dielectric with noble metal electrodes.

Connection Terminals: Copper/brass, silver plated.

FINISH:

Noble metal electrodes and insulating rim completely lacquered.

MARKING:

Type designator, Capacitance value and tolerance, Rated voltage, Production date code, Ceramic material code, DRALORIC Logo.

INSTALLATION GUIDELINES:

We recommend the use of a wrench when tightening and fastening screws.

ORDERING INFORMATION

TOS 030030	15KV _{DC}	1500pF	± 20%	R 2000
MODEL	RATED VOLTAGE	CAPACITANCE VALUE	TOLERANCE	CERAMIC



TOS 020016								
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _{DC}]	RATED POWER* [KVA _r]			RATED CURRENT [A _{RMS}]		
			1 MHz	10MHz	30MHz	1MHz	10MHz	30MHz
NP 0	10	7.5	1.7	10	10	0.3	2.5	4.3
	15		3.2	10	10	0.6	3.1	5.3
	25		4.4	10	10	0.8	4.0	6.9
	30		5.3	10	10	1.0	4.4	7.5
	40		7.0	10	10	1.3	5.1	8.7
	50		8.8	10	10	1.7	5.6	9.7
N 750	75		10	10	7.0	2.2	6.9	10
	100		10	10	5.3	2.5	7.9	10
N 5600	150		5.0	5.0	3.5	2.2	6.9	10
	200		5.0	5.0	2.7	2.5	7.9	10
	300		5.0	5.0	1.8	3.1	9.7	10
R 700	400		0.4	0.4	0.4	1.0	3.2	5.5
	500		0.4	0.4	0.4	1.1	3.6	6.1
R 1400	600		0.4	0.4	0.4	1.2	3.9	6.7
	800		0.4	0.4	0.4	1.4	4.5	7.8
R 2000	1000		0.2	0.2	0.2	1.1	3.6	6.1
	1500		0.2	0.2	0.2	1.4	4.3	7.5
R 4000	2000		0.2	0.2	0.2	1.6	5.0	8.7
	2500		0.2	0.2	0.2	1.8	5.6	9.7

CAPACITANCE TOLERANCES:

NPO, N 750, N 5600: ± 10%

R 700, R 1400, R 2000, R 4000: ± 20%

Other capacitance values are available on request.

TOS 030033								
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _{DC}]	RATED POWER* [KVA _r]			RATED CURRENT [A _{RMS}]		
			1 MHz	10MHz	30MHz	1MHz	10MHz	30MHz
NP 0	10	15	7	35	35	0.7	4.7	8.1
	25		18	35	35	1.7	7.4	13
	50		35	35	35	3.3	11	18
N 750	75		35	35	35	4.1	13	22
	100		35	35	35	4.7	15	26
	150		22	22	22	4.6	14	25
	200		15	15	15	4.3	14	24
N 3300	300		5	5	5	3.1	10	17
	400		5	5	5	3.6	11	19
	500		5	5	5	4.0	13	22
	750		0.5	0.5	0.5	1.5	5.0	8.4
R 2000	1000		0.5	0.5	0.5	1.8	6.0	9.7
	1200		0.5	0.5	0.5	2.0	6.0	12
	1500		0.5	0.5	0.5	2.2	6.0	12

CAPACITANCE TOLERANCES:

NP0, N 750, N 3300: ± 10%

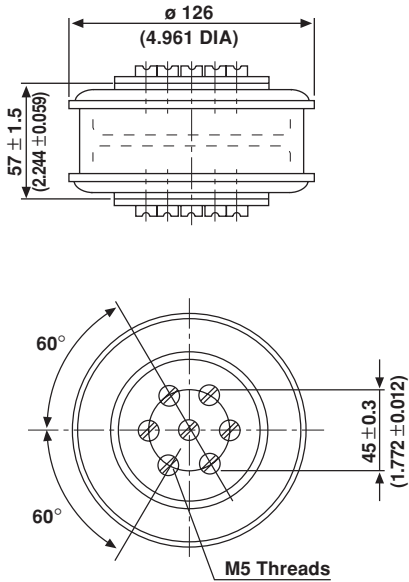
R 2000: ± 20%

Other capacitance values as well as metric threads are available on request.

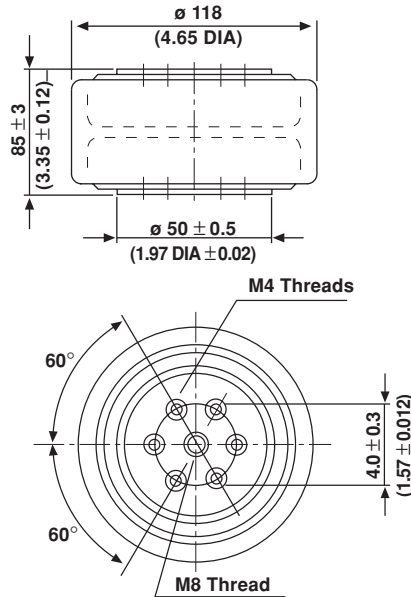
*The surface temperature of 100°C must not be exceeded

Barrel-Style Capacitors for Dielectric Heating Equipment

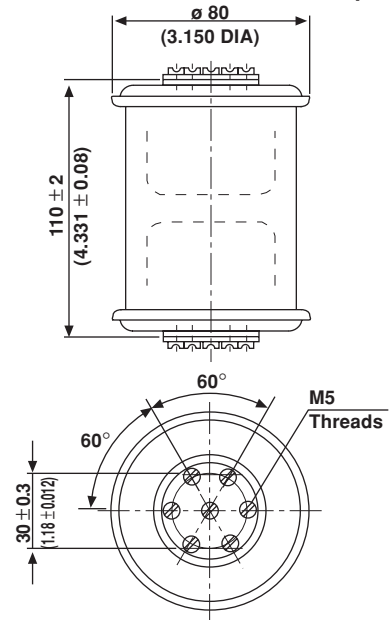
TOSZ 120055 9KV_p



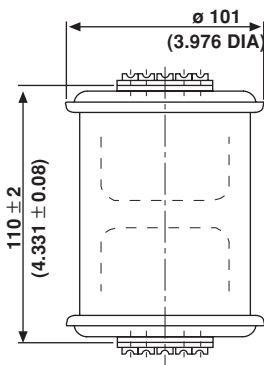
TOSZ 118078 30KV_p



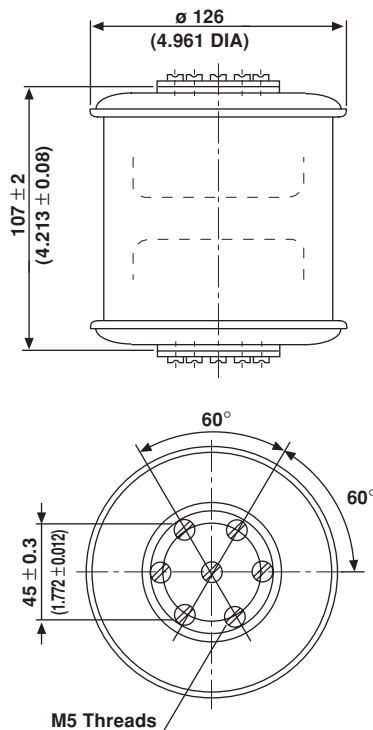
TOSZ 080110 30KV_p



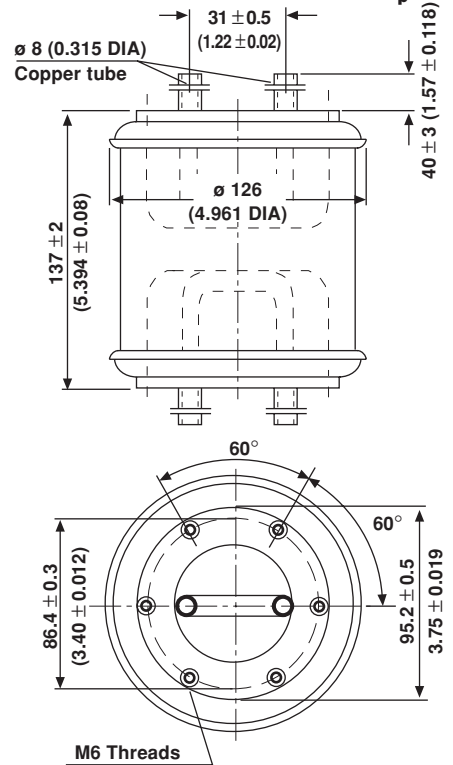
TOSZ 100110 30KV_p



TOSZ 118100 30KV_p



TOSW 118115 13.5KV_p



• Dimensions in millimeters (inches)

ORDERING INFORMATION

TOSZ 100110	30KV _p	50pF	± 10%	R 16 High Q
MODEL	RATED VOLTAGE	CAPACITANCE VALUE	TOLERANCE	CERAMIC



TOSZ 080110				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _P]	RATED POWER* [KVA _r]	RATED CURRENT [A _{RMS}]
R 16 High Q	25	30	up to 550	60
TOSZ 100110				
R 16 High Q	50	30	up to 800	100
TOSZ 118078				
R 16 High Q	50	30	up to 800	150
	75			
TOSZ 120055				
R 16 High Q	160	9.0	up to 862	135
	250			
TOSZ 118100				
R 16 High Q	100	30	up to 900	120
TOSW 118115				
R 16 High Q	125	13.5	1941	203

*The surface temperature of 100°C must not be exceeded.

CAPACITANCE TOLERANCE:

± 10%

PROPERTIES AND APPLICATION:

These capacitors feature a Q-Factor of greater than 10,000 which makes them ideal in operating frequency range from 0.1 MHz up to 30 MHz where high voltages and currents are present. The TOSZ model can be used as replacements for fixed vacuum capacitors. The construction gives these capacitors an advantage over fixed vacuum capacitors because there is no possibility of vacuum deterioration. Model TOSW 118115 also has additional vacuum water-cooling systems. (One separate watercooling circuit at each electrode terminal).

MATERIAL:

Capacitor elements made from Class 1 "High Q" ceramic dielectric with noble metal electrodes.

Connection Terminals: Copper/brass, silver plated.

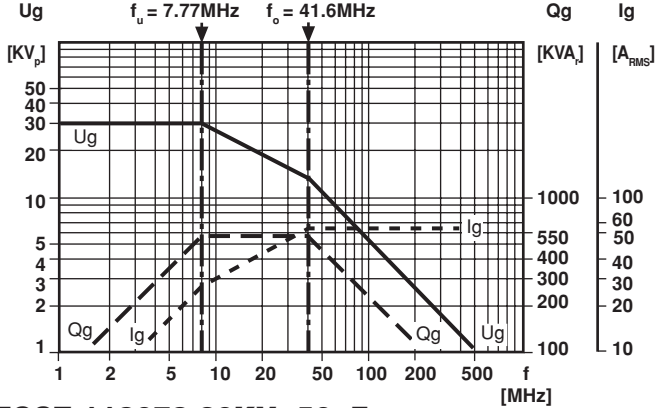
Capacitor body: Completely glazed

MARKING:

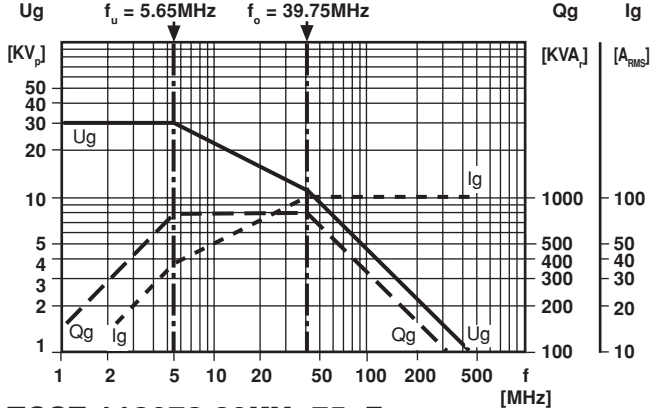
Type designator, capacitance value and tolerance, Rated voltage (peak value), Production date code, Ceramic material code, DRALORIC Logo, Serial number.



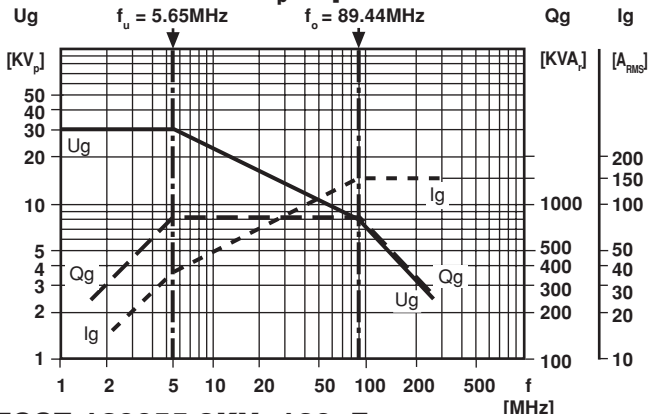
TOSZ 080110 30KV_p 25pF



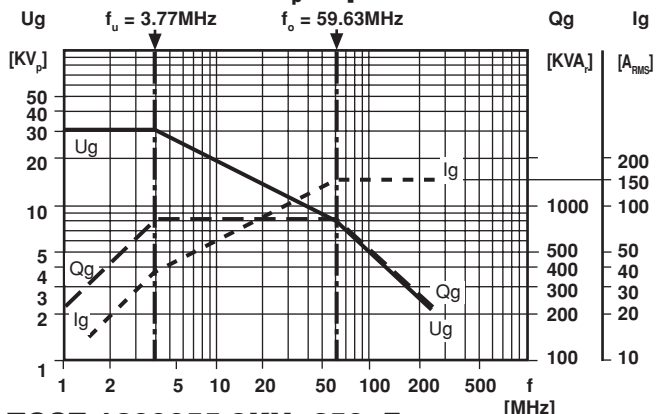
TOSZ 100110 30KV_p 50pF



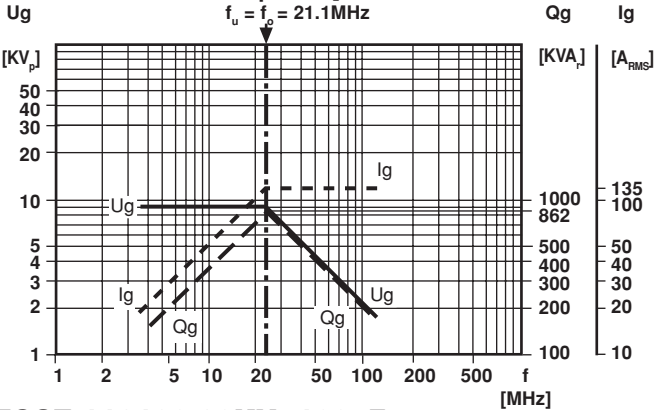
TOSZ 118078 30KV_p 50pF



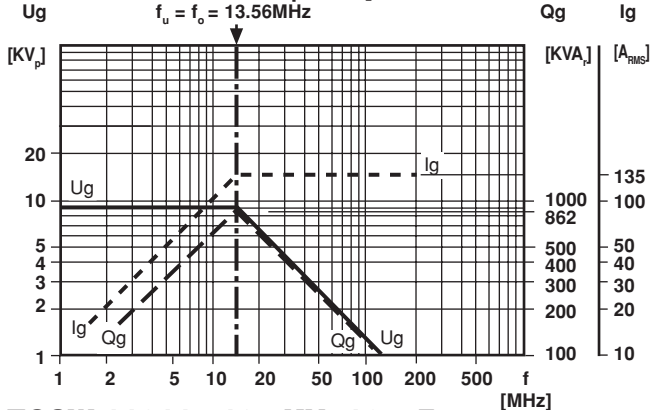
TOSZ 118078 30KV_p 75pF



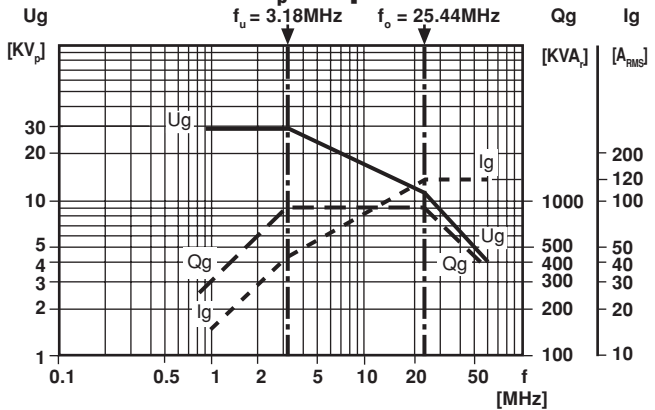
TOSZ 120055 9KV_p 160pF



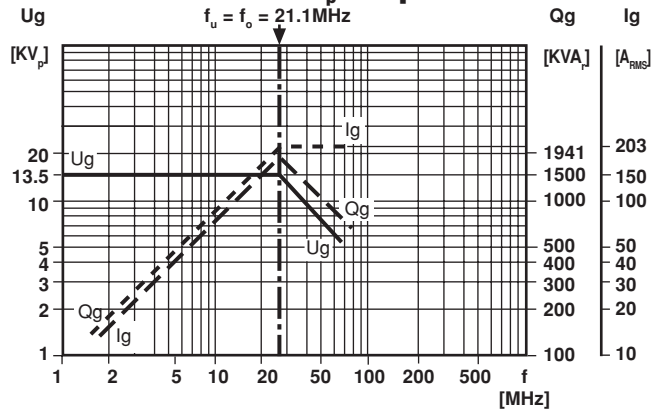
TOSZ 120055 9KV_p 250pF



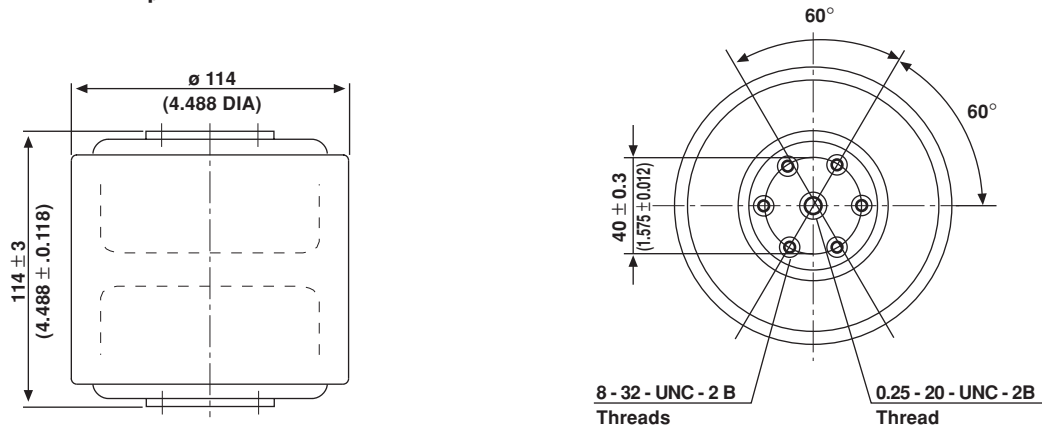
TOSZ 118100 30KV_p 100pF



TOSW 118115 13.5KV_p 125pF



Barrel-Style Capacitors - Class 1 Ceramic

TOSZ 114096 40KV_p


• Dimensions in millimeters (inches)

CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _p]	RATED POWER* [KVA _r]	RATED CURRENT [A _{RMS}]
R 230	1000	40	40	30

*The surface temperature of 100°C must not be exceeded

CAPACITANCE TOLERANCE:

± 20%

MATERIAL:

Capacitor elements made from Class 1 ceramic dielectric with noble metal electrodes.

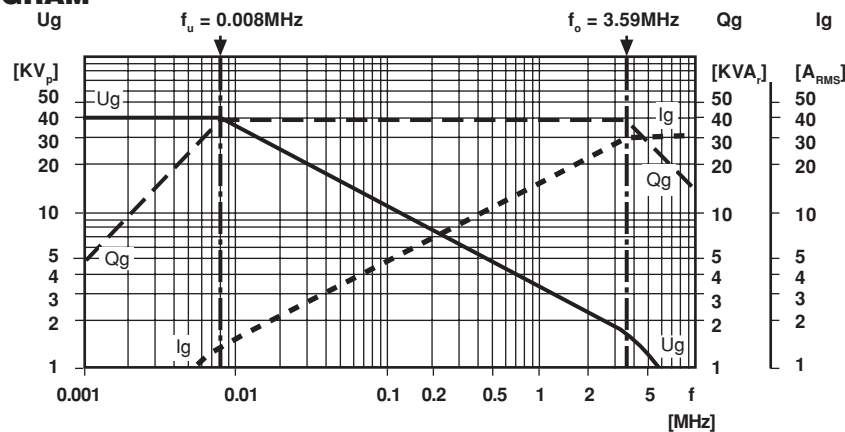
Connection Terminals: Copper/brass, silver plated.

FINISH:

Capacitor body completely protective lacquered.

MARKING:

Type designator, Capacitance value and tolerance, Rated voltage (peak value), Production date code, Ceramic material code, DRALORIC Logo, Serial number.

DERATING DIAGRAM

ORDERING INFORMATION

TOSZ 114096	40KV _p	1000pF	± 20%	R 230
MODEL	RATED VOLTAGE	CAPACITANCE VALUE	TOLERANCE	CERAMIC





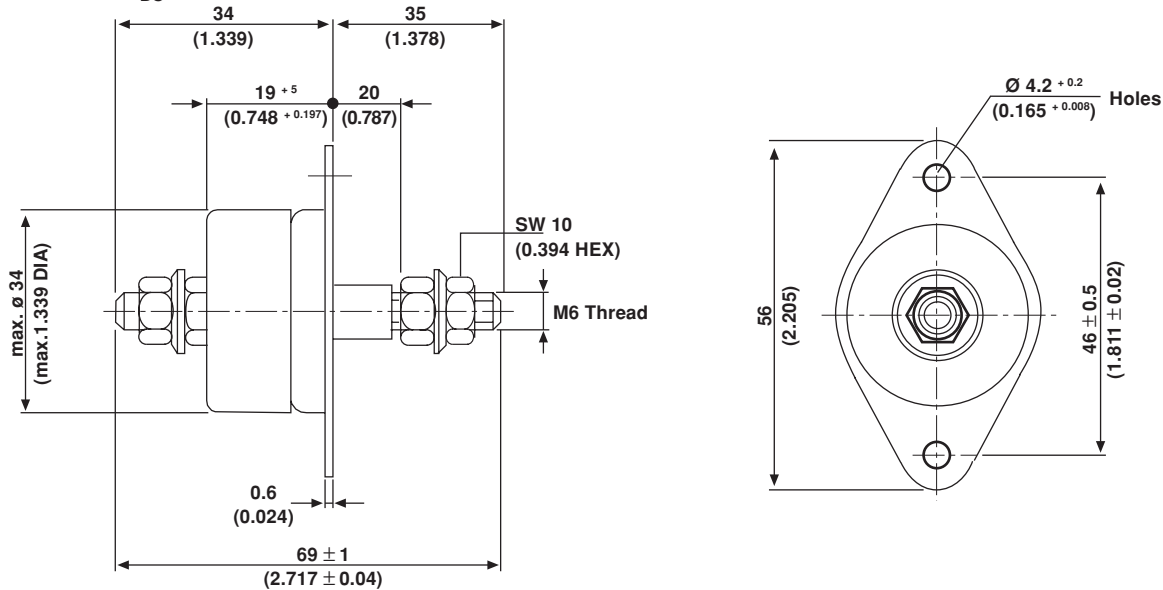
Feed-Through Capacitors

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DB(Z) 055135, DBF 050166 Feed-through capacitors with R 16 high Q ceramic 20KV _p to 25KV _p 100pF to 125pF	54

Feed-Through Capacitors with Conductor Rod

DBZ 34 10KV_{DC}



• Dimensions in millimeters (inches)

DBZ 34			
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _{DC}]	RATED CURRENT [A _{RMS}]
R 2000	1000	10	max. 6
	1500		
R 6000	2500		

Feed-through current DC or low frequency RMS current (< 20KHz): 40A

CAPACITANCE TOLERANCES:

1000pF, 1500pF: ± 20%
 2500pF: - 20 + 50%

MATERIAL:

Capacitor elements made from Class 2 ceramic dielectric with noble metal electrodes.
 Connection Terminals: Copper/brass, silver plated.

FINISH:

Capacitor elements completely resin encapsulated.

MARKING:

Type designator, Capacitance value and tolerance, Rated voltage, Production date code, Ceramic material code, DRALORIC Logo.

ACCESSORIES ADDED:

Hex. nuts and washers.

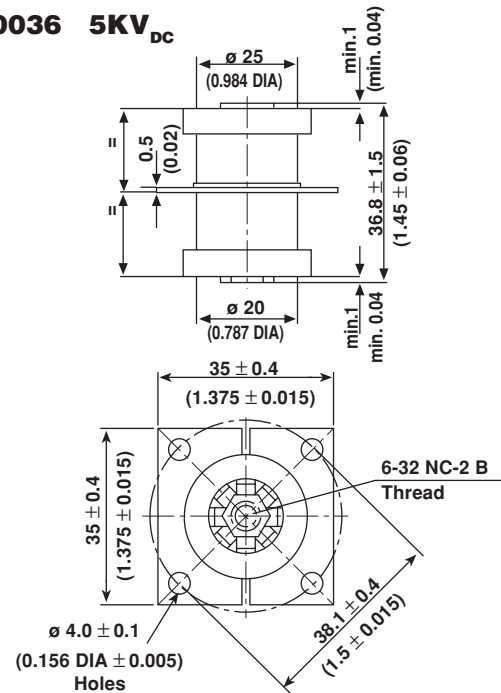
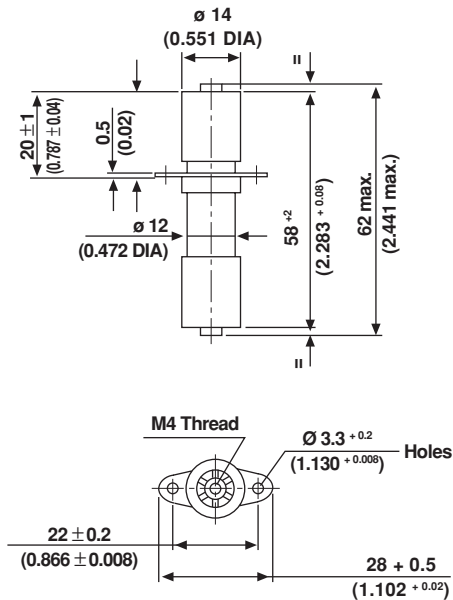
ORDERING INFORMATION				
MODEL	RATED VOLTAGE	CAPACITANCE VALUE	TOLERANCE	CERAMIC
DBZ 34	10KV _{DC}	2500pF	- 20% + 50%	R 6000



Feed-Through Capacitors, Screw Mounting

DBZ 012058 7.5KV_p

DGZ 020036 5KV_{DC}



• Dimensions in millimeters (inches)

DBZ 012058				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _P]	RATED POWER [KVA _r]	RATED CURRENT [A _{RMS}]
R 85	200	7.5	5	4

Feed-through current DC or low frequency RMS current (< 20KHz): 7A

CAPACITANCE TOLERANCE:
- 10% + 20%

DGZ 020036				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _P]	RATED POWER [KVA _r]	RATED CURRENT [A _{RMS}]
R 230	1000	5	5	5

Feed-through current DC or low frequency RMS current (< 20KHz): 6A

CAPACITANCE TOLERANCE:
± 20%

MATERIAL:

Capacitor elements made from Class 1 ceramic dielectric with noble metal electrodes.

Connection Terminals: Copper/brass, silver plated.

FINISH:

Noble metal electrodes and flat rims completely lacquered.

MARKING:

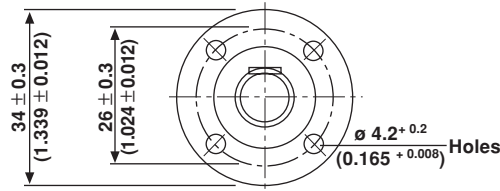
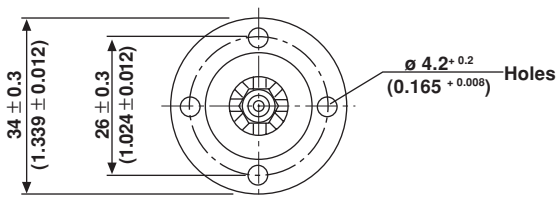
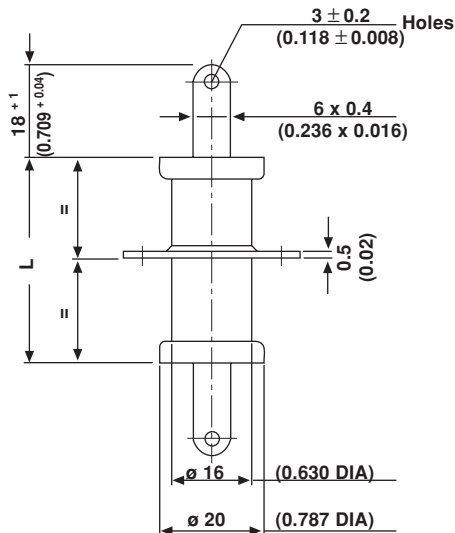
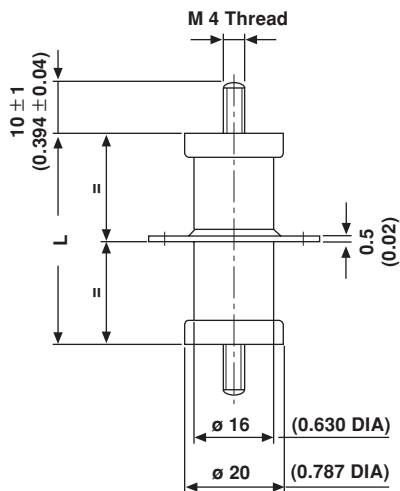
Type designator, Capacitance value and tolerance, Rated voltage (peak value), Production date code, Ceramic material code, DRALORIC Logo, Serial number.

ORDERING INFORMATION				
DBZ 012058	7.5KV _p	200pF	- 10% + 20%	R 85
MODEL	RATED VOLTAGE	CAPACITANCE VALUE	TOLERANCE	CERAMIC

Feed-Through Capacitors, Screw and Tag Mounting

DB 016030 3KV_p
DB 016040 3KV_p
DB 016060 3KV_p to 4KV_p

DF 016030 3KV_p
DF 016040 3KV_p
DF 016060 3KV_p to 4KV_p



• Dimensions in millimeters (inches)

MODEL	DB 016030 DF 016030	DB 016040 DF 016040	DB 016060 DF 016060
Length L	30 (1.81)	40 (1.575)	60 (2.362)

MATERIAL:

Capacitor elements made from Class 1 ceramic dielectric with noble metal electrodes.
 Connection Terminals: Copper/brass, silver plated.

FINISH:

Noble metal electrodes and flat rims completely lacquered.

MARKING:

Type designator, Capacitance value and tolerance, Rated voltage (peak value), Production date code, Ceramic material code, DRALORIC Logo.

ORDERING INFORMATION

DF 016060	3KV _p	1500pF	± 20%	R 85
MODEL	RATED VOLTAGE	CAPACITANCE VALUE	TOLERANCE	CERAMIC



DF 016030				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _P]	RATED POWER [KVA _r]	RATED CURRENT [A _{RMS}]
R 85	200	3	4	5
	400			
	600			
DF 016040				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _P]	RATED POWER [KVA _r]	RATED CURRENT [A _{RMS}]
R 85	500	3	5	5
	700			
	800			
DF 016060				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _P]	RATED POWER [KVA _r]	RATED CURRENT [A _{RMS}]
R 85	800	4	7.5	5
	1000	3		
	1200			
	1500			

Feed-through current DC or low frequency RMS current (< 20KHz): 6 A

DB 016030				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _P]	RATED POWER [KVA _r]	RATED CURRENT [A _{RMS}]
R 85	200	3	4	5
	400			
	600			
DB 016040				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _P]	RATED POWER [KVA _r]	RATED CURRENT [A _{RMS}]
R 85	500	3	5	5
	700			
	800			
DB 016060				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _P]	RATED POWER [KVA _r]	RATED CURRENT [A _{RMS}]
R 85	800	4	7.5	5
	1000	3		
	1200			
	1500			
R 230	2500	3	7.5	5

Feed-through current DC or low frequency RMS current (< 20KHz): 10 A

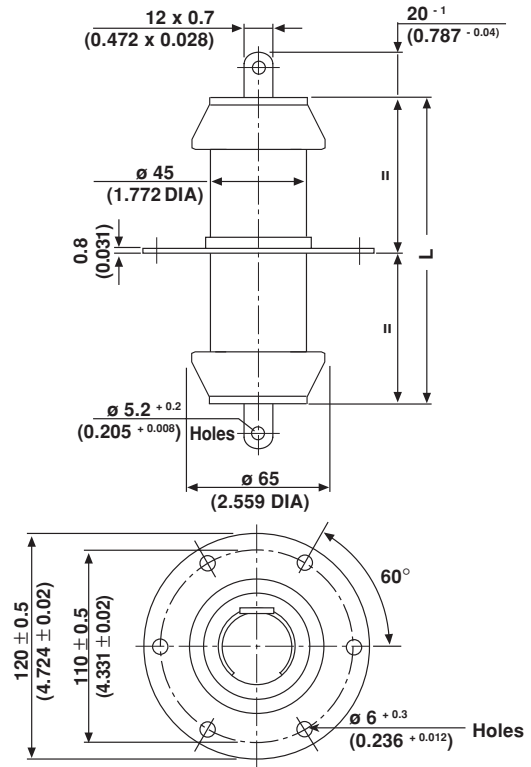
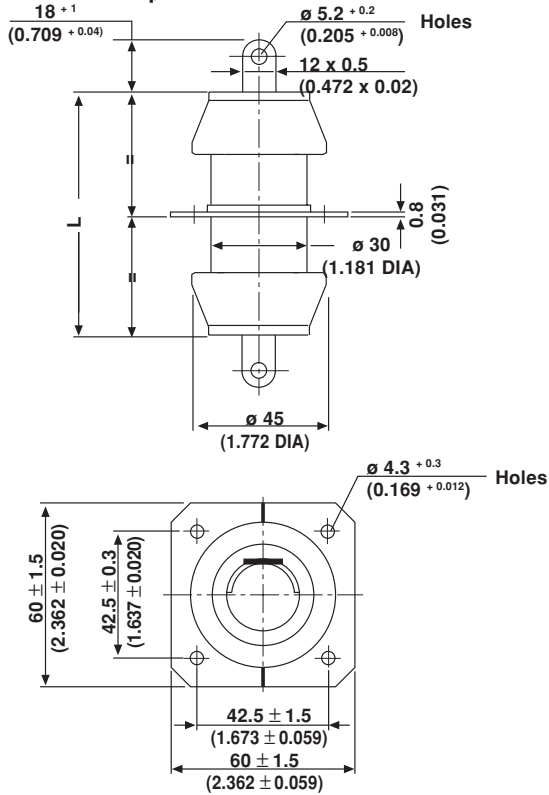
For higher feed-through current, an additional feed-through conductor must be provided for D-style capacitors.

CAPACITANCE TOLERANCES: ± 20%, ± 10%, ± 5%

Feed-Through Capacitors, Tag Mounting

DF 030070 7KV_p
DF 030090 7KV_p
DF 030110 7KV_p

DWA 045120 8KV_p to 16KV_p
DWA 045150 8KV_p to 16KV_p



• Dimensions in millimeters (inches)

MODEL	DF 030070	DF 030090	DF 030110
Length L	70 (2.756)	93 (3.661)	110 (4.331)

MODEL	DWA 045120	DWA 045150
Length L	120 (4.724)	150 (5.906)

MATERIAL:

Capacitor elements made from Class 1 ceramic dielectric with noble metal electrodes.
 Connection Terminals: Copper/brass, silver plated.

FINISH:

Noble metal electrodes completely lacquered. Contoured rims glazed.

MARKING:

Type designator, Capacitance value and tolerance, Rated voltage (peak value), Production date code, Ceramic material code, DRALORIC Logo.

ORDERING INFORMATION

MODEL	RATED VOLTAGE	CAPACITANCE VALUE	TOLERANCE	CERAMIC
DF 030090	7KV _p	1200pF	± 10%	R 85



DF 030070				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _P]	RATED POWER [KVA _r]	RATED CURRENT [A _{RMS}]
R 85	400	7	16	8
	600			
	800			

DF 030090				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _P]	RATED POWER [KVA _r]	RATED CURRENT [A _{RMS}]
R 85	700	7	20	8
	1000			
	1200			

DF 030110				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _P]	RATED POWER [KVA _r]	RATED CURRENT [A _{RMS}]
R 85	800	7	25	8
	1200			
	1500			

Feed-through current DC or low frequency RMS current (< 20KHz): 8 A

DF 045120				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _P]	RATED POWER [KVA _r]	RATED CURRENT [A _{RMS}]
R 42	500	13	25	10
R 85	1200			
		2500	8	

DWA 045150				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _P]	RATED POWER [KVA _r]	RATED CURRENT [A _{RMS}]
R 42	500	16	30	10
R 85	1200			

Feed-through current DC or low frequency RMS current (< 20KHz): 10 A

CAPACITANCE TOLERANCES:

± 20%, ± 10%, ± 5%

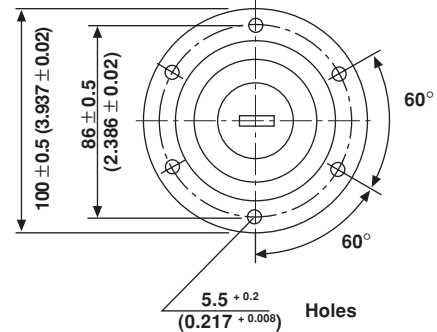
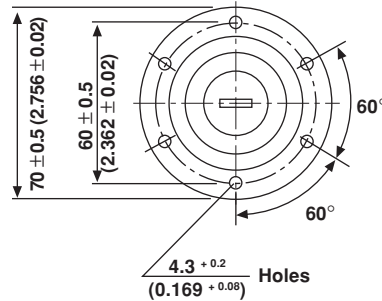
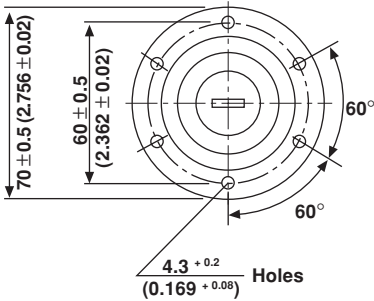
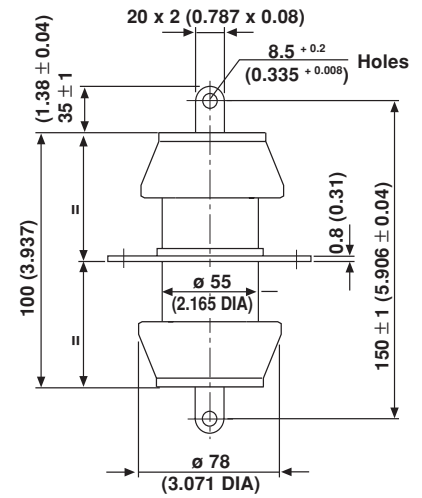
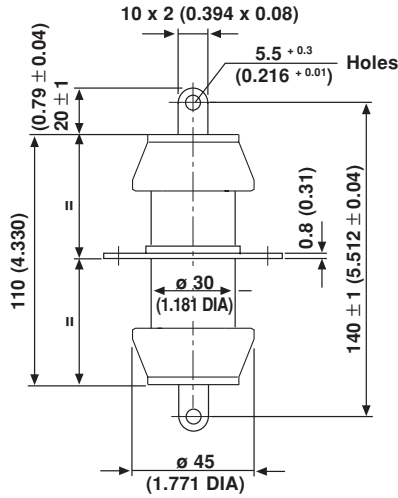
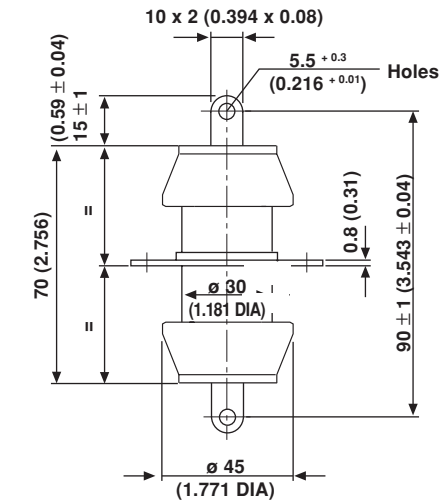
For higher feed-through current, an additional feed-through conductor must be provided.

Feed-Through Capacitors with Band Conductor

DS 030070 8KV_p

DS 030110 12KV_p

DS 055100 12KV_p



• Dimensions in millimeters (inches)

MATERIAL:

Capacitor elements made from Class 1 ceramic dielectric with noble metal electrodes.
Connection Terminals: Copper/brass, silver plated.

FINISH:

Noble metal electrodes completely lacquered. Contoured rims glazed.

MARKING:

Type designator, Capacitance value and tolerance, Rated voltage (peak value), Production date code, Ceramic material code, DRALORIC Logo.

ORDERING INFORMATION

DF 030070	8KV _p	600pF	± 5%	R 85
MODEL	RATED VOLTAGE	CAPACITANCE VALUE	TOLERANCE	CERAMIC



DS 030070, DS 030110, DS 055100

Feed-Through Capacitors with Band Conductor

Vishay Draloric

DS 030070				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _P]	RATED POWER [KVA _r]	RATED CURRENT [A _{RMS}]
R 85	500	8	16	10
	600			
	800			

Feed-through current DC or low frequency RMS current (< 20KHz): 20 A

DS 030110				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _P]	RATED POWER [KVA _r]	RATED CURRENT [A _{RMS}]
R 85	800	12	30	10
R 230	1800	12	30	10

Feed-through current DC or low frequency RMS current (< 20KHz): 20 A

DS 055100				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _P]	RATED POWER [KVA _r]	RATED CURRENT [A _{RMS}]
R 85	1000	12	60	30

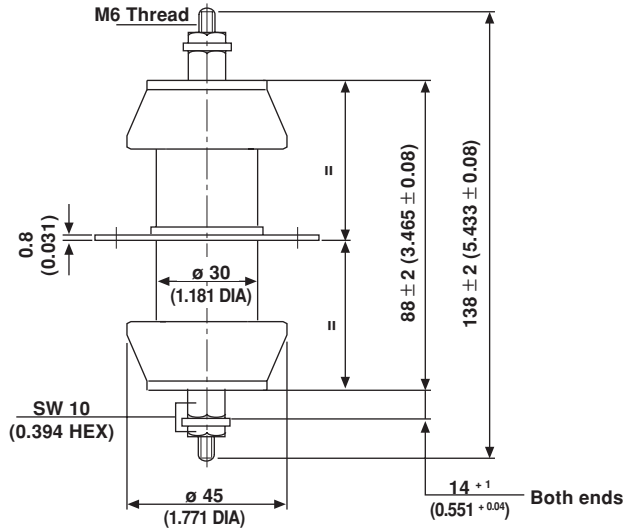
Feed-through current DC or low frequency RMS current (< 20KHz): 30 A

CAPACITANCE TOLERANCES:

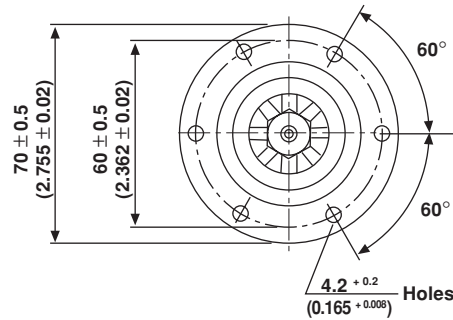
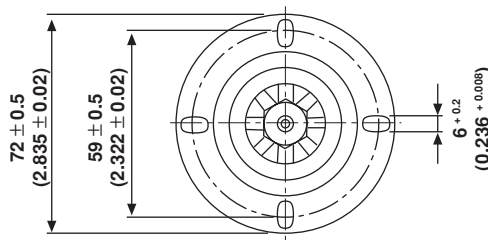
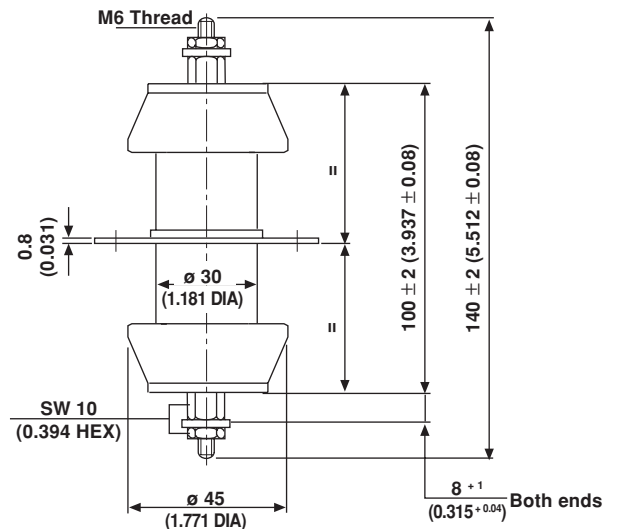
± 20%, ± 10%, ± 5%

Feed-Through Capacitors with Conductor Rod

DB 030088 10KV_p



DB 030100 7KV_p to 8KV_p



• Dimensions in millimeters (inches)

MATERIAL:

Capacitor elements made from Class 1 ceramic dielectric with noble metal electrodes.
 Connection Terminals: Copper/brass, silver plated.

FINISH:

Noble metal electrodes completely lacquered. Contoured rims glazed.

MARKING:

Type designator, Capacitance value and tolerance, Rated voltage (peak value), Production date code, Ceramic material code, DRALORIC Logo.

ACCESSORIES ADDED:

Hex. nuts and washers

ORDERING INFORMATION

DF 030100	8KV _p	1200pF	$\pm 20\%$	R 85
MODEL	RATED VOLTAGE	CAPACITANCE VALUE	TOLERANCE	CERAMIC



DB 030088				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV_p]	RATED POWER [KVA_r]	RATED CURRENT [A_{RMS}]
R 16	150	10	80	30
R 85	1000	10	60	30
R 230	2000	10	60	30
	2500			

Feed-through current DC or low frequency RMS current (< 20KHz): 30 A

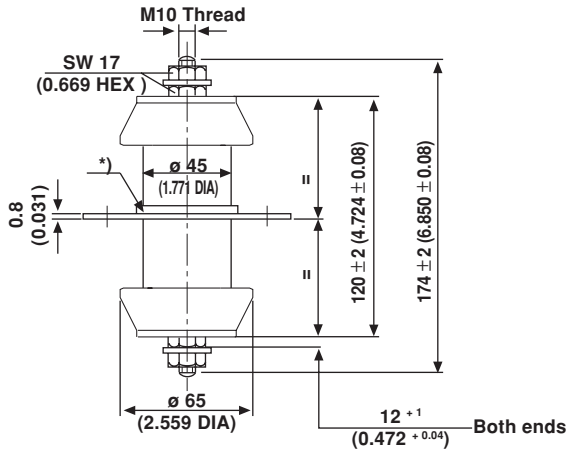
DB 030100				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV_p]	RATED POWER [KVA_r]	RATED CURRENT [A_{RMS}]
R 7	100	8	30	30
R 16	120			
	160			
	200			
R 42	250	8	30	30
	300			
	400			
	500			
R 85	600	8	30	30
	800			
	1000			
	1200			
	1500	7		

Feed-through current DC or low frequency RMS current (<20 KHz): 30 A

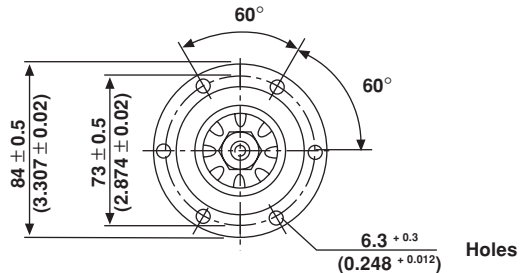
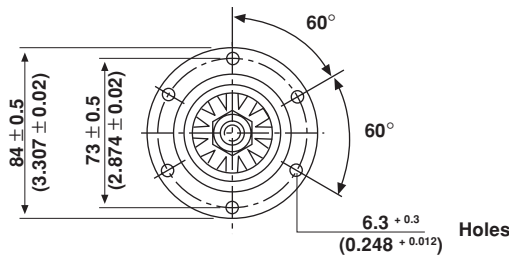
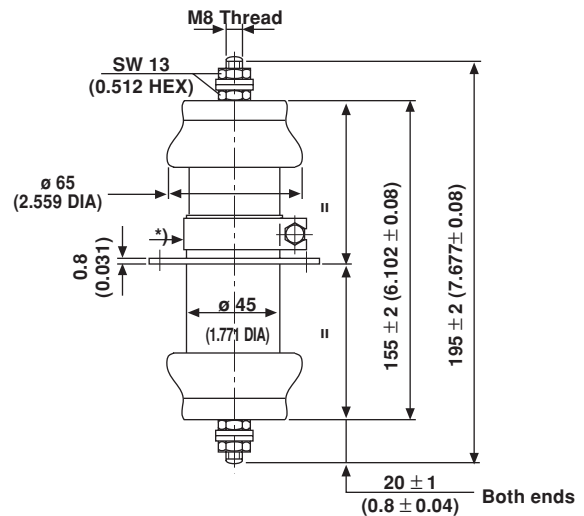
CAPACITANCE TOLERANCES: ± 20%, ± 10%, ± 5%.

Feed-Through Capacitors with Conductor Rod

DB 045120 10KV_p to 11KV_p



DB 045155 14KV_p



• Dimensions in millimeters (inches)

*) Flange soldered at R 7, R 42, R 85 ceramic dielectric
Flange mounted with spanner band at R 230 ceramic dielectric

MATERIAL:

Capacitor elements made from Class 1 ceramic dielectric with noble electrodes.
Connection Terminals: Copper/brass, silver plated.

FINISH:

Noble metal electrodes completely lacquered.
Contoured rims glazed.

MARKING:

Type designator, Capacitance value and tolerance, Rated voltage (peak value), Production date code, Ceramic material code, DRALORIC Logo.

ACCESSORIES ADDED:

Hex. nuts and washers

ORDERING INFORMATION

DB 045120	10KV _p	4700pF	± 20%	R 230
MODEL	RATED VOLTAGE	CAPACITANCE VALUE	TOLERANCE	CERAMIC



DB 045120				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV_p]	RATED POWER [KVA_r]	RATED CURRENT [A_{RMS}]
R 7	200	11	60	50
	250			
	300			
R 42	400	11	60	50
	500			
	600			
	800	10		
R 85	1000	11	60	50
	1200			
	1500	10		
R 230	2000	11	60	50
	2500			
	3000			
	4700	10		

Feed-through current DC or low frequency RMS current (< 20KHz): 50 A

DB 045155				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV_p]	RATED POWER [KVA_r]	RATED CURRENT [A_{RMS}]
R 85	1000	14	56	25
R 230	2700	14	56	25

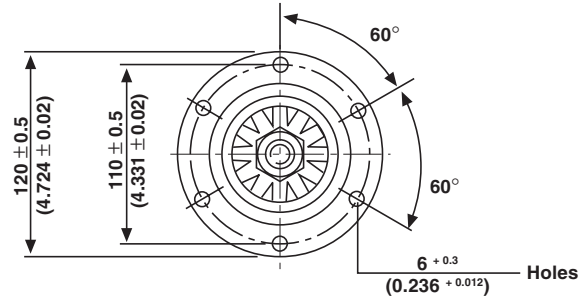
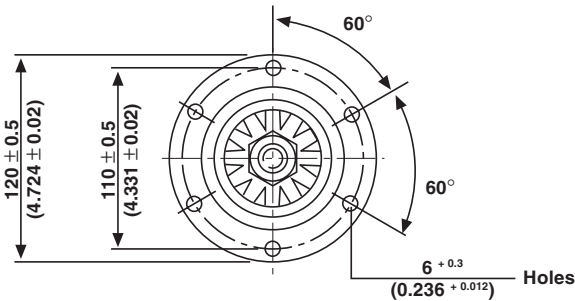
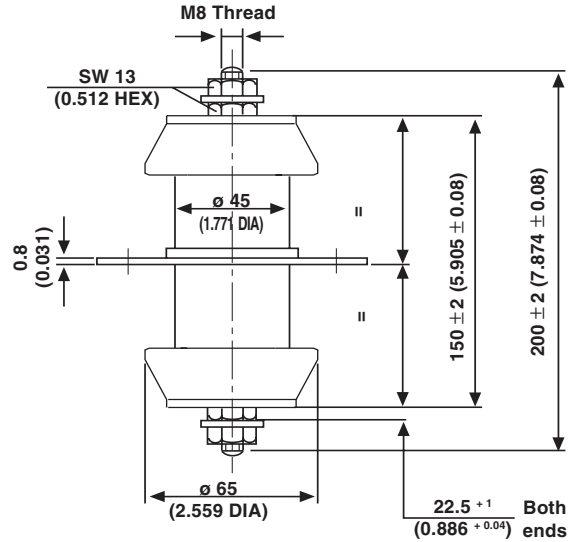
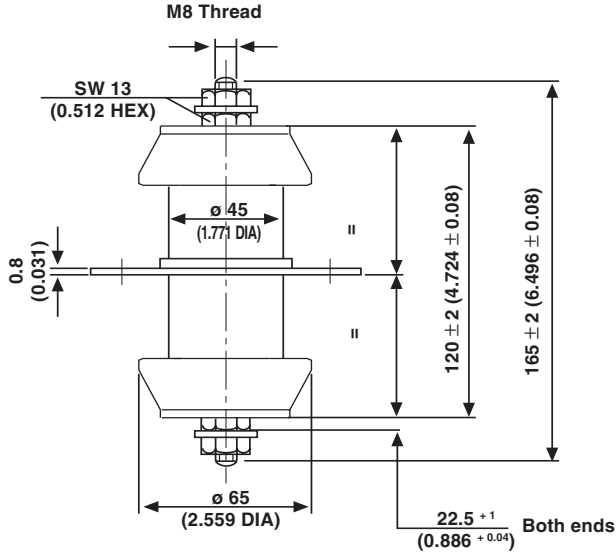
Feed-through current DC or low frequency RMS current (< 20KHz): 50 A

CAPACITANCE TOLERANCES: ± 20%, ± 10%, ± 5%.

Feed-Through Capacitors with Conductor Rod

DWB 045120 8KV_p to 13KV_p

DWB 045150 16KV_p



• Dimensions in millimeters (inches)

MATERIAL:

Capacitor elements made from Class 1 ceramic dielectric with noble electrodes.
 Connection Terminals: Copper/brass, silver plated.

FINISH:

Noble metal electrodes completely lacquered.
 Contoured rims glazed.

MARKING:

Type designator, Capacitance value and tolerance, Rated voltage (peak value), Production date code, Ceramic material code, DRALORIC Logo.

ACCESSORIES ADDED:

Hex. nuts and washers

ORDERING INFORMATION

DWB 045150	16KV _p	500pF	± 5%	R 42
MODEL	RATED VOLTAGE	CAPACITANCE VALUE	TOLERANCE	CERAMIC



DWB 045120				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _p]	RATED POWER [KVA _r]	RATED CURRENT [A _{RMS}]
R 42	400	13	56	25
	500			
	600	10		
	800	8		
R 85	1000	13	56	25
	1200			
	1500	10		
	2000	8		
	2500			

Feed-through current DC or low frequency RMS current (< 20KHz): 50 A

DWB 045150				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _p]	RATED POWER [KVA _r]	RATED CURRENT [A _{RMS}]
R 42	500	16	30	25
R 85	1200			

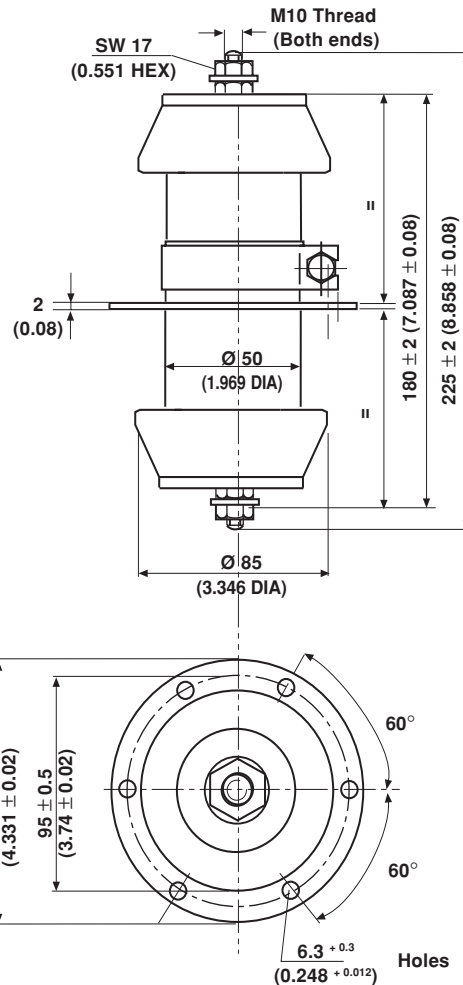
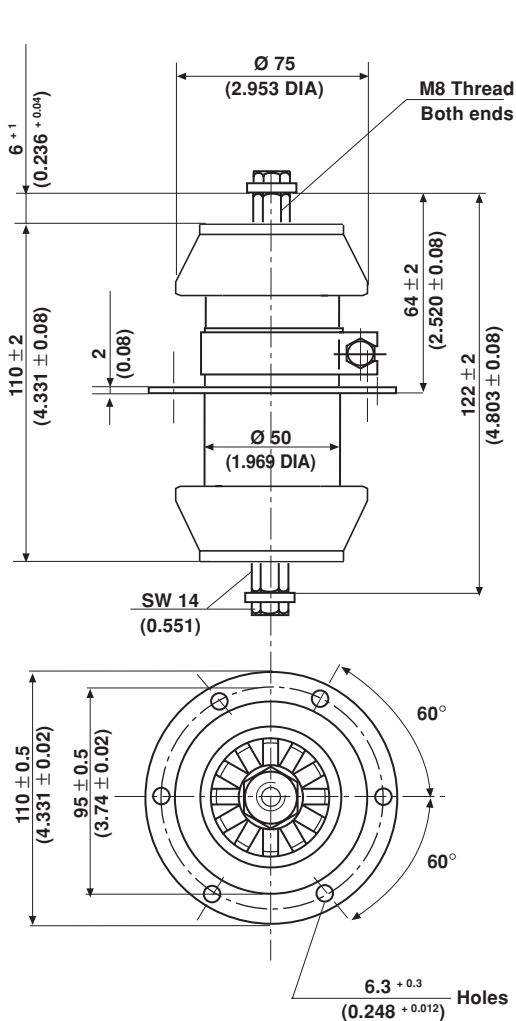
Feed-through current DC or low frequency RMS current (< 20KHz): 50 A

CAPACITANCE TOLERANCES: ± 20%, ± 10%, ± 5%.

Feed-Through Capacitors with Conductor Rod

DB 050110 15KV_p

DB 050180 20KV_p



• Dimensions in millimeters (inches)

MATERIAL:

Capacitor elements made from Class 1 ceramic dielectric with noble metal electrodes.
 Connection terminals: Copper/brass, silver plated.

FINISH:

Noble metal electrodes completely lacquered. Contoured rims glazed.
 DBF model only has additional moisture protection (silicone rubber) at both the contoured rims.

MARKING:

Type designator, Capacitance value and tolerance, Rated voltage (peak value), Production date code, Ceramic material code, DRALORIC Logo

ACCESSORIES ADDED:

Hex. nuts/screws and washers.

ORDERING INFORMATION				
DB 050180	20KV_p	3000pF	± 20%	R 230
MODEL	RATED VOLTAGE	CAPACITANCE VALUE	TOLERANCE	CERAMIC



DB 050110				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV_p]	RATED POWER* [KVA_r]	RATED CURRENT [A_{RMS}]
R 230	2000	15	max. 200	75

* The surface temperature of 100°C must not be exceeded

Feed-through current DC or low frequency RMS current (< 20KHz): 50 A

DB 050180				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV_p]	RATED POWER * [KVA_r]	RATED CURRENT [A_{RMS}]
R 85	1000	20	70	50
	1500	20	70	50
R 230	3000	20	100	60

* The surface temperature of 100°C must not be exceeded

Feed-through current DC or low frequency RMS current (< 20KHz): 70 A

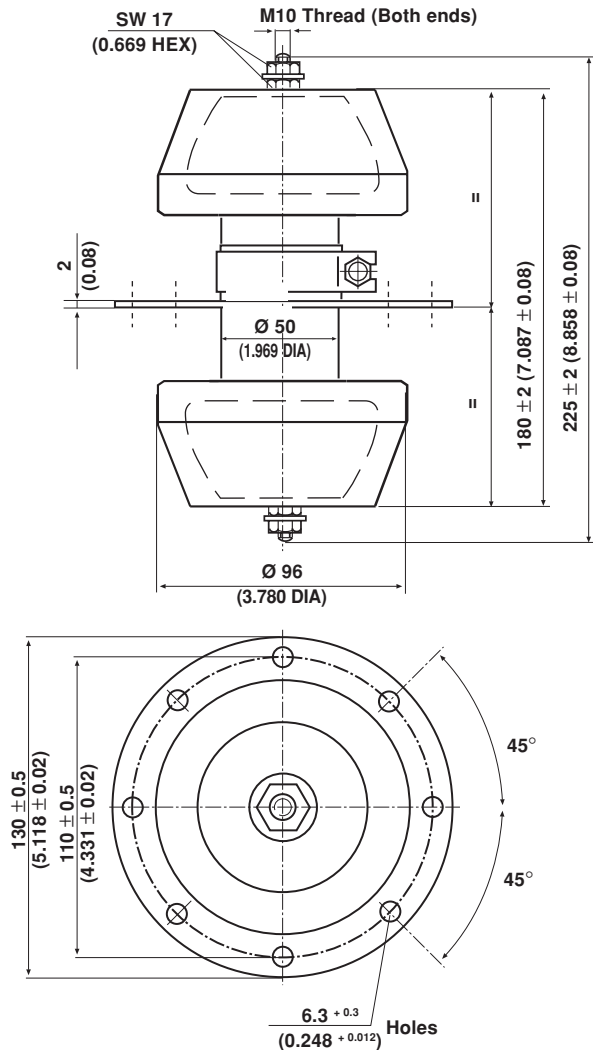
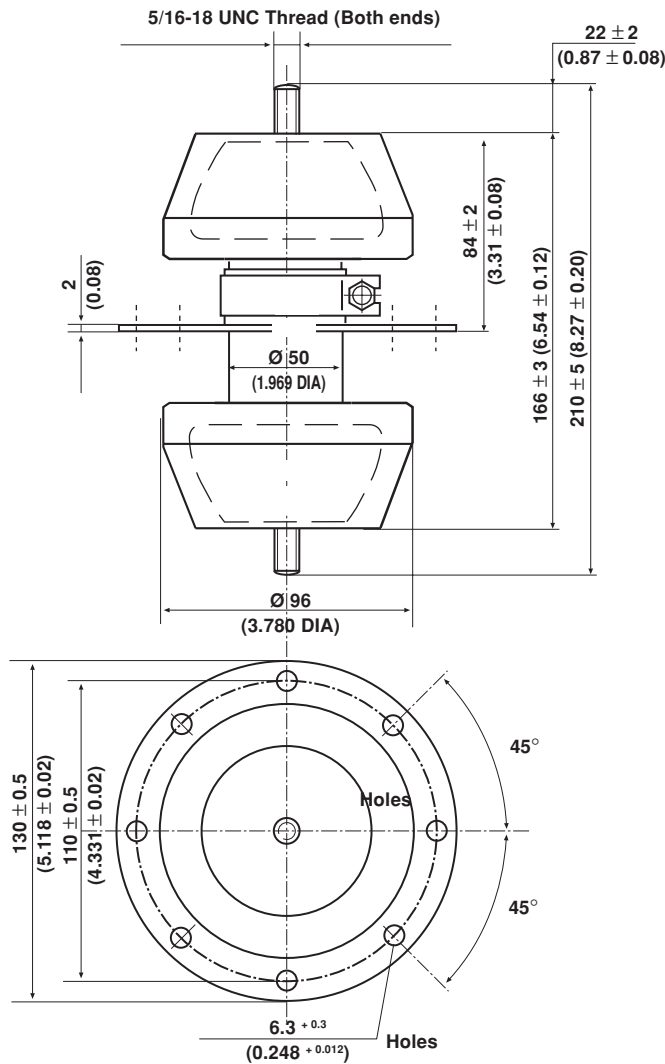
CAPACITANCE TOLERANCES:

± 20%, ± 10%.

Feed-Through Capacitors with Conductor Rod

DBF 050166 25KV_p

DBF 050180 30KV_p



• Dimensions in millimeters (inches)

MATERIAL:

Capacitor elements made from Class 1 ceramic dielectric with noble metal electrodes. Connection terminals: Copper/brass, silver plated.

FINISH:

Noble metal electrodes completely lacquered. Contoured rims glazed and has additional moisture protection (silicone rubber).

MARKING:

Type designator, Capacitance value and tolerance, Rated voltage (peak value), Production date code, Ceramic material code, DRALORIC Logo

ACCESSORIES ADDED:

Hex. nuts/screws and washers.

ORDERING INFORMATION				
DBF 050180	30KV _p	2000pF	± 20%	R 230
MODEL	RATED VOLTAGE	CAPACITANCE VALUE	TOLERANCE	CERAMIC



DBF 050166				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV_p]	RATED POWER* [KVA_r]	RATED CURRENT [A_{RMS}]
R 85	500	25	70	50

* The surface temperature of 100°C must not be exceeded
Feed-through current DC or low frequency RMS current (< 20KHz): 70 A

CAPACITANCE TOLERANCES:

± 20%, ± 10%, ± 5%

DBF 050180				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV_p]	RATED POWER * [KVA_r]	RATED CURRENT [A_{RMS}]
R 85	1000	30	70	87
	1500	30	70	87
R 230	2000	30	70	87
	3000	20	100	60

* The surface temperature of 100°C must not be exceeded
Feed-through current DC or low frequency RMS current (< 20KHz): 70 A

CAPACITANCE TOLERANCES:

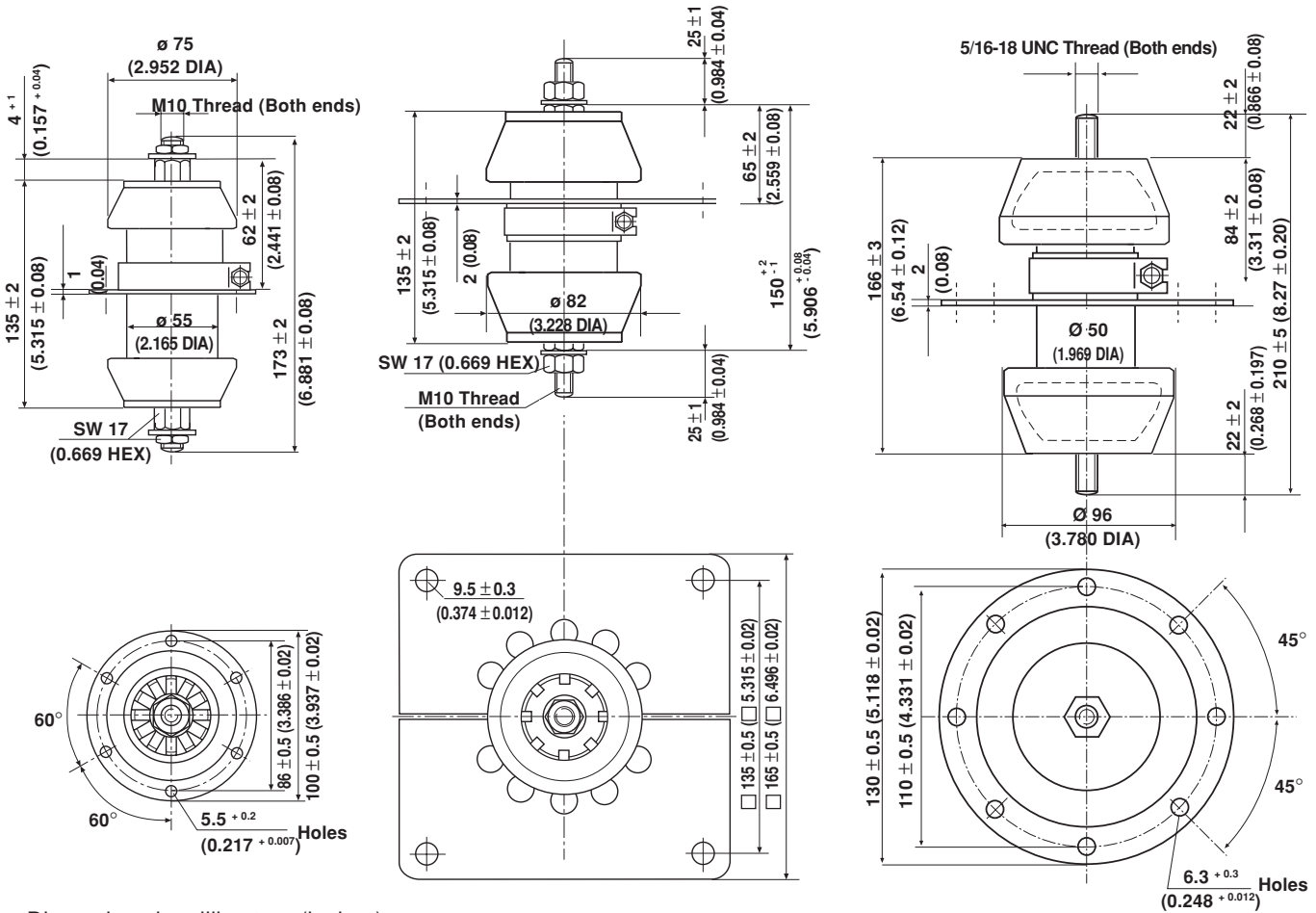
± 20%, ± 10%.

Feed-Through Capacitors with R 16 High Q Ceramic

DB 055135 20KV_p

DBZ 055135 20KV_p

DBF 050166 25KV_p



• Dimensions in millimeters (inches)

MODEL:

These capacitor feature a Q-Factor greater than 10,000 which makes it well suited in operating frequency range from 0.1 MHz up to 30 MHz where high voltages and currents are present.

MATERIAL:

Capacitor elements made from Class 1 "High Q" ceramic dielectric with noble metal electrodes.
 Connection terminals: Copper/brass, silver plated.

FINISH:

Noble metal electrodes completely lacquered at model DB 055135. Contoured rims glazed.
 DBF model only has additional moisture protection (silicone rubber) at both the contoured rims.

MARKING:

Type designator, Capacitance value and tolerance, Rated voltage, Production date code, Ceramic material code, DRALORIC Logo

ACCESSORIES ADDED:

Hex. nuts/screws and washers (DB, DBZ 055135 only).

ORDERING INFORMATION

DBZ 055135	20KV _p	100pF	± 10%	R 16 High Q
MODEL	RATED VOLTAGE	CAPACITANCE VALUE	TOLERANCE	CERAMIC

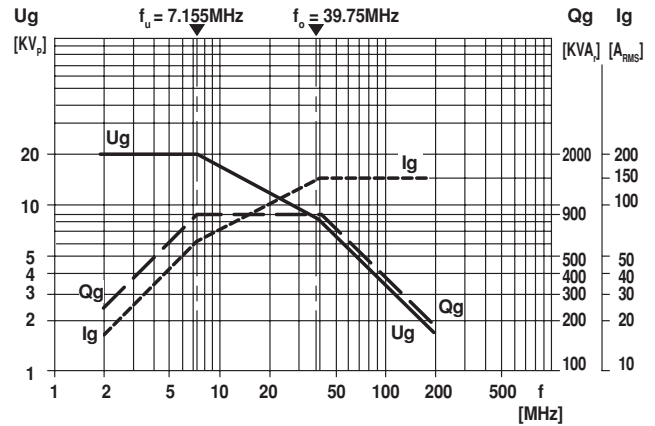


DERATING DIAGRAMS

DB 055135				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _p]	RATED POWER [KVA _r]*	RATED CURRENT [A _{RMS}]
R 16 High Q	100	20	max. 900	150

CAPACITANCE TOLERANCES: ± 20% ± 10%.

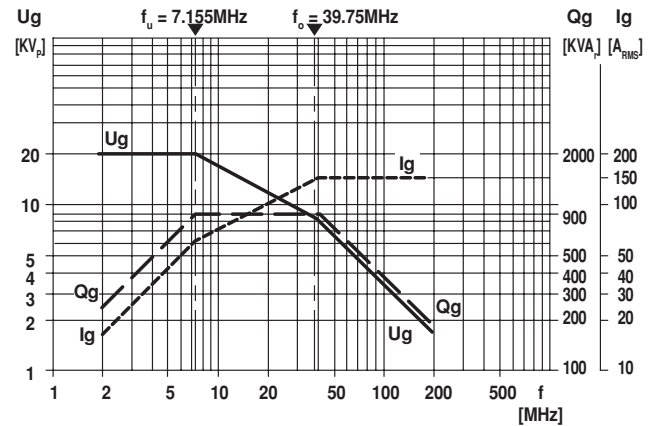
* The surface temperature of 100°C must not be exceeded
 Feed-through current DC or low frequency RMS current (< 20KHz): 80 A



DBZ 055135				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _p]	RATED POWER [KVA _r]*	RATED CURRENT [A _{RMS}]
R 16 High Q	100	20	max. 900	150

CAPACITANCE TOLERANCE: ± 10%.

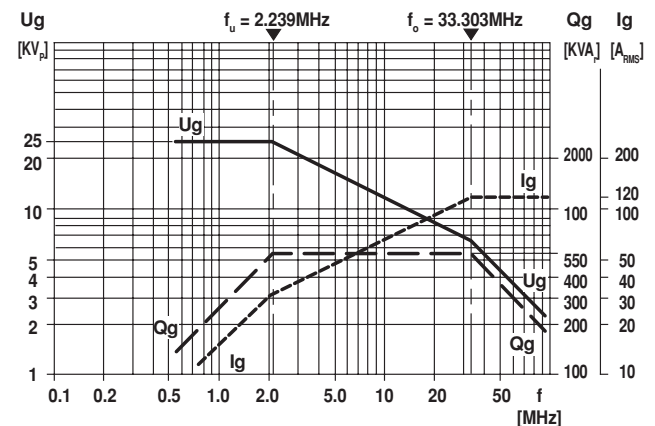
* The surface temperature of 100°C must not be exceeded
 Feed-through current DC or low frequency RMS current (< 20KHz): 80 A



DBF 050166				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _p]	RATED POWER [KVA _r]*	RATED CURRENT [A _{RMS}]
R 16 High Q	125	25	max. 550	120

CAPACITANCE TOLERANCE: ± 10%.

* The surface temperature of 100°C must not be exceeded
 Feed-through current DC or low frequency RMS current (< 20KHz): 80 A







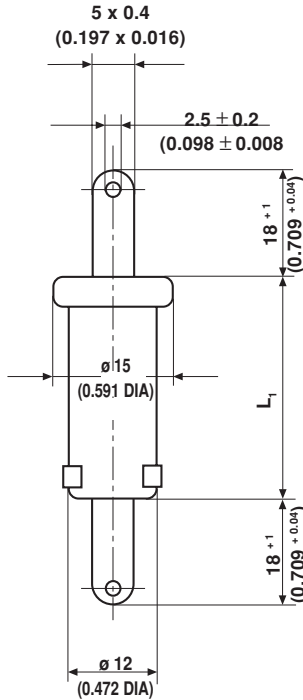
Tubular Capacitors

Contents

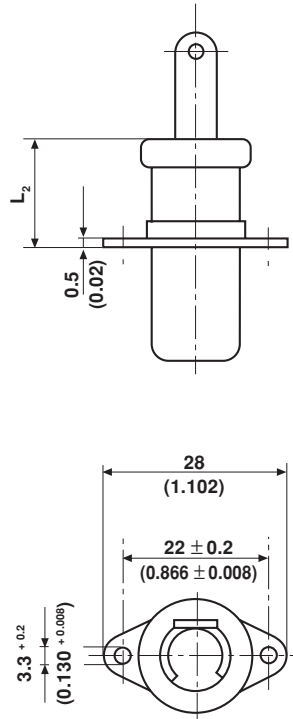
R. 012...	
Tubular capacitors, tag mounting	
2KV _p	
3pF to 400pF	58
R. 016...	
Tubular capacitors, tag mounting	
3KV _p	
25pF to 1600pF	60
R. 020080	
Tubular capacitors, tag mounting	
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band mounting	
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RD 045120	
Tubular capacitors, screw and	
band mounting	
10KV _p to 11KV _p	
200pF to 4700pF	64

Tubular Capacitors, Tag Mounting

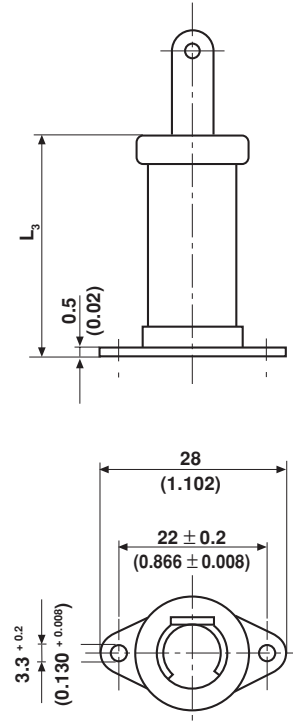
RA 012085 2KV_p
RA 012020 2KV_p



RB 012085 2KV_p
RB 012020 2KV_p



RE 012085 2KV_p
RE 012020 2KV_p



• Dimensions in millimeters (inches)

MODEL	RA 012085 RE 012085	RA 012020 RB 012020 RE 012020
Length L ₁	8.5 (0.335)	20 (0.787)
Length L ₂	Model RB 012085 is not available	10 ± 1 (0.394 ± 0.039)
Length L ₃	10 ± 1 (0.394 ± 0.039)	22 ± 1 (0.866 ± 0.039)

MATERIAL:

Capacitor elements made from Class 1 ceramic dielectric with noble metal electrodes.
 Connection terminals: Copper/brass, silver plated.

MARKING:

Type designator, Capacitance value and tolerance, Rated voltage (peak value), Production date code, Ceramic material code, DRALORIC Logo

FINISH:

Capacitor body completely laquered.

ORDERING INFORMATION				
RA 012085	2KV _p	100pF	± 10%	R 85
MODEL	RATED VOLTAGE	CAPACITANCE VALUE	TOLERANCE	CERAMIC



R. 012085				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _p]	RATED POWER [KVA _r]	RATED CURRENT [A _{RMS}]
R 7	3	2	0.7	4
	4			
	5			
	6			
	8			
R 42	10	2	0.8	4
	16			
	20			
R 85	25	2	0.8	4
	30			
	40			
	50			
	60			
	80			
	100			

CAPACITANCE TOLERANCES: < 10pF: ± 2pF, ± 1pF, ± 0.5pF
 ≥10pF: ± 20%, ± 10%, ± 5%

Other capacitance values and tolerances are available on request.

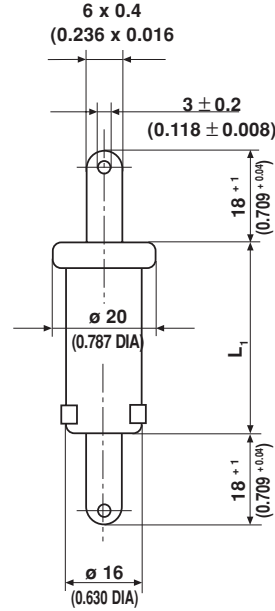
R. 012020				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _p]	RATED POWER [KVA _r]	RATED CURRENT [A _{RMS}]
R 7	10	2	1.4	4
	12			
	16			
	20			
	25			
R 42	30	2	1.7	4
	40			
	50			
	60			
R 85	80	2	1.7	4
	100			
	120			
	160			
	200			
	250			
	300			
	400			

CAPACITANCE TOLERANCES: ± 20%, ± 10%, ± 5%

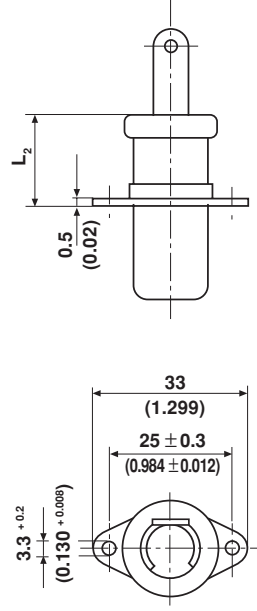
Other capacitance values and tolerances are available on request.

Tubular Capacitors, Tag Mounting

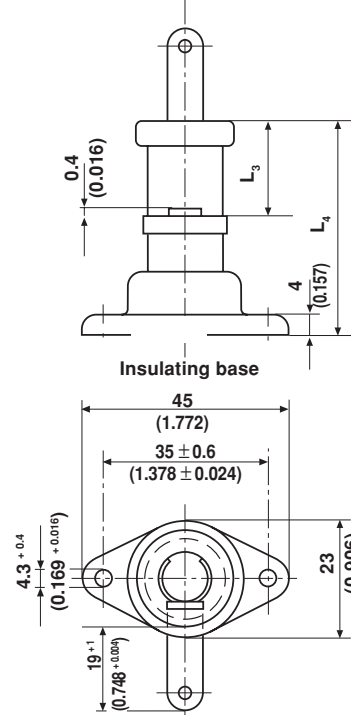
RA 016040 3KV_p
RA 016070 3KV_p



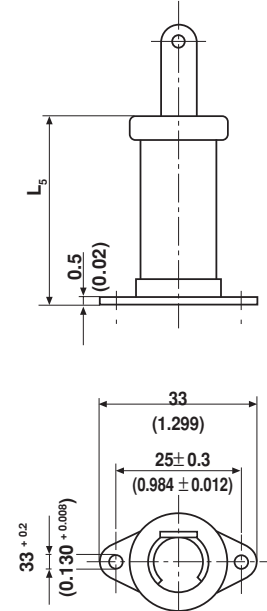
RB 016040 3KV_p
RB 016070 3KV_p



RC 016040 3KV_p
RC 016070 3KV_p



RE 016040 3KV_p
RE 016070 3KV_p



• Dimensions in millimeters (inches)

MODEL	RA 016040 RB 016040 RC 016040 RE 016040	RA 016070 RB 016070 RC 016070 RE 016070
Length L ₁	40 (1.575)	70 (2.756)
Length L ₂	20 ± 1 (0.787 ± 0.039)	35 ± 1 (1.378 ± 0.039)
Length L ₃	20 ± 1 (0.394 ± 0.039)	35 ± 1 (1.378 ± 0.039)
Length L ₄	46 ± 1 (1.811 ± 0.039)	76 ± 1 (2.992 ± 0.039)
Length L ₅	41 ± 1 (1.614 ± 0.039)	71 ± 1 (2.795 ± 0.039)

MATERIAL:

Capacitor elements made from Class 1 ceramic dielectric with noble metal electrodes.
 Connection terminals: Copper/brass, silver plated.

MARKING:

Type designator, Capacitance value and tolerance, Rated voltage (peak value), Production date code, Ceramic material code, DRALORIC Logo

FINISH:

Capacitor body completely laquered.
 Insulating ceramic base glazed (Model RC only).

ORDERING INFORMATION				
RC 016040	3KV _p	300pF	± 10%	R 42
MODEL	RATED VOLTAGE	CAPACITANCE VALUE	TOLERANCE	CERAMIC



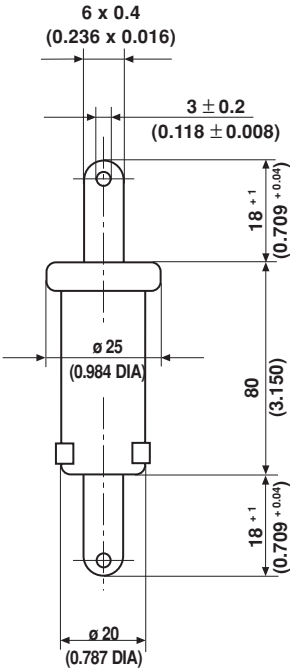
R. 016040				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _p]	RATED POWER [KVA _r]	RATED CURRENT [A _{RMS}]
R 7	25	3	3.5	5
	30			
	40			
	50			
	60			
R 16	80			
R 42	100	3	4.2	5
	120			
	160			
	200			
	250			
	300			
R 85	400	3	4.2	5
	500			
	600			
	800			
	1000			

R. 016070				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _p]	RATED POWER [KVA _r]	RATED CURRENT [A _{RMS}]
R 7	50	3	5.6	5
	60			
	80			
	100			
R 16	120			
R 42	200	3	7	5
	250			
	300			
	400			
	500			
	600			
R 85	800	3	7	5
	1000			
	1200			
	1600			

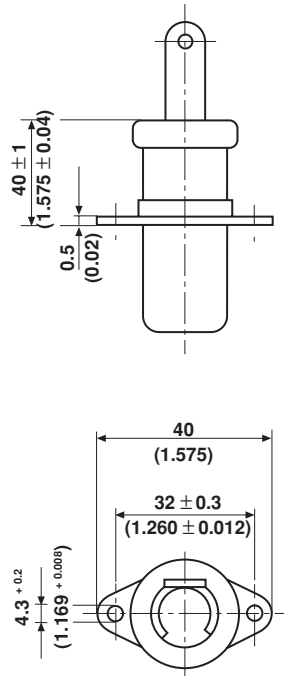
CAPACITANCE TOLERANCES: ± 20%, ± 10%, ± 5%
 Other capacitance values and tolerances are available on request.

Tubular Capacitors, Tag Mounting

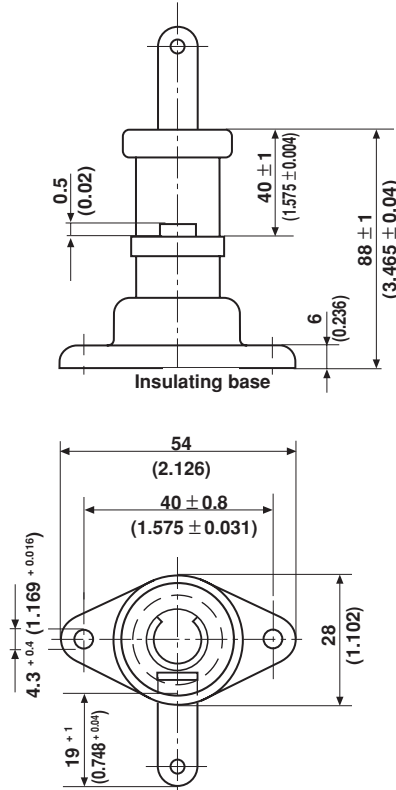
RA 020080 4KV_p



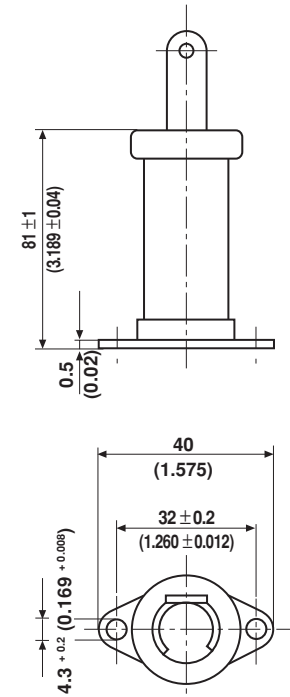
RB 020080 4KV_p



RC 020080 4KV_p



RE 020080 4KV_p



• Dimensions in millimeters (inches)

MATERIAL:

Capacitor elements made from Class 1 ceramic dielectric with noble metal electrodes.
 Connection terminals: Copper/brass, silver plated.

FINISH:

Capacitor body completely laquered.
 Insulating ceramic base glazed (Model RC only).

MARKING:

Type designator, Capacitance value and tolerance, Rated voltage (peak value), Production date code, Ceramic material code, DRALORIC Logo

ORDERING INFORMATION				
RA 020080	4KV _p	1600pF	± 20%	R 85
MODEL	RATED VOLTAGE	CAPACITANCE VALUE	TOLERANCE	CERAMIC

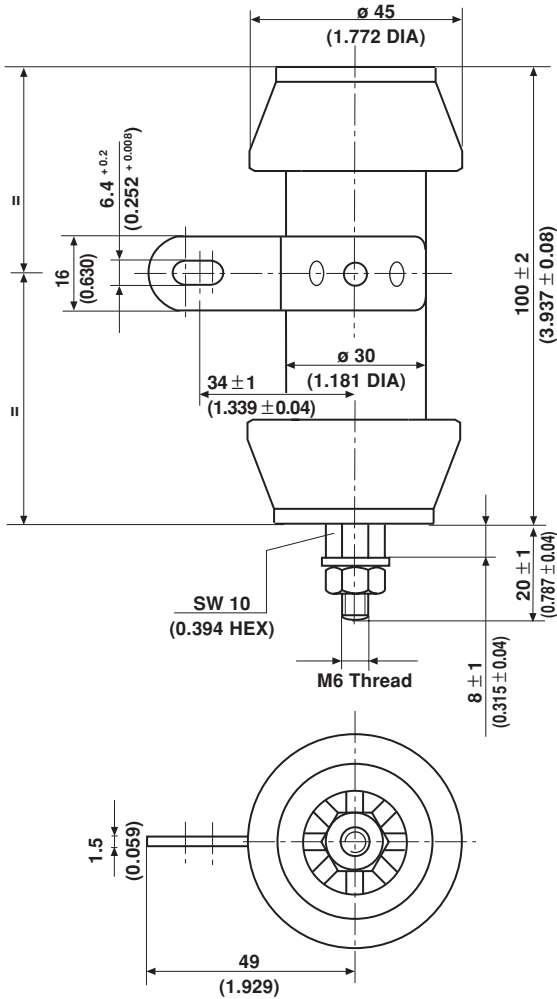


R. 020080				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV_p]	RATED POWER [KVA_r]	RATED CURRENT [A_{RMS}]
R 7	60	4	8.0	6
	80			
	100			
	120			
	160			
R 42	200	4	10.5	6
	250			
	300			
	400			
	500			
	600			
	800			
R 85	1000	4	10.5	6
	1200			
	1600			
	2000			

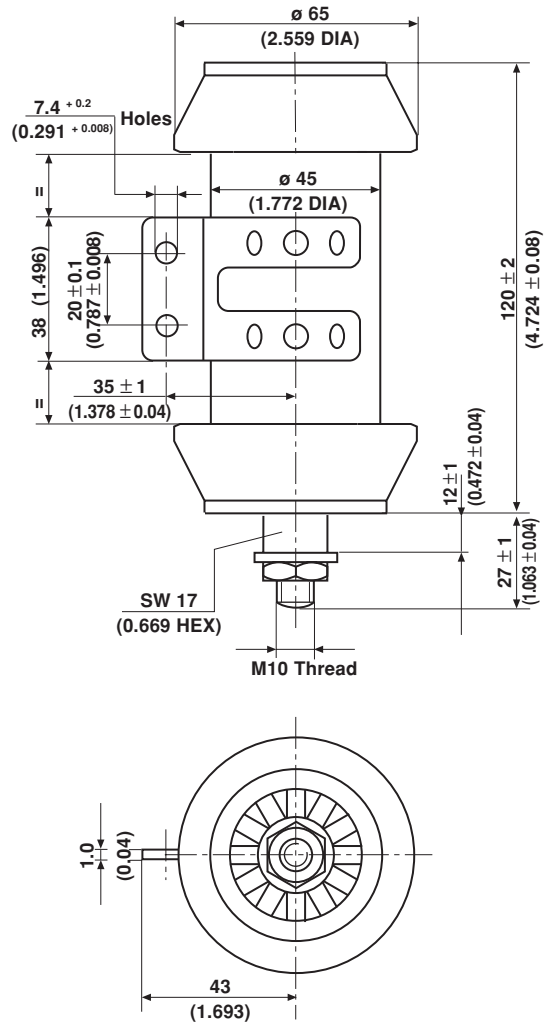
CAPACITANCE TOLERANCES: ± 20%, ± 10%, ± 5%
Other capacitance values and tolerances are available on request.

Tubular Capacitors, Screw & Band Mounting

RD 030100 7KV_p to 8KV_p



RD 045120 10KV_p to 11KV_p



• Dimensions in millimeters (inches)

MATERIAL:

Capacitor elements made from Class 1 ceramic dielectric with noble metal electrodes.
Connection terminals: Copper/brass, silver plated.

FINISH:

Noble metal electrodes completely laquered.
Insulating rims glazed.

MARKING:

Type designator, Capacitance value and tolerance, Rated voltage (peak value), Production date code, Ceramic material code, DRALORIC Logo

ACCESSORIES ADDED:

Hex. nuts and washers.

ORDERING INFORMATION

RD 030100	8KV _p	1200pF	± 20%	R 85
MODEL	RATED VOLTAGE	CAPACITANCE VALUE	TOLERANCE	CERAMIC



RD 030100							
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV_p]	RATED POWER [KVA_r]	RATED CURRENT [A_{RMS}]			
R 7	100	8	30	30			
	120						
R 16	160						
	200						
R 42	250				8	30	30
	300						
	400						
	500						
R 85	600	8	30	30			
	800						
	1000						
	1200						
	1500	7					

RD 045120				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV_p]	RATED POWER [KVA_r]	RATED CURRENT [A_{RMS}]
R 16	200	11	60	50
	250			
	300			
R 42	400	11	60	50
	500			
	600			
	800	10		
R 85	1000	11	60	50
	1200			
	1500	10		
R 230	2000	11	60	50
	3000			
	4700	10		

CAPACITANCE TOLERANCES: ± 20%, ± 10%, ± 5%

Other capacitance values and tolerances are available on request.





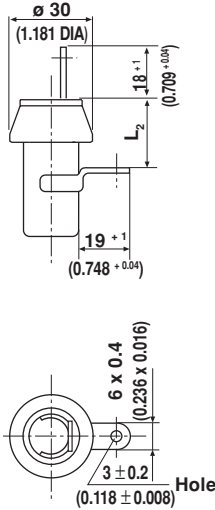
Pot Capacitors

Contents

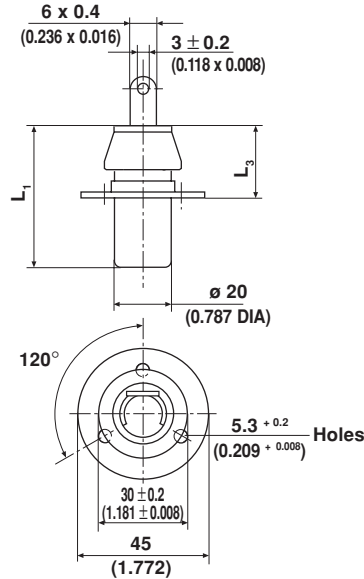
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Pot capacitors for coupling purposes, higher voltages	
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Pot Capacitors, Tag Mounting

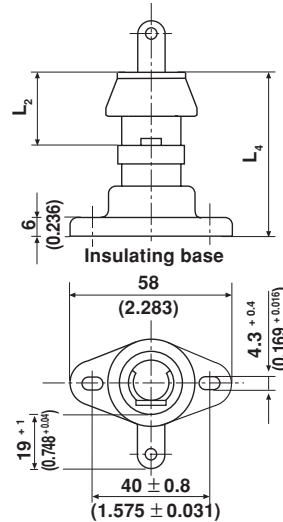
TA 6KV_p to 8KV_p



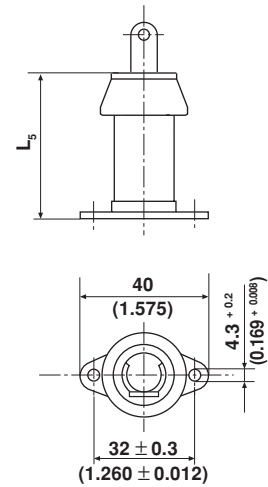
TB 6KV_p to 8KV_p



TC 6KV_p to 8KV_p



TE 6KV_p to 8KV_p



• Dimensions in millimeters (inches)

MATERIAL:

Capacitor elements made from Class 1 ceramic dielectric with noble metal electrodes.
Connection Terminals: Copper/brass, silver plated.

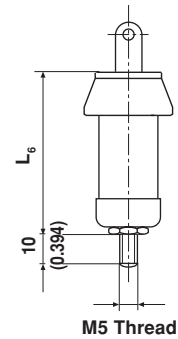
FINISH:

Noble metal electrodes completely lacquered. Insulating rim glazed.

MARKING:

Type designator, Capacitance value and tolerance, Rated voltage (peak value), Production date code, Ceramic material code, DRALORIC Logo.

TD 6KV_p to 8KV_p



MODEL	T. 020030	T. 020050	T. 020080
Length L ₁	30 (1.181)	50 (1.969)	80 (3.1500)
Length L ₂	15 ± 1.5 (0.591 ± 0.059)	25 ± 2 (0.984 ± 0.079)	40 ± 2 (1.575 ± 0.079)
Length L ₃	20 ± 1.5 (0.787 ± 0.059)	25 ± 2 (0.984 ± 0.079)	40 ± 2 (1.575 ± 0.079)
Length L ₄	46 ± 2 (1.811 ± 0.079)	55 ± 2 (2.165 ± 0.079)	85 ± 2 (3.346 ± 0.079)
Length L ₅	31 ± 2 (1.220 ± 0.079)	51 ± 2 (2.008 ± 0.079)	81 ± 2 (3.189 ± 0.079)
Length L ₆	36 (1.417)	56 (2.205)	86 (3.386)

ORDERING INFORMATION				
TA 020080	8KV _p	100pF	± 20%	R 7
MODEL	RATED VOLTAGE	CAPACITANCE VALUE	TOLERANCE	CERAMIC



T. 020030				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _p]	RATED POWER [KVA _r]	RATED CURRENT [A _{RMS}]
R 7	10	3	3.5	6
	16			
	20			
R 16	25	8	4.2	6
	40			
R 42	50	7	4.2	6
	60			
	80	6		
	100			
R 85	120	8	4.2	6
	160			
	200			
	250	7		
	300			
	400			

T. 020050				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _p]	RATED POWER [KVA _r]	RATED CURRENT [A _{RMS}]
R 7	20	8	5.6	6
	25			
R 16	40			
	50			
	60			
R 42	80	8	7.0	6
	100			
	160	7		
	200			
R 85	250	8	7.0	6
	300			
	400			
	500	7		
	600			

T. 020080				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _p]	RATED POWER [KVA _r]	RATED CURRENT [A _{RMS}]
R 7	40	8	8.5	7
	60			
R 16	80			
	100			
	120			
	160			
R 42	200	8	10.5	7
	250			
	300			
R 85	400	8	10.5	7
	500			
	600			
	1000			
	1200	7		

CAPACITANCE TOLERANCES: ± 20%, ± 10%, ± 5%

Other capacitance values and tolerances are available on request

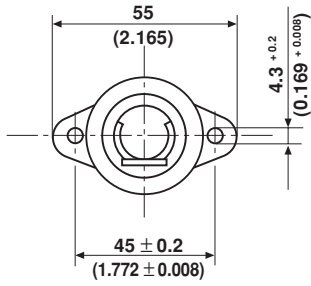
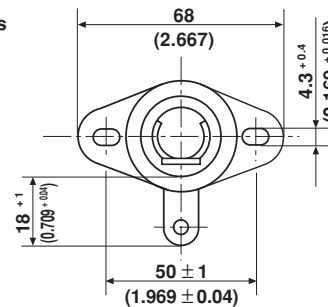
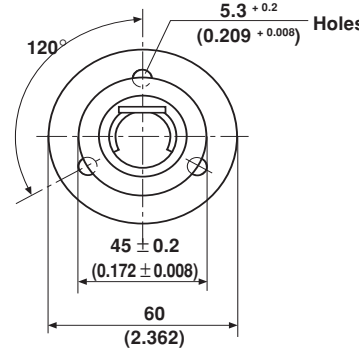
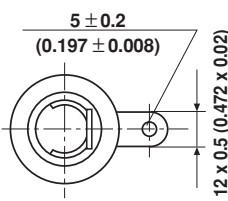
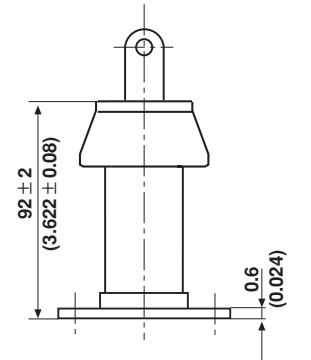
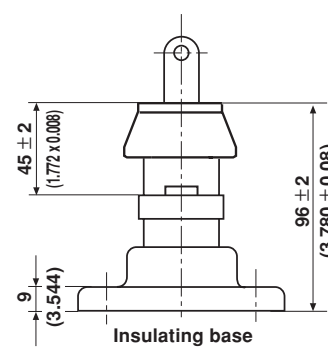
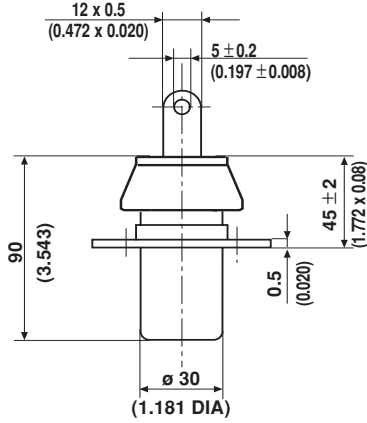
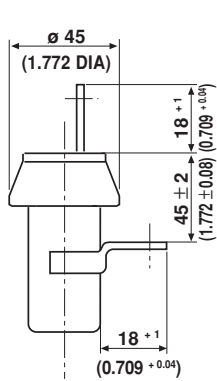
Pot Capacitors, Tag Mounting

TA 9KV_p to 10KV_p

TB 9KV_p to 10KV_p

TC 9KV_p to 10KV_p

TE 9KV_p to 10KV_p



• Dimensions in millimeters (inches)

MATERIAL:

Capacitor elements made from Class 1-ceramic dielectric with noble metal electrodes.
 Connection Terminals: Copper/brass, silver plated.

FINISH:

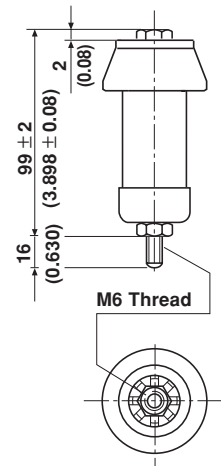
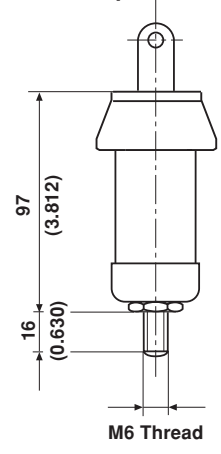
Noble metal electrodes completely lacquered.
 Insulating rim glazed.

MARKING:

Type designator, Capacitance value and tolerance, Rated voltage (peak value), Production date code, Ceramic material code, DRALORIC Logo.

TD 9KV_p to 10KV_p

TDZ 9KV_p to 10KV_p



ORDERING INFORMATION				
TC 030090	10KV _p	1000pF	± 20%	R 85
MODEL	RATED VOLTAGE	CAPACITANCE VALUE	TOLERANCE	CERAMIC



T. 030090				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV_p]	RATED POWER [KVA_r]	RATED CURRENT [A_{RMS}]
R 7	50	10	14	9
	60			
	80			
R 16	100			
	120			
	160			
R 42	200	10	18	9
	250			
	300			
	400			
R 85	500	10	18	9
	600			
	800			
	1000	9		
	1200			
	1600			

CAPACITANCE TOLERANCES: ± 20%, ± 10%, ± 5%

Other capacitance values and tolerances are available on request.

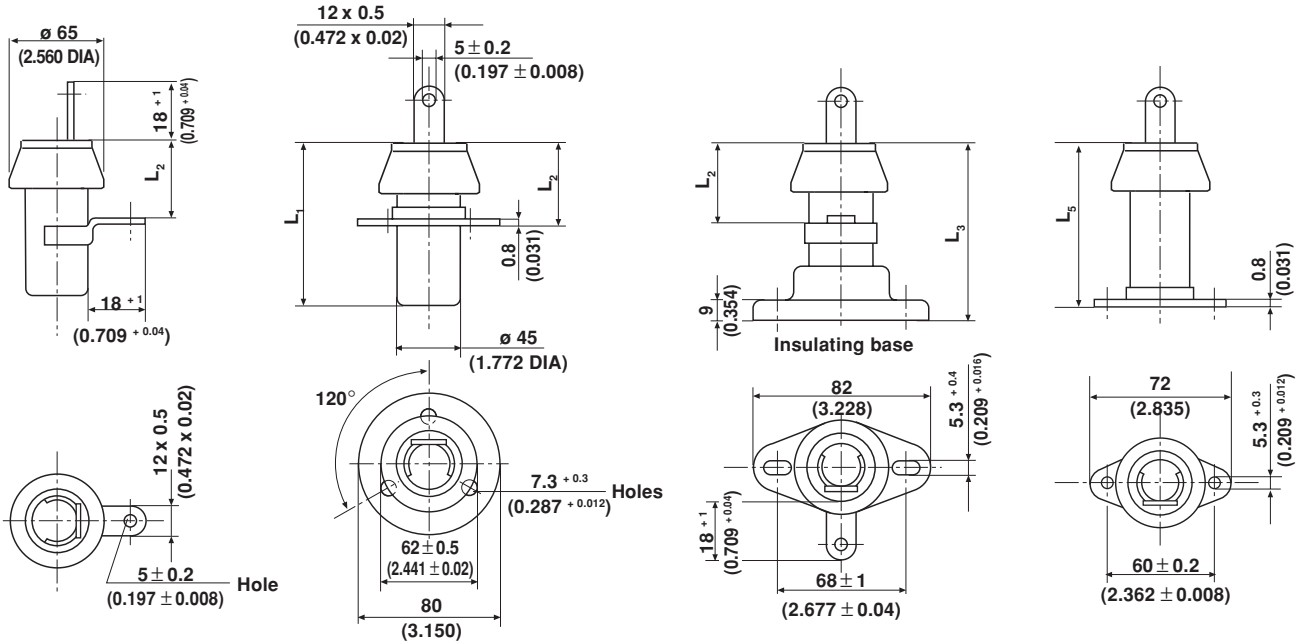
Pot Capacitors, Tag Mounting

TA 6KV_p to 8KV_p

TB 6KV_p to 8KV_p

TC 6KV_p to 8KV_p

TE 6KV_p to 8KV_p



- Dimensions in millimeters (inches)

MATERIAL:

Capacitor elements made from Class 1 ceramic dielectric with noble metal electrodes.
 Connection Terminals: Copper/brass, silver plated.

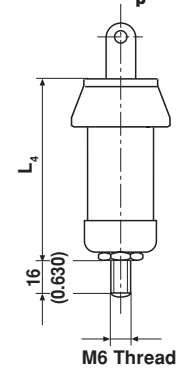
FINISH:

Noble metal electrodes completely lacquered. Insulating rim glazed.

MARKING:

Type designator, Capacitance value and tolerance, Rated voltage (peak value), Production date code, Ceramic material code, DRALORIC Logo.

TD 6KV_p to 8KV_p



MODEL	T. 045090	T. 045120	T. 045150
Length L ₁	90 (3.543)	120 (4.724)	150 (5.906)
Length L ₂	45 ± 2 (1.772 ± 0.079)	60 ± 2 (2.362 ± 0.079)	75 ± 2 (2.952 ± 0.079)
Length L ₃	96 ± 2 (3.780 ± 0.079)	126 ± 2 (4.961 ± 0.079)	156 ± 2 (6.142 ± 0.079)
Length L ₄	97 (3.819)	127 (5.000)	157 (6.181)
Length L ₅	92 ± 2 (3.622 ± 0.079)	122 ± 2 (4.803 ± 0.079)	152 ± 2 (5.984 ± 0.079)

ORDERING INFORMATION

MODEL	RATED VOLTAGE	CAPACITANCE VALUE	TOLERANCE	CERAMIC
TB 045150	11KV _p	5000pF	± 20%	R 230



T. 045090				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _p]	RATED POWER [KVA _r]	RATED CURRENT [A _{RMS}]
R 7	60	10	22	12
	80			
	100			
	160			
R 16	200			
	250			
	300			
R 42	400			
	500			
	600			
R 85	800	10	28	12
	1000			
	1600			
	2500			
		9		

T. 045120				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _p]	RATED POWER [KVA _r]	RATED CURRENT [A _{RMS}]
R 7	50	13	28	10
	60			
	80			
	100			
R 42	160	12	35	10
	250	11		
	400	13		
R 85	500	13	35	10
	600			
	800			
	1000			
	1600	10		

T. 045150				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _p]	RATED POWER [KVA _r]	RATED CURRENT [A _{RMS}]
R 7	60	14	35	12
	80			
	100			
R 16	200	14	42	12
R 42	300			
	500			
R 85	600	13	42	12
	800	14		
	1000	13		
	1600			
R 230	2000	12	42	12
	3000	14		
	4000			
	5000	11		

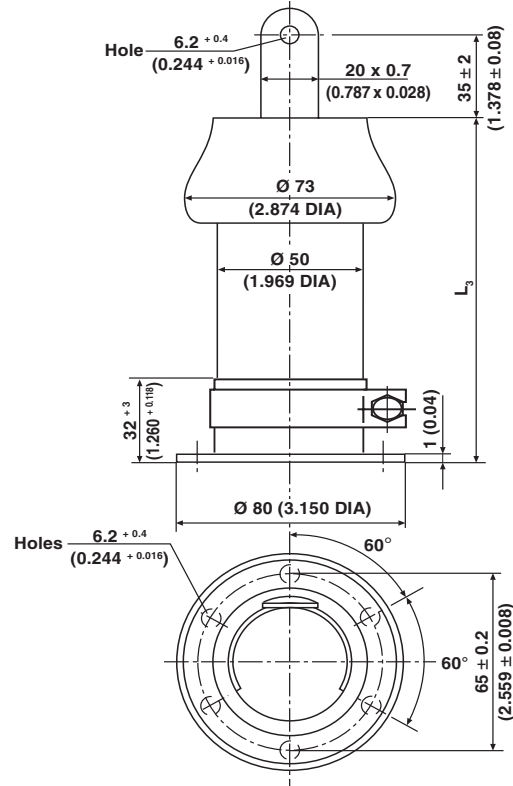
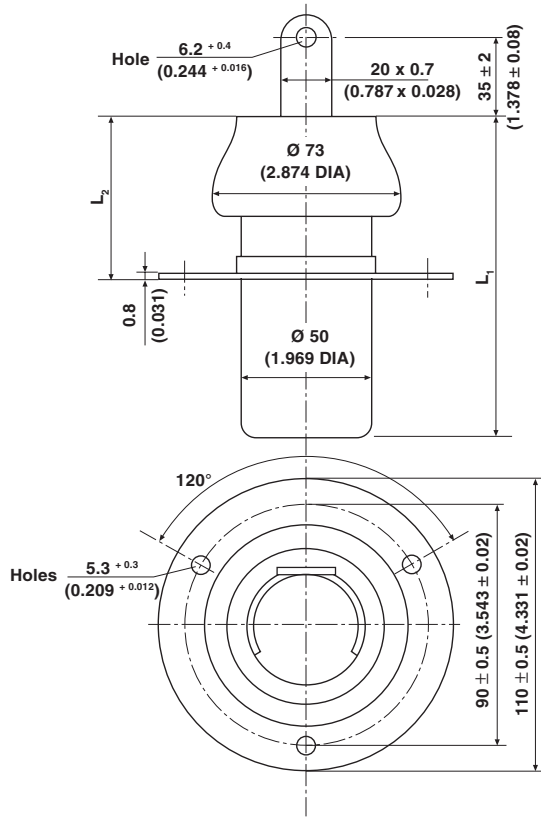
CAPACITANCE TOLERANCES: ± 20%, ± 10%, ± 5%

Other capacitance values and tolerances are available on request

Pot Capacitors, Tag & Flange Mounting

TB 6 KV_p to 12 KV_p

TE 6 KV_p to 12 KV_p



• Dimensions in millimeters (inches)

MODEL	TB 050120 TE 050120	TB 050200 TE 050200
Length L ₁	120 ± 2 (4.724 ± 0.079)	200 ± 2 (7.874 ± 0.079)
Length L ₂	60 ± 2 (2.362 ± 0.079)	100 ± 2 (3.937 ± 0.079)
Length L ₃	125 ± 2 (4.921 ± 0.079)	205 ± 2 (8.071 ± 0.079)

MATERIAL:

Capacitor elements made from Class 1 ceramic dielectric with noble metal electrodes.
Connection Terminals: Copper/brass, silver plated.

FINISH:

Noble metal electrodes completely lacquered. Insulating rim glazed.

MARKING:

Type designator, Capacitance value and tolerance, Rated voltage (peak value), Production date code, Ceramic material code, DRALORIC Logo.

ORDERING INFORMATION

TE 050200	9 KV _p	5000 pF	± 5 %	R 85
MODEL	RATED VOLTAGE	CAPACITANCE VALUE	TOLERANCE	CERAMIC



T. 050120				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _P]	RATED POWER* [KVA _r]	RATED CURRENT [A _{RMS}]
R 85	1000	12	60	20
	1200			
	1600	10		
	2000			
	2500	9		
	3000	6		
	4000			

T. 050200				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _P]	RATED POWER* [KVA _r]	RATED CURRENT [A _{RMS}]
R 85	2000	12	70	20
	2500			
	3000	10		
	4000			
	5500	9		
	6000	6		

CAPACITANCE TOLERANCES: ± 20 %, ± 10 %, ± 5 %

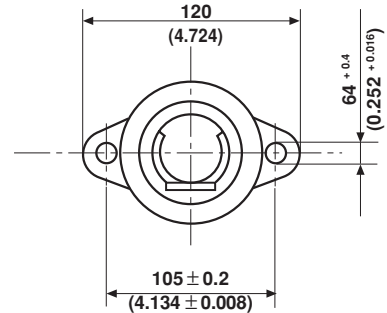
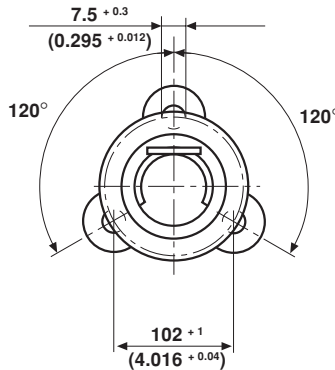
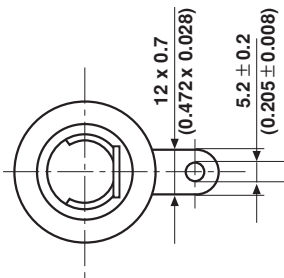
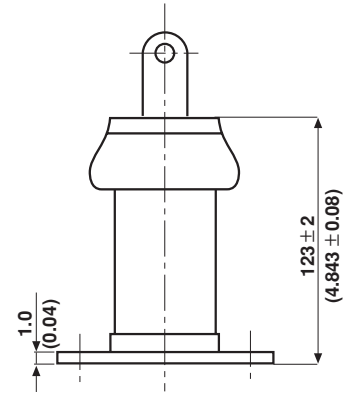
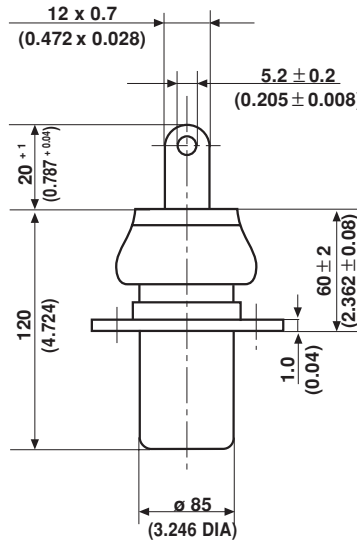
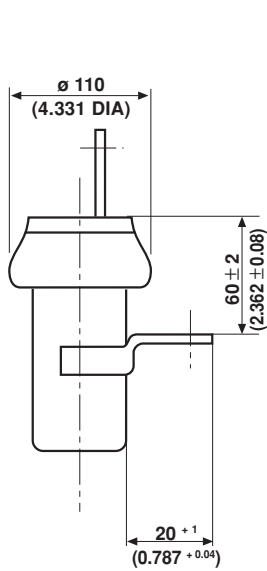
Other capacitance values and tolerances are available on request.

Pot Capacitors, Tag & Flange Mounting

TA 10KV_p to 15KV_p

TB 10KV_p to 15KV_p

TE 10KV_p to 15KV_p



• Dimensions in millimeters (inches)

MATERIAL:

Capacitor elements made from Class 1 ceramic dielectric with noble metal electrodes.

Connection Terminals: Copper/brass, silver plated.

FINISH:

Noble metal electrodes completely lacquered. Insulating rim glazed.

MARKING:

Type designator, Capacitance value and tolerance, Rated voltage (peak value), Production date code, Ceramic material code, DRALORIC Logo.

ORDERING INFORMATION

TB 085120	12KV _p	800pF	± 10%	R 85
MODEL	RATED VOLTAGE	CAPACITANCE VALUE	TOLERANCE	CERAMIC



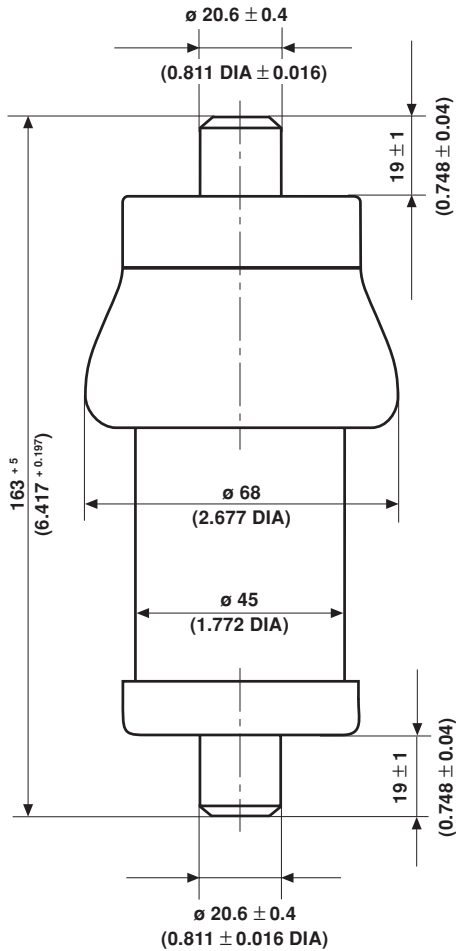
T. 085120				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV_p]	RATED POWER [KVA_r]	RATED CURRENT [A_{RMS}]
R 7	100	15	56	15
	160			
	250	12		
	400	10		
R 42	500	15	70	15
	600			
	800	12		
	1000			
R 85	1600	15	70	15
	2000	13		
	2500	12		
	4000	10		

CAPACITANCE TOLERANCES: $\pm 20\%$, $\pm 10\%$, $\pm 5\%$

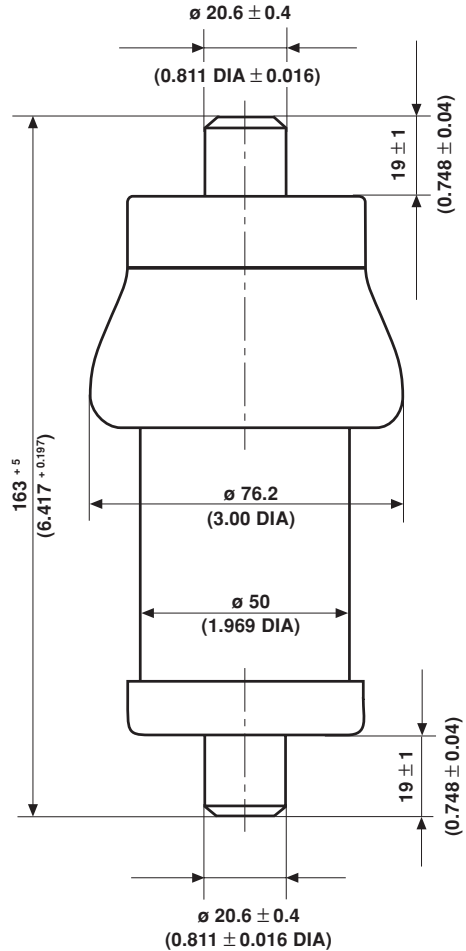
Other capacitance values and tolerances are available on request.

Pot Capacitors with R 16 High Q Ceramic

TDZ 045124 18KV_p



TDZ 050124 18KV_p



• Dimensions in millimeters (inches)

MODEL:

These capacitors feature a Q-Factor greater than 10,000 which makes them well suited in operating frequency range from 0.1MHz up to 30MHz where high voltages and currents are present.

Solid cylindrical brass terminals (20.6 mm/ 0.81" diameter) allow plug-in compatible fuse clip mounting for vacuum capacitor replacement.

MATERIAL:

Capacitor elements made from Class 1 "High Q" ceramic dielectric with noble metal electrodes.
 Connection terminals: Copper/brass, silver plated.

FINISH:

Noble metal electrodes completely lacquered. Insulating rim glazed.

MARKING:

Type designator, Capacitance value and tolerance, Rated voltage (peak value), Production date code, Ceramic material code, DRALORIC Logo

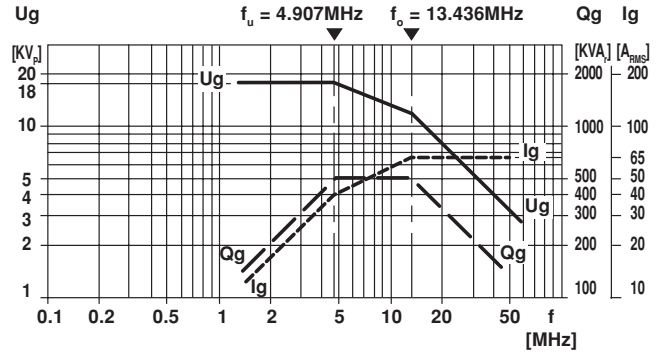
ORDERING INFORMATION

TDZ 050124	18KV _p	250pF	$\pm 10\%$	R 16 High Q
MODEL	RATED VOLTAGE	CAPACITANCE VALUE	TOLERANCE	CERAMIC

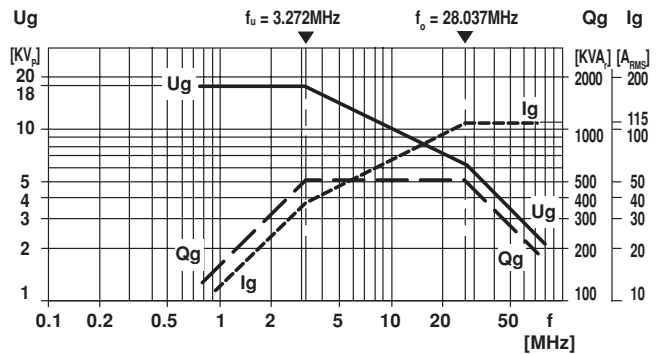


DERATING DIAGRAMS

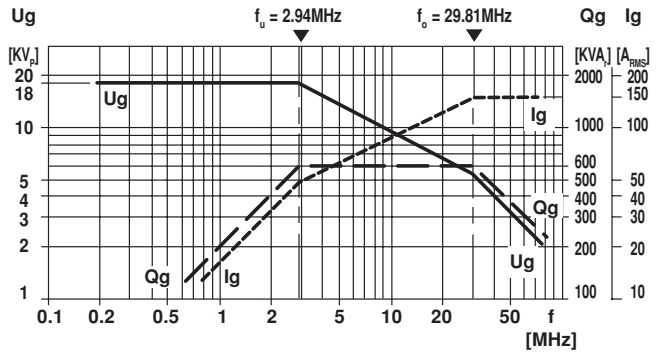
TDZ 045124					
CERAMIC	CAPACITANCE VALUE [pF]	RATED WORKING VOLTAGE [KV _p]	RATED TEST VOLTAGE [KV _p]	RATED POWER * [KVA _r]	RATED CURRENT [A _{RMS}]
R 16 High Q	100	18	32	up to 500	65



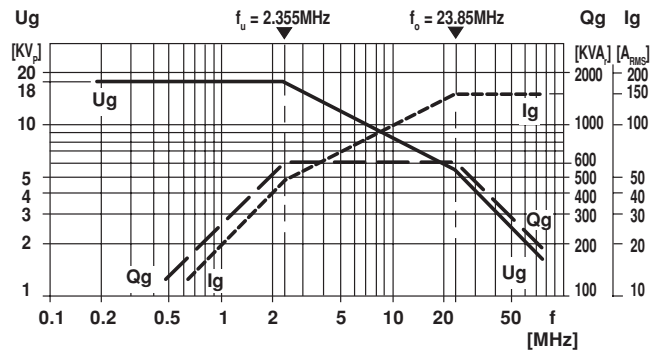
TDZ 045124					
CERAMIC	CAPACITANCE VALUE [pF]	RATED WORKING VOLTAGE [KV _p]	RATED TEST VOLTAGE [KV _p]	RATED POWER * [KVA _r]	RATED CURRENT [A _{RMS}]
R 16 High Q	150	18	36	up to 500	115



TDZ 050124					
CERAMIC	CAPACITANCE VALUE [pF]	RATED WORKING VOLTAGE [KV _p]	RATED TEST VOLTAGE [KV _p]	RATED POWER * [KVA _r]	RATED CURRENT [A _{RMS}]
R 16 High Q	200	18	36	up to 600	150



TDZ 050124					
CERAMIC	CAPACITANCE VALUE [pF]	RATED WORKING VOLTAGE [KV _p]	RATED TEST VOLTAGE [KV _p]	RATED POWER * [KVA _r]	RATED CURRENT [A _{RMS}]
R 16 High Q	250	18	36	up to 600	150



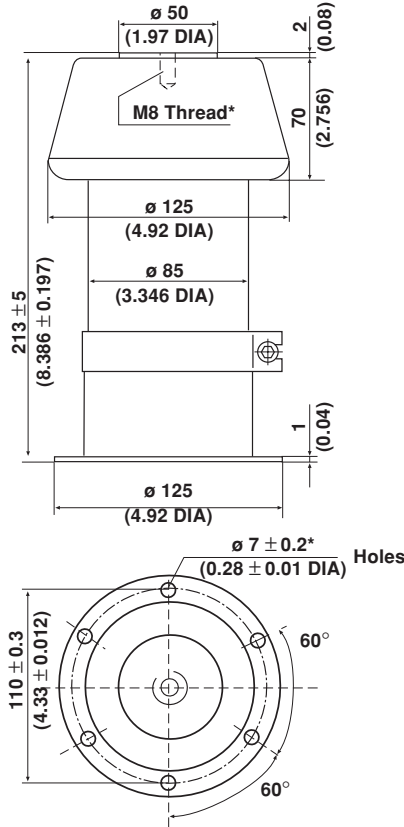
* The surface temperature of 100°C must not be exceeded.

CAPACITANCE TOLERANCE: ± 10%

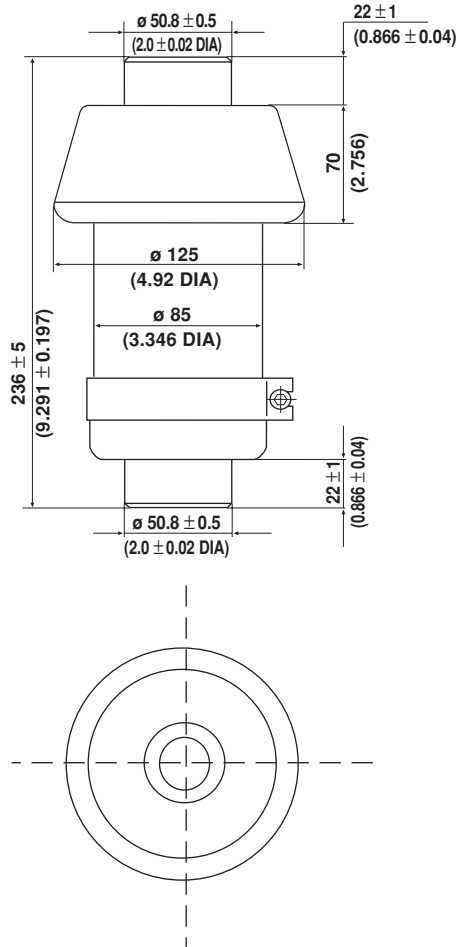
Other capacitance values and tolerances are available on request.

Pot Capacitors with R 16 High Q Ceramic

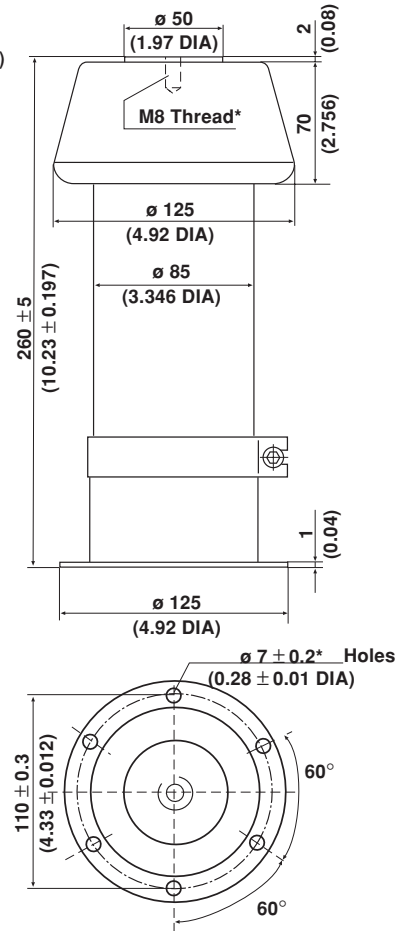
TDFZ 125213 18KV_p



TDFZ 125236 18KV_p



TDFZ 125260 12KV_p



- Dimensions in millimeters (inches)
- * US Thread Hardware available on request

MODEL:

These capacitors feature a Q-Factor greater than 10,000 which makes them ideal in operating frequency ranges from 0.1MHz up to 30MHz where high voltages and currents are present. Solid cylindric brass terminals (50.8 mm/ 2" diameter) allow plug-in compatible fuse clip mounting for vacuum capacitor replacement. (Model TDFZ 125236).

MATERIAL:

Capacitor elements made from Class 1 "High Q" ceramic dielectric with noble metal electrodes. Connection terminals: Copper/brass, silver plated.

FINISH:

Noble metal electrodes completely lacquered. Contoured rim protected with silicone rubber.

MARKING:

Type designator, Capacitance value and tolerance, Rated voltage (peak value), Production date code, Ceramic material code, DRALORIC Logo, Serial number.

ORDERING INFORMATION

TDFZ 125236	18KV _p	750pF	± 10%	R 16 High Q
MODEL	RATED VOLTAGE	CAPACITANCE VALUE	TOLERANCE	CERAMIC



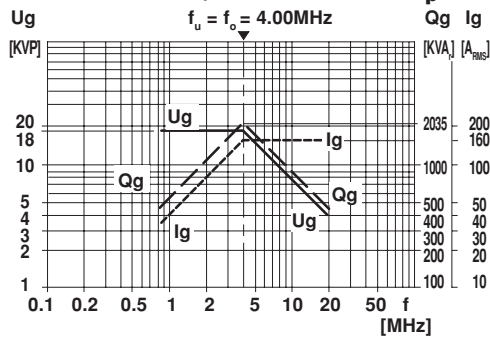
TDFZ 125213, TDFZ 125236					
CERAMIC	CAPACITANCE VALUE [pF]	RATED WORKING VOLTAGE [KV _p]	RATED TEST VOLTAGE [KV _p]	RATED POWER * [KVA _r]	RATED CURRENT [A _{RMS}]
R 16 High Q	500	18	30	max. 2035	max. 160
	750	18	30	max. 2300	max. 180
	1000	18	30	max. 2540	max. 200

TDFZ 125260					
CERAMIC	CAPACITANCE VALUE [pF]	RATED WORKING VOLTAGE [KV _p]	RATED TEST VOLTAGE [KV _p]	RATED POWER * [KVA _r]	RATED CURRENT [A _{RMS}]
R 16 High Q	1500	12	24	max. 2000	max. 250
	2000	12	24	max. 2450	max. 290

* The surface temperature of 100°C must not be exceeded.

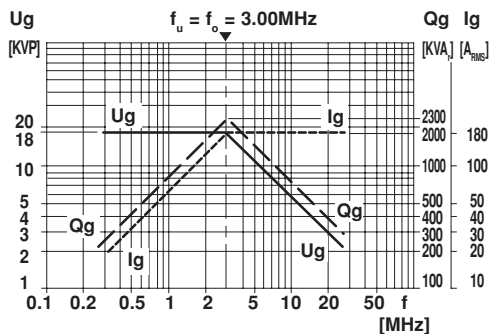
CAPACITANCE TOLERANCE: ± 10%

TDFZ 125213, 125236 18KV_p 500pF

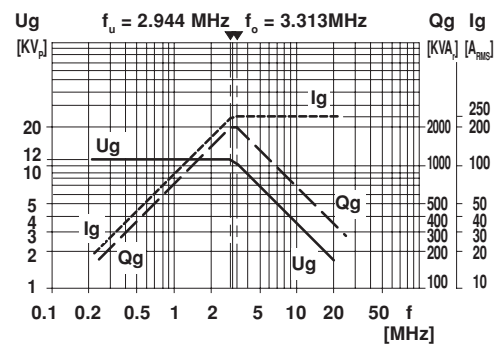


DERATING DIAGRAMS:

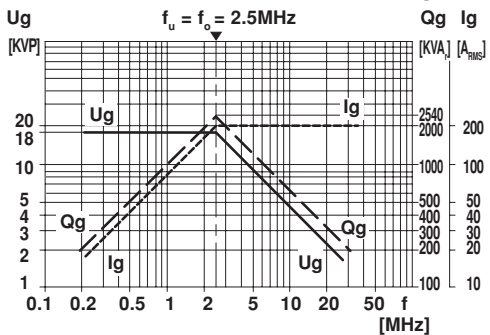
TDFZ 125213, 125236 18KV_p 750pF



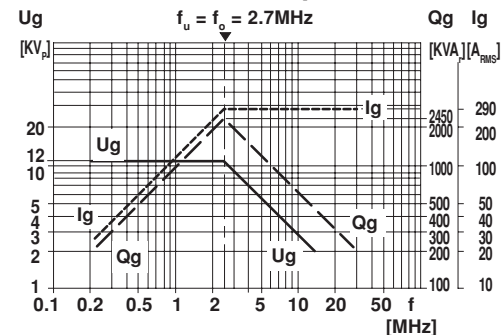
TDFZ 125260 12KV_p 1500pF



TDFZ 125213, 125236 18KV_p 1000pF



TDFZ 125260 12KV_p 2000pF

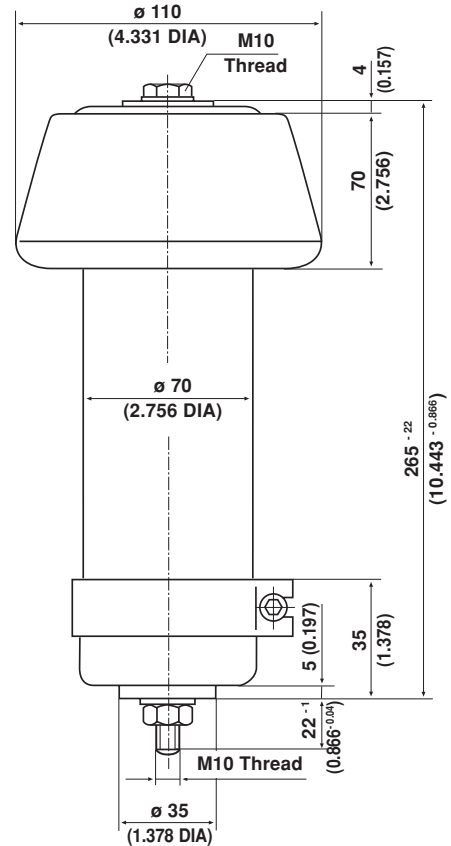
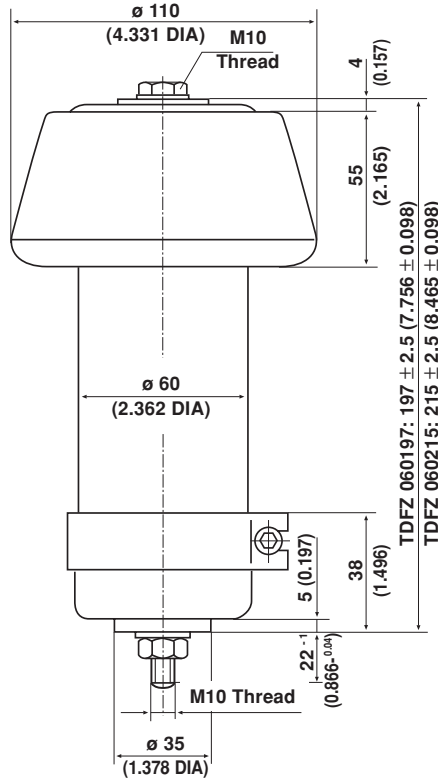
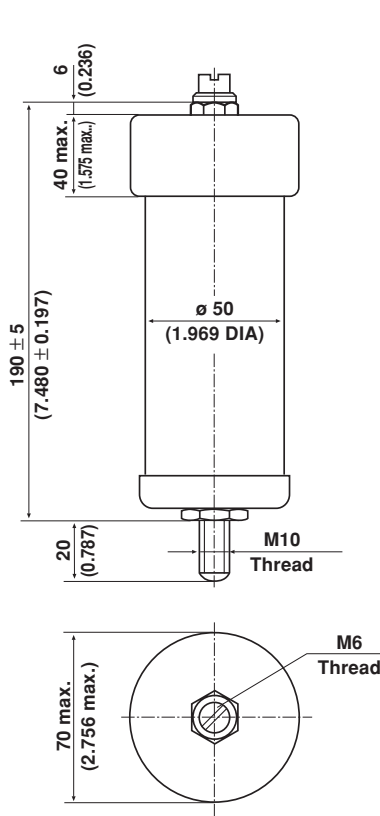


Pot Capacitors for Coupling Purposes

TDZ 050170 15KV_p

TDFZ 060197 20KV_p
TDFZ 060215 15KV_p

TDFZ 070265 20KV_p



• Dimensions in millimeters (inches)

MATERIAL:

Capacitor elements made from Class 1 ceramic dielectric with noble metal electrodes.
 Connection terminals: Copper brass/silver plated.

FINISH:

Noble metal electrodes completely lacquered. Insulating rim protected with resin encapsulation (TDZ model) or silicone rubber (TDFZ model).

MARKING:

Type designator, Capacitance value and tolerance, Rated voltage (peak value), Production date code, Ceramic material code, DRALORIC Logo

ACCESSORIES ADDED:

Hex. nuts/screws and washers.

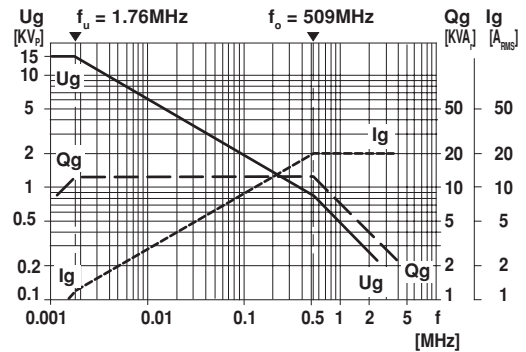
ORDERING INFORMATION				
TDFZ 060197	20KV _p	10000pF	± 20%	N 3300
MODEL	RATED VOLTAGE	CAPACITANCE VALUE	TOLERANCE	CERAMIC



DERATING DIAGRAMS

TDZ 050170				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _p]	RATED POWER [KVA _r]	RATED CURRENT [A _{RMS}]
N 3300	10000	15	12.5	max. 20

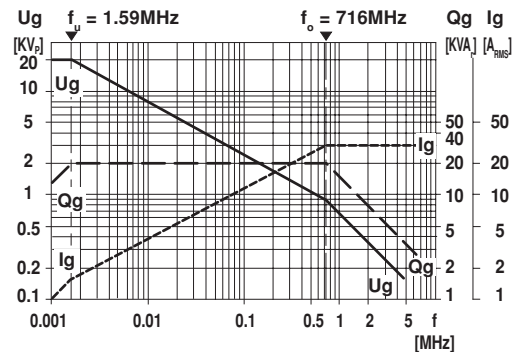
CAPACITANCE TOLERANCE: ± 20%



TDFZ 060197				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _p]*	RATED POWER [KVA _r]	RATED CURRENT [A _{RMS}]
N 3300	10000	20	20	max. 30

* Rated voltage 20KV_p = RF - Peak-voltage + DC voltage

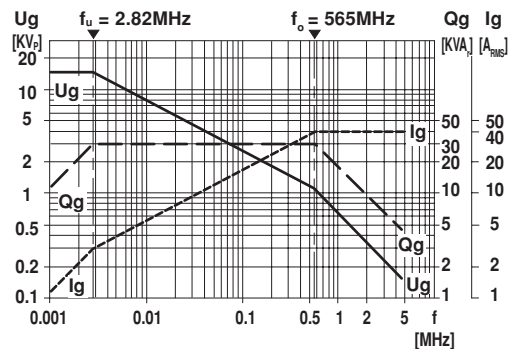
CAPACITANCE TOLERANCE: ± 20%



TDFZ 060215				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _p]*	RATED POWER [KVA _r]	RATED CURRENT [A _{RMS}]
N 3300	15000	15	30	max. 40

* Rated voltage 15KV_p = RF - Peak-voltage + DC voltage

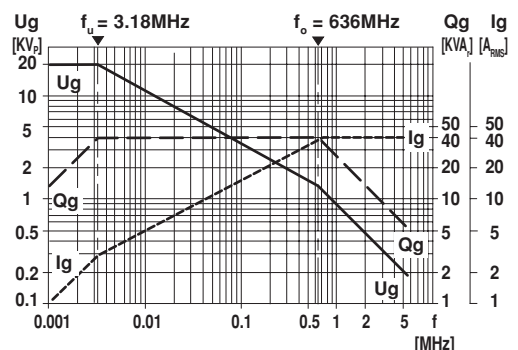
CAPACITANCE TOLERANCE: ± 20%



TDFZ 070265				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _p]*	RATED POWER [KVA _r]	RATED CURRENT [A _{RMS}]
R 230	10000	20	40	max. 40

* Rated voltage 20KV_p = RF - Peak-voltage + DC voltage

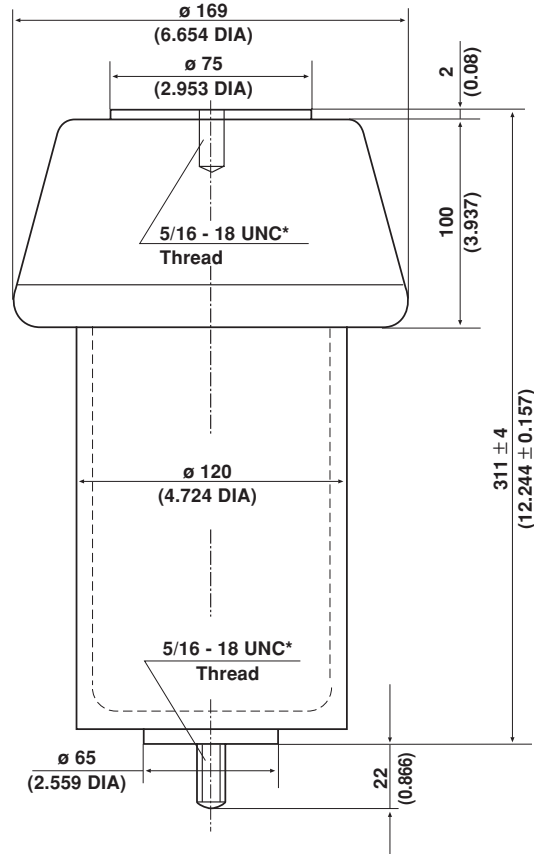
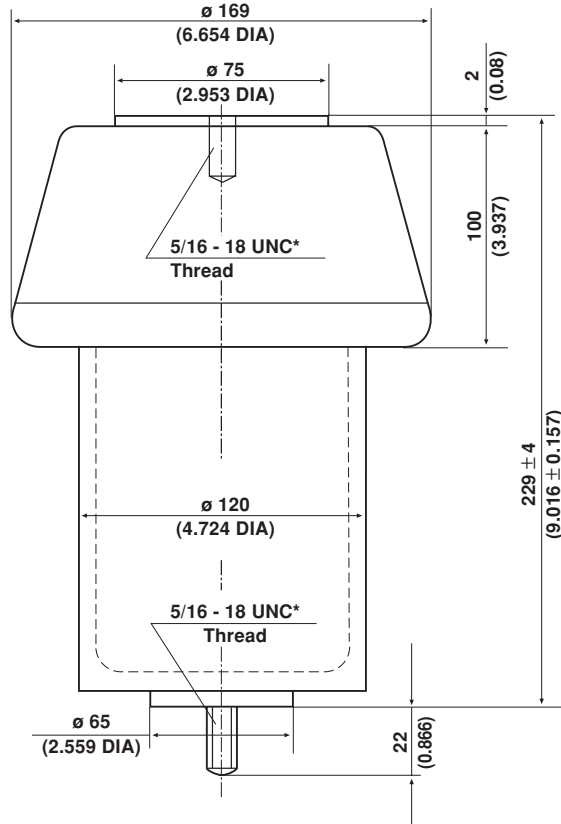
CAPACITANCE TOLERANCE: ± 20%



Pot Capacitors for Coupling Purposes

TDFZ 170229 40KV_p

TDFZ 170311 32KV_p



• Dimensions in millimeters (inches)

* Metric threads available on request

MODEL:

The ceramic capacitor element is housed in a rugged silver plated copper can. This construction allows additional "Belt-contacting" of the outer electrode terminal over the copper can shaft.

The results are short conduction paths with low impedance and low inductance as well as protection of the outer noble metal electrode.

FINISH:

Insulating rim protected with silicone rubber.

MATERIAL:

Capacitor elements made from Class 1 ceramic dielectric with noble metal electrodes.

Connection terminals of the inner electrode and outer electrode's covering can made from copper/brass, silver plated.

MARKING:

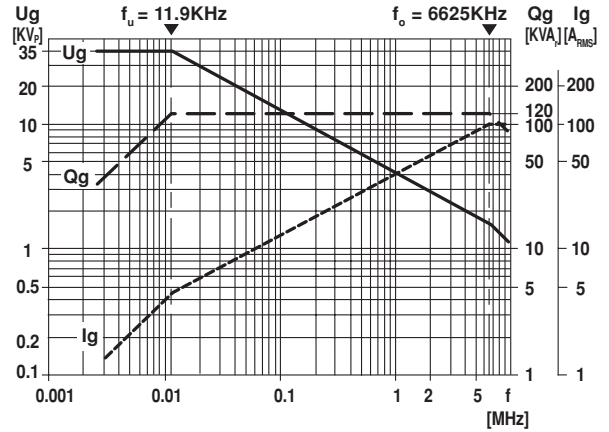
Type designator, Capacitance value and tolerance, Rated voltage (peak value), Production date code, Ceramic material code, DRALORIC Logo, Serial number.

ORDERING INFORMATION				
TDFZ 170311	32KV _p	4000pF	± 10%	R 85
MODEL	RATED VOLTAGE	CAPACITANCE VALUE	TOLERANCE	CERAMIC

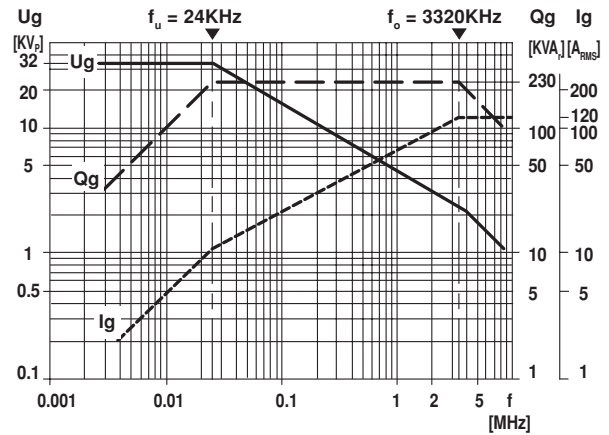


DERATING DIAGRAMS

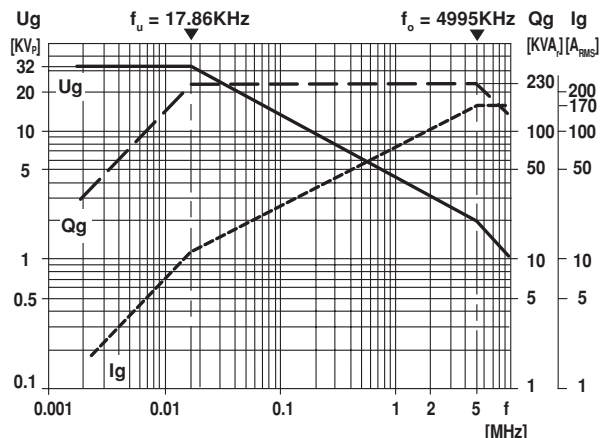
TDFZ 170229				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _p]	RATED POWER [KVA _r]	RATED CURRENT [A _{RMS}]
R 85	2000	40	120	max. 100



TDFZ 170311				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _p]	RATED POWER [KVA _r]	RATED CURRENT [A _{RMS}]
R 85	3000	32	230	max. 120



TDFZ 170311				
CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE [KV _p]	RATED POWER [KVA _r]	RATED CURRENT [A _{RMS}]
R 85	4000	32	230	max. 170



CAPACITANCE TOLERANCE: ± 10%

Other capacitance values and tolerances are available on request.

Watercooled Power RF-Capacitors

1. PRODUCT DESCRIPTION

Watercooled power RF-capacitors are designed for use in the tank circuit of high power RF equipment. Vishay Draloric's TWX, TWXFZ and TWIF pot-styled capacitors dissipate the heat produced under load by means of water flow around the capacitor elements. In order to provide protection from influences of the chemical/physical characteristics of the coolant, a glass passivation layer is applied over the cooled noble metal electrode.

The electrical terminations are made directly to the noble metal electrodes either utilizing special soldering techniques or special clamping fittings. This method of attachment provides a strong, rigid connection of unsurpassed reliability. The TWX model is made with a contoured, glazed insulation rim designed for use in a relatively clean, dry environment. The TWXF, TWXFZ and TWIF models feature an umbrella shaped insulation rim made from silicone rubber to minimize the adverse effects of moisture, dust and other impurities in the working environment.

All watercooled pot capacitors are supplied with the necessary screws/nuts and contact plates to make the connection to the electrode terminals. Ferrules and sleeve nuts for the water supply connections are also included.

2. ELECTRICAL DATA AND GUIDELINES

- 2.1. Listed in the tables on the datasheets are the general physical and electrical characteristics of the ceramic dielectric materials used.
- 2.2. The continuous limit values of voltage, current and power given in the derating diagrams must be observed.
- 2.3. The rated voltage given in the tables is the peak value of the sinusoidal a.c. voltage or the sum of the d.c. and peak a.c. voltages for which the capacitor is rated under continuous operation.
- 2.4. The rated current in the tables is the effective value of the sinusoidal current for which the current paths of the capacitor are designed.
- 2.5. If several capacitors are connected in parallel, care should be taken to mount the top electrodes of the capacitor away from the RF-buss bar to minimize the effects of stray electromagnetic fields. Under no circumstances should the inner electrode terminal exceed a temperature of 100°C.
- 2.6. The electrical connection to the inner electrode must be flexible in order to prevent the generation of physical forces which could damage the capacitor elements. Such forces are often generated by the dimensional differences resulting from the normal physical tolerances of the capacitors. The capacitor's inner electrode connector must not be used as a mechanical support for other devices or components.

3. INSTALLATION

Watercooled pot capacitors are designed to be installed in a vertical, umbrella-up position (TWX, TWXF, TWIF model) or a vertical, umbrella-down position (TWXFZ model). Other positions may be allowed as shown on the appropriate datasheets. For large generators requiring multiple capacitors connected in parallel, we recommend a circular mounting pattern for optimum circuit performance.

4. COOLING

- 4.1. The cooling system is designed to operate at a maximum water pressure of 4 bars (58 psi).
- 4.2. The water outlet of the capacitor must always be located higher than the water inlet in a vertical installation. This allows any air to escape from the unit. Horizontal installations require that both water connections be at the top side of the unit. To preserve the capacitors from frost damages during the transport, we can supply special models with outlet screws for emptying the cooling water from the unit.
- 4.3. The minimum flow rates specified in the tables must be observed. When using antifreeze mixtures, increase the minimum rates given by at least 20%.
- 4.4. The cooling system is designed to have a water temperature increase of < 10°C (Water inlet to water outlet) when the capacitor is operated at full rated power and at the minimum water flow rate.

A water intake temperature of ≤ 30°C is recommended.

If the cooling system for several capacitors is connected in series, the intake temperature of the coolant must not exceed 50°C for any of the capacitors.

The pressure drop in a series connected cooling system is small. The table below illustrates the effects upon water flow rates as a function of the number of series connected TWXF 135285 capacitors in the system with a constant intake water pressure of 3 bars (43.5 psi)

3 bars (43.5 psi) intake water pressure, cooling systems in series		1	2	3	4	5
Water flow rate	[Liters/Minute]	13.0	10.5	8.5	7.3	6.0
	[US-gal./Minute]	3.43	2.77	2.24	1.92	1.58



- 4.5. Intake water temperature fluctuations in excess of 3°C/sec. must be avoided to prevent damage to the capacitor elements.
- 4.6. A coolant temperature rate monitor must provide a fail-safe on/off power control for the RF equipment.
- 4.7. Normal tap water or de-mineralized water may be used for cooling. The water must be reasonably free of Ca CO₃ and clear of foreign particles or milkyness. The pH-value of the coolant should be between 6 and 8.

5. ELECTRICAL AND MECHANICAL SCREENING TESTS

All capacitors are subjected to the following tests prior to shipment:

- Capacitance value (0.1MHz, 20V_{RMS}, 25 ± 5°C)
- Dissipation factor (0.3 or 1,0MHz, 10V_{RMS}, 25 ± 5°C)
- Insulation resistance (100 V_{DC}, 25 ± 5°C)
- Dielectric strength (200% rated voltage [peak value], 50Hz, 5 Minutes)
- RF-power test (130% rated power for 10 Minutes in a test generator circuit)
- Pressure test (Standard: 6 bars [87 psi] for 1 Minute, 25± 5°C)
- Control of the cooling system for water flow resistance

6. WARRANTY STIPULATION FOR WATERCOOLED CERAMIC POWER RF-CAPACITORS

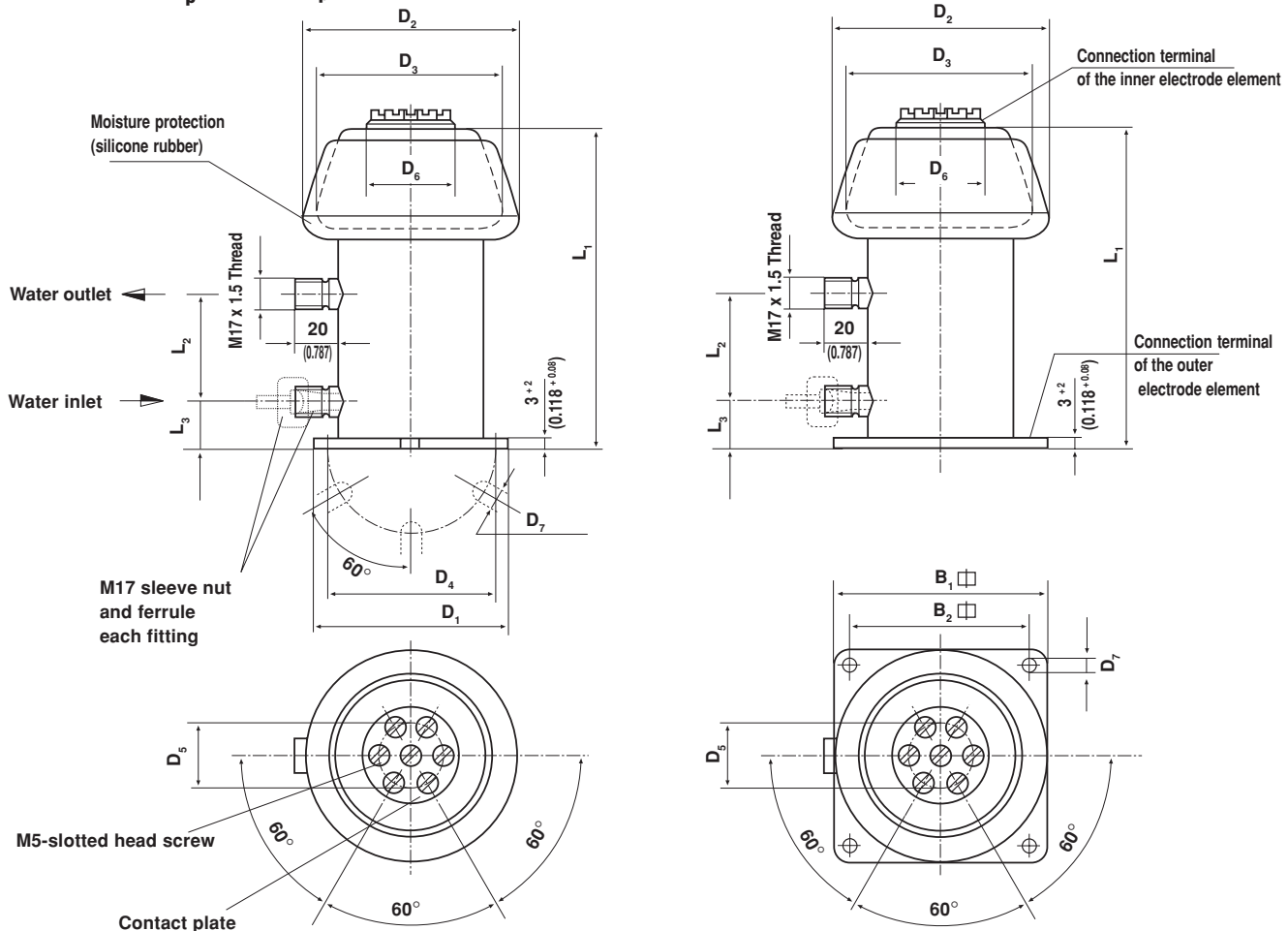
- 6.1. Unless otherwise provided for hereinafter, warranty shall be governed by General Terms of Sale and Delivery.
- 6.2. Warranty is assumed for capacitors which fail to operate owing to faults in material or production, and within the warranty period for capacitors.
Excluded from warranty are capacitors prematurely rendered unserviceable owing to improper treatment, overloading, circuit errors, as well as capacitors operated without observing the data given in our catalogue. Warranty is also excluded in cases where faults can no longer be recognized on the capacitor owing to third party interferences. Warranty is only effectively assumed when meeting the requirements referred to hereinafter.
- 6.3. For claiming warranty, the defective capacitor should be returned to us, if possible in its original packing, within 14 days following the data of failure, being accompanied by the COMPLETELY filled-in and signed Original Guarantee Certificate. The risks of transportation, as well as any shipping costs and other charges shall in any case be borne by the sender.
- 6.4. Warranty can only become effective if the defective capacitor is received by us in the same condition as it was when it happened to fail.
- 6.5. We have the right to inspect any records proving the use of the capacitor.
- 6.6. The decision as to whether we are obliged to assume warranty for the capacitor shall exclusively rest with us.
- 6.7. When acknowledging the warranty claim, any non-repairable capacitor shall remain our property. When refusing a warranty claim the defective capacitor will be returned at the customer's expense only if demanded so explicitly when asserting the warranty claim. In case examination required disassembly of the capacitor no claims for damage can be derived therefrom.
- 6.8. The customer gives us the right to have the system checked in which the capacitor was operated.
- 6.9. When acknowledging a warranty claim, restitution is made by supplying either a repaired and newly tested capacitor, or by supplying a new one.
- 6.10. Warranty shall only extend to the capacitor itself. Any further claims for damages are excluded.

7. CONDITIONS OF GUARANTEE

Persuant to the foregoing stipulations we assume warranty for these watercooled pot capacitors up to a period of 5000 hours of operating service. Any claims for warranty, however will extinguish 24 months following the date of delivery.

Watercooled Power RF-Capacitors (External Cooling)

TWX 12KV_p to 20KV_p
TWXF 10KV_p to 25KV_p



• Dimensions in millimeters (inches)

MATERIAL:

Capacitor elements made from Class 1 ceramic dielectric with noble metal electrodes.
 Outer electrode surface completely protected with a glass passivation layer.
 Connection terminal of the inner electrode and outer electrode's covering copper can made from copper / brass, silver plated.

FINISH:

Outer electrode's covering copper can completely lacquered (except bottom plate).
 Contoured rim glazed. TWXF model only has additional moisture protection (silicone rubber) of the rim.

MARKING:

Type designator, Capacitance value and tolerance, Rated voltage (peak value), Production date code, Ceramic material code, DRALORIC Logo, Serial number.




ACCESSORIES ADDED:

Contact plate (silvered copper) and seven metric screws for contacting the inner electrode element.
 Ferrules and sleeve nuts (M17 thread) for mounting the water cooling system with 8 mm copper-tube.

ORDERING INFORMATION

TWXF 135285	20KV_p	5000PF	± 20%	R 85
MODEL	RATED VOLTAGE	CAPACITANCE VALUE	TOLERANCE	CERAMIC



MODEL	RATED VOLTAGE [KV _p]	CAPACITANCE VALUE [pF]	CERAMIC	RATED POWER [KVA _p]	RATED CURRENT [A _{RMS}]	MIN. WATER FLOW RATE PER MINUTE		PERMISSIBLE INSTALLATION position (1)			DERATING DIAGRAM (2) no.
						[Liter]	[US-gal.]				
TWX (F) 095162	14	100	R7	1100	150	1.0	0.27	x	x	x	1
TWX (F) 095162	14	200	R7	1500	150	1.0	0.27	x	x	x	2
TWX (F) 095162	14	400	R16	1500	150	1.0	0.27	x	x	x	3
TWX (F) 095187	14	1000	R42	1500	150	1.0	0.27	x	x	x	4
TWX (F) 095162	14	1500	R85	1000	150	1.0	0.27	x	x	x	5
TWX (F) 095162	14	2000	R85	1500	150	1.0	0.27	x	x	x	6
TWX (F) 095162	14	2500	R85	1500	150	1.0	0.27	x	x	x	7
TWXF 135242	25	2500	R85	2500	250	1.8	0.49	x	x	x	8
TWX (F) 135242	20	3000	R85	2000	200	1.4	0.38	x	x	x	9
TWX(F) 135218	16	4000	R85	2500	250	1.8	0.49	x	x	x	10
TWX (F) 095220	12	5000	R85	1275	150	1.0	0.27	x	x	x	11
TWX (F) 110250	14	4700/5000	R85	2000	200	1.4	0.38	x	x	x	12
TWXF 135250	16	5000	R85	2830	250	2.0	0.54	x	x	x	13
TWXF 135285	20	5000	R85	3000	250	2.1	0.57	x	x	x	14
TWXF 135373	25	5000	R85	3200	250	2.3	0.62	x	x	x	15
TWXF 135272	16	6000	R85	2830	250	2.0	0.54	x	x	x	16
TWXF 165278	20	6000	R85	3000	270	2.1	0.57	x			17
TWXF 165270	14	7500	R85	3000	300	2.1	0.57	x		x	18
TWXF 125300	14	7600	R85	2500	250	2.0	0.54	x	x	x	19
TWXF 165270	16	7600	R85	2830	250	2.0	0.54	x		x	20
TWXF 125420	18	7600	R85	2500	250	2.0	0.54	x		x	21
TWXF 165336	20	7600	R85	3200	270	2.3	0.62	x		x	22
TWXF 165336	22.5	7500	R85	4000	350	2.9	0.80	x		x	23
TWXF 125300	10	10000	R85	2000	280	1.4	0.38	x	x	x	24
TWXF 125405	14	10000	R85	2800	290	2.0	0.54	x			25
TWXF 165335	16	10000	R85	3395	300	2.5	0.70	x		x	26
TWXF 165420	18	10000	R85	2500	250	2.0	0.54	x		x	27

MODEL	FIG.	Mechanical dimensions in mm (inch)											
		D1	L1	L2	D2 TWX	D3 TWXF	D4	D5	D6	B1	B2	L3	D7
TWX (F) 095162	1	95 (3.740)	162 (6.378)	55(2.165)	94 (3.701)		85 (3.346)						
TWX (F) 095187	1	95 (3.740)	187 (7.362)	80 (3.150)	94 (3.701)	110 (4.331)	85 (3.346)		40 (1.575)			18 (0.709)	5.5 (0.217)
TWX (F) 095220	1	95 (3.740)	220 (8.661)	115 (4.528)	94 (3.701)		85 (3.346)						
TWX (F) 110250	1	100 (4.331)	248 (9.764)	115 (4.528)	108 (4.252)	125 (4.921)	98 (3.858)		45 (1.772)				
TWXF 125300	2	-	303 (11.929)	180 (7.087)	-		-						
TWXF 125405	2	-	405 (15.945)	280 (11.024)	-		-			127 (5.000)	98 (3.858)	30 (1.181)	9.5 (0.374)
TWXF 125420	2	-	420 (16.535)	280 (11.024)	-		-	30 (1.181)					
TWXF 135218	1	135 (5.315)	218 (8.583)	108 (4.252)	-		122 (4.803)						
TWX (F) 135242	1	135 (5.315)	242 (9.528)	108 (4.252)	135 (5.315)	148 (5.827)	122 (4.803)		50 (1.969)				
TWXF 135250	1	135 (5.315)	250 (9.843)	134 (5.276)	-		122 (4.803)						
TWXF 135272	1	135 (5.315)	272 (10.709)	134 (5.276)	-		122 (4.803)					22 (0.709)	6.5 (0.217)
TWXF 135285	1	135 (5.315)	285 (11.229)	134 (5.276)	-		122 (4.803)						
TWXF 135373	1	135 (5.315)	373 (14.685)	216 (8.504)	-		122 (4.803)						
TWXF 165270 (3)	1	165 (6.596)	270 (10.630)	134 (5.276)	-		146 (5.748)						
TWXF 165270 (4)	2	-	270 (10.630)	140 (5.512)	-		-						
TWXF 165278	2	-	278 (10.945)	136 (5.354)	-		-						
TWXF 165335	2	-	335 (13.189)	208 (8.819)	-	170 (6.693)	-	45 (1.772)	75 (2.953)	165 (6.496)	135 (5.315)	30 (1.181)	85 (0.374)
TWXF 165336	2	-	336 (13.228)	194 (7.638)	-		-						
TWXF 165336	2	-	380 (14.961)	236 (9.291)	-		-						
TWXF 165420	2	-	420 (16.535)	280 (11.024)	-		-						

- 1) TWX model (without silicone moisture protection): Only vertical, umbrella-up position permitted.
- 2) Derating diagrams see following pages
- 3) TWXF 165270 14KV_p 7500pF
- 4) TWXF 165270 16KV_p 7600pF

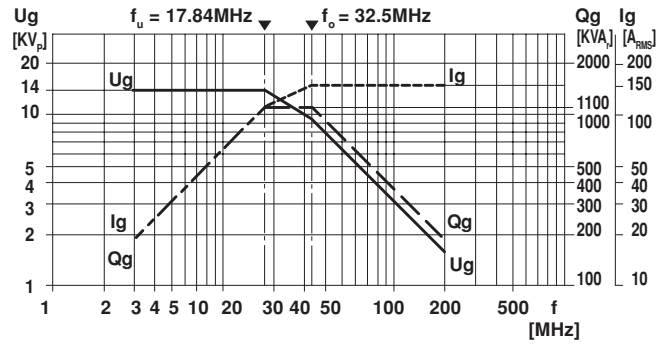
CAPACITANCE TOLERANCE: ± 20%

Other capacitance tolerances are available on request.

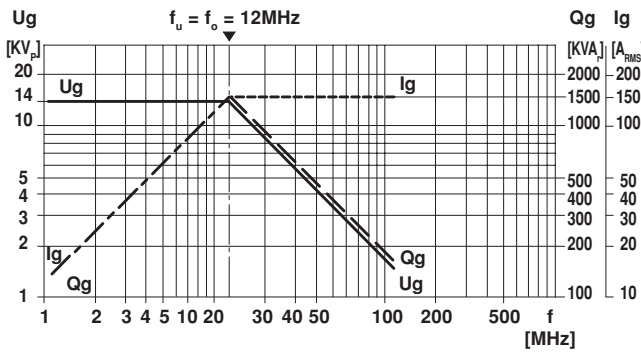


DERATING DIAGRAMS

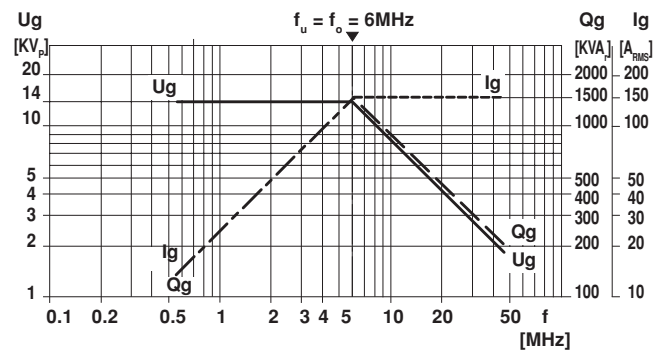
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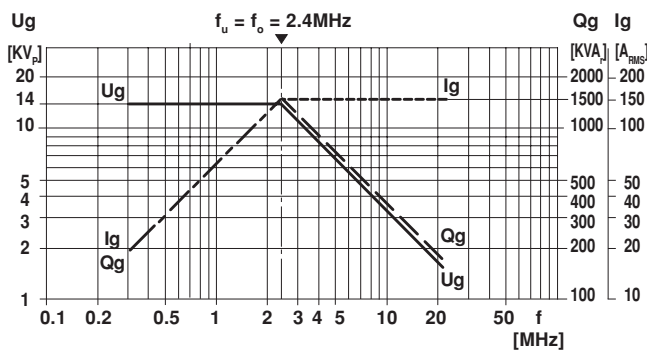
2 TWX (F) 095162 14KV_p 200pF R7



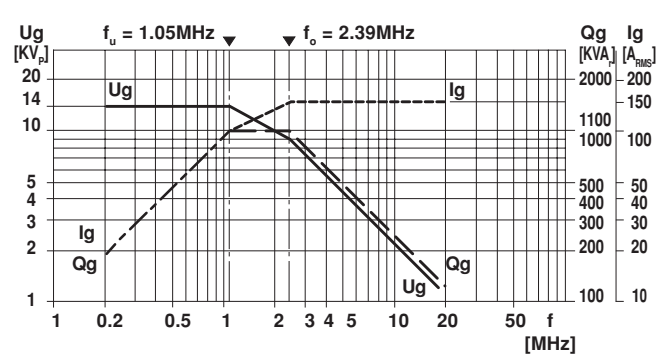
3 TWX (F) 095162 14KV_p 400pF R16



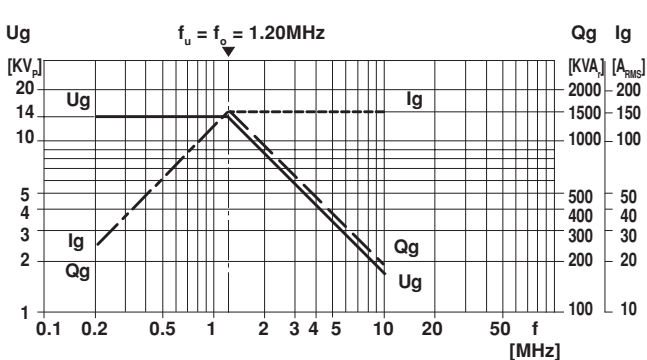
4 TWX (F) 095162 14KV_p 1000pF R42



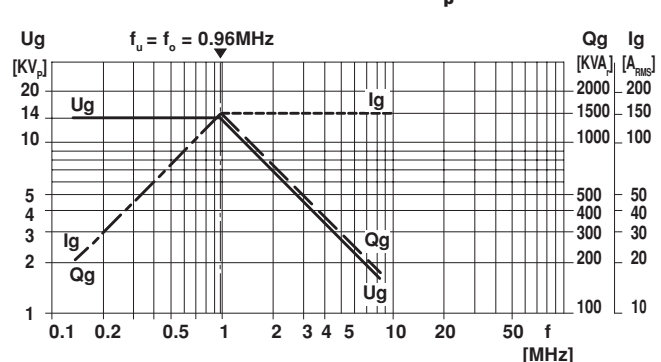
5 TWX (F) 095162 14KV_p 1500pF R85



6 TWX (F) 095162 14KV_p 2000pF R85



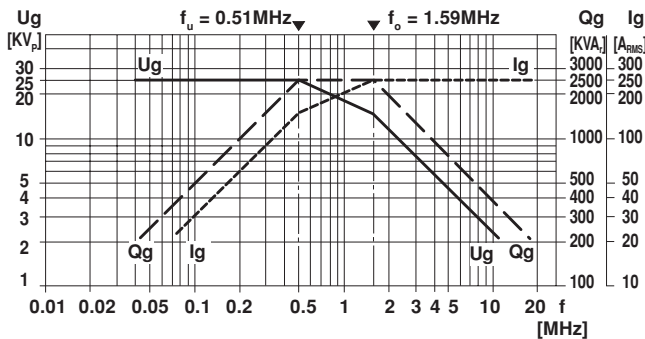
7 TWX (F) 095162 14KV_p 2500pF R85



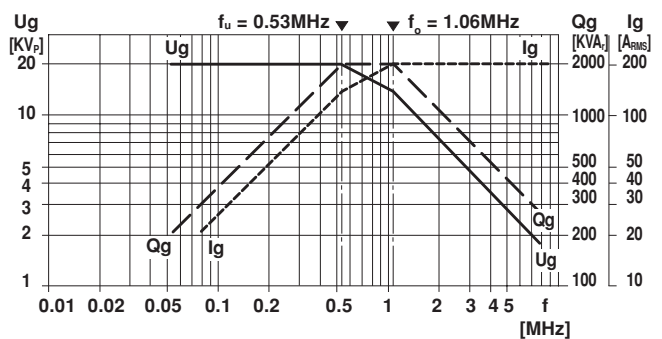


DERATING DIAGRAMS

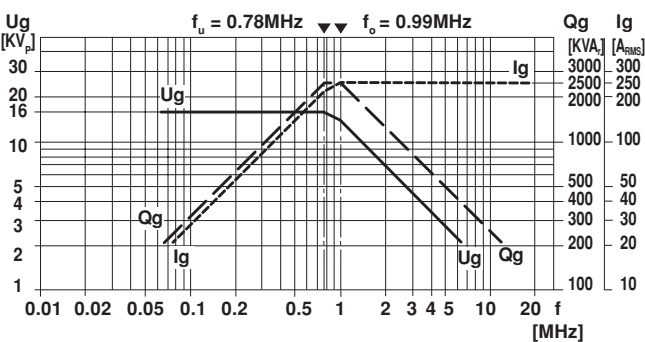
8 TWXF 135242 25KV_p 2500pF R85



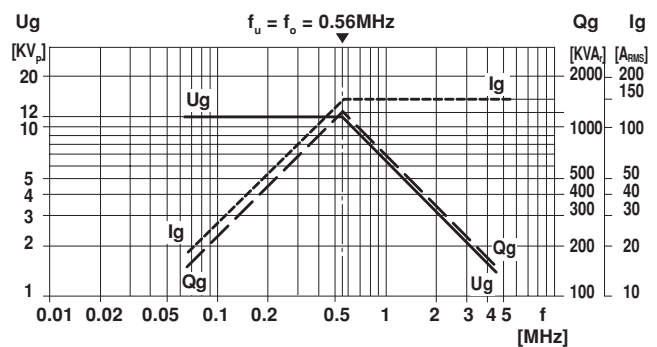
9 TWXF 135242 20KV_p 3000pF R85



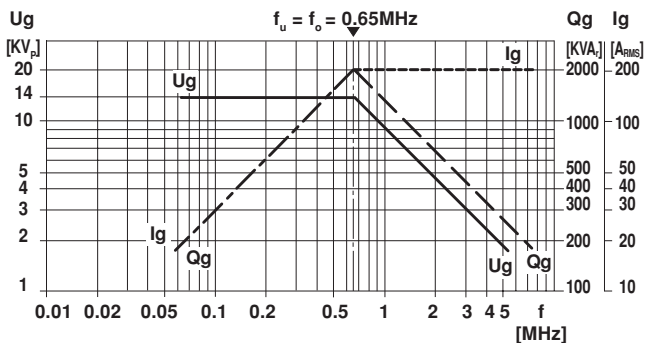
10 TWXF 135218 16KV_p 4000pF R85



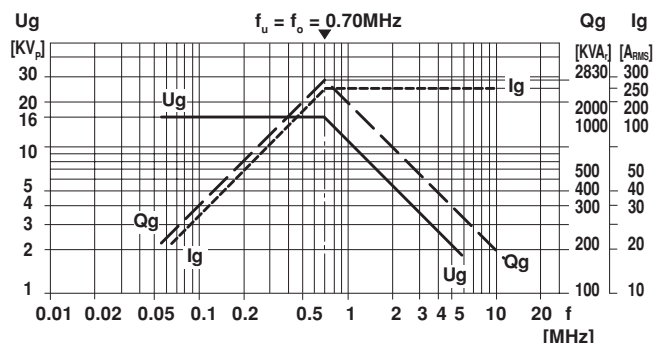
11 TWX (F) 095220 12KV_p 5000pF R85



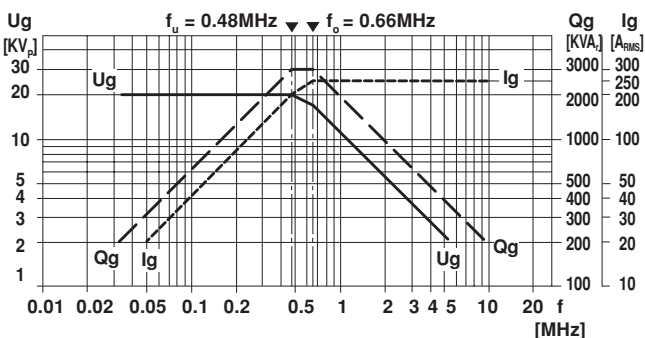
12 TWX (F) 110250 14KV_p 5000pF R85



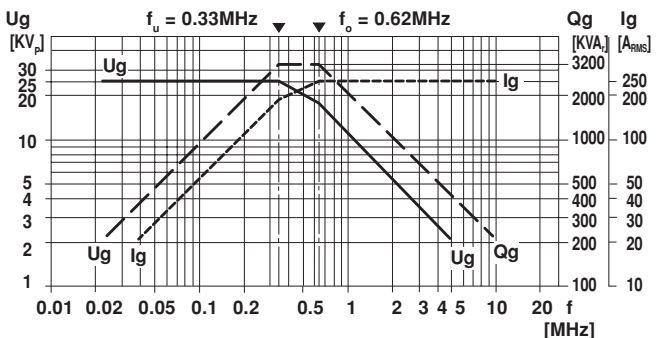
13 TWXF 135250 16KV_p 5000pF R85



14 TWXF 135285 20KV_p 5000pF R85

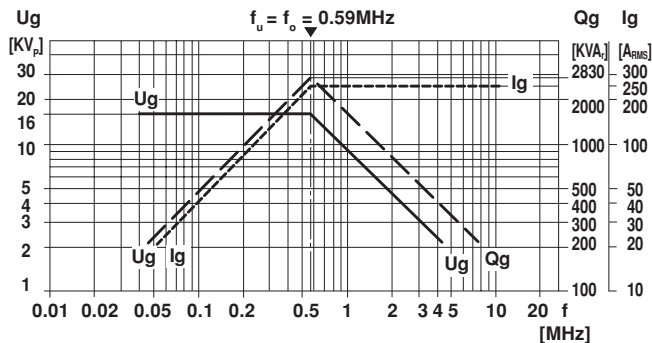


15 TWXF 135373 25KV_p 5000pF R85

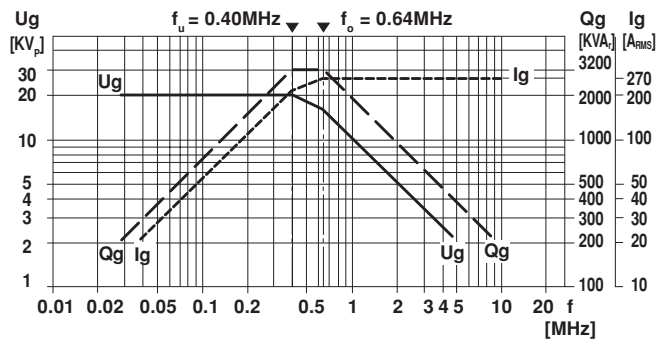


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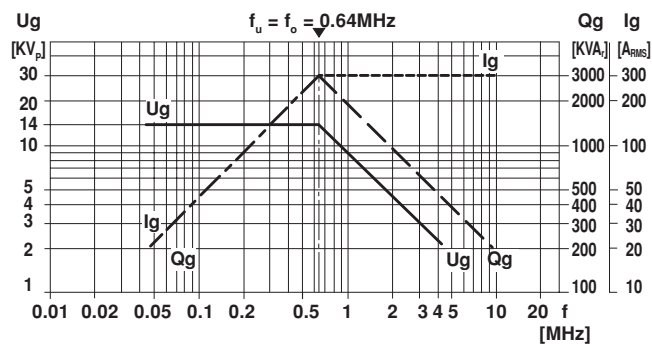
16 TWXF 135272 16KV_p 6000pF R85



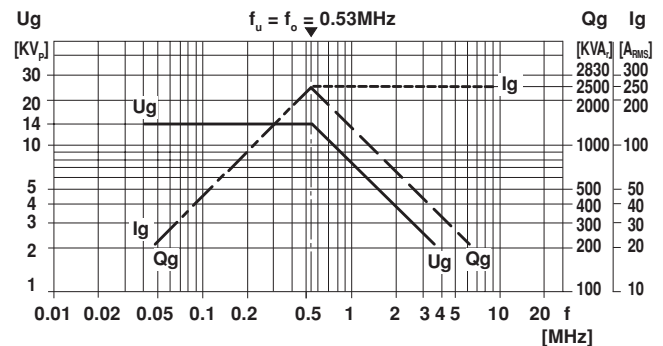
17 TWXF 165278 20KV_p 6000pF R85



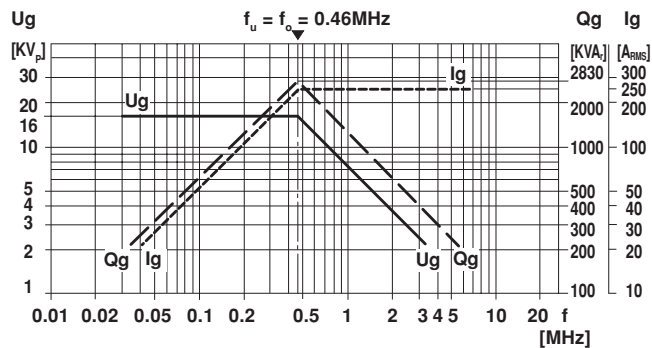
18 TWXF 165270 14KV_p 7500pF R85



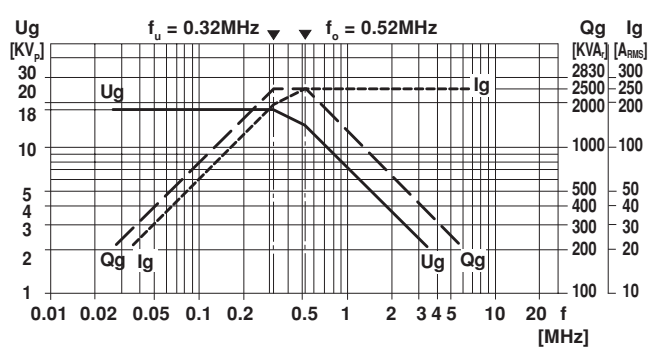
19 TWXF 125300 14KV_p 7500pF R85



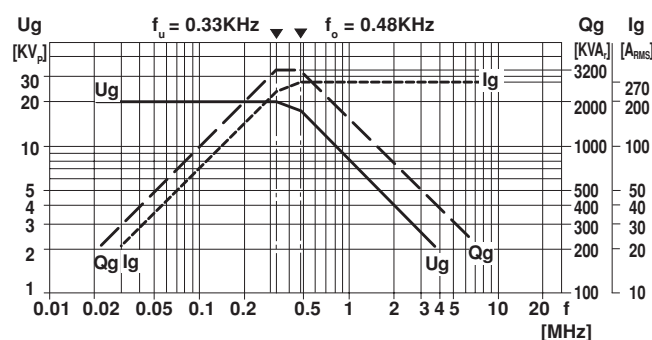
20 TWXF 165270 16KV_p 7600pF R85



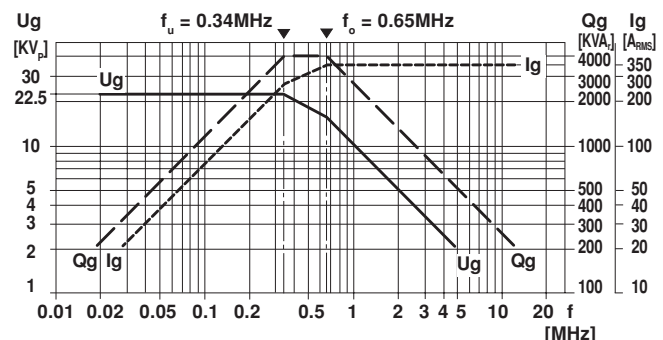
21 TWXF 125420 18KV_p 7600pF R85



22 TWXF 165336 20KV_p 7600pF R85



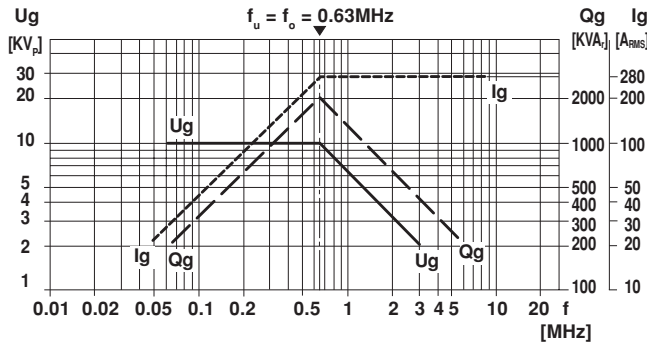
23 TWXF 165336 22.5KV_p 7500pF R85



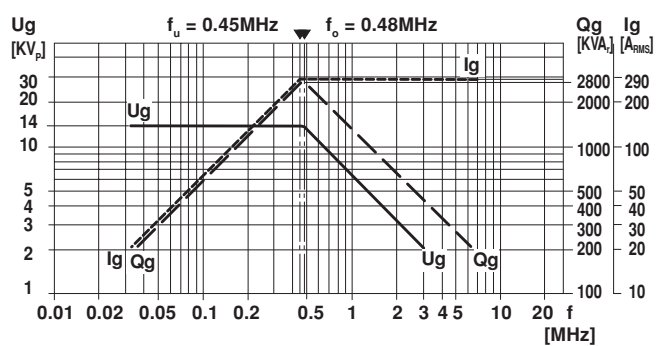


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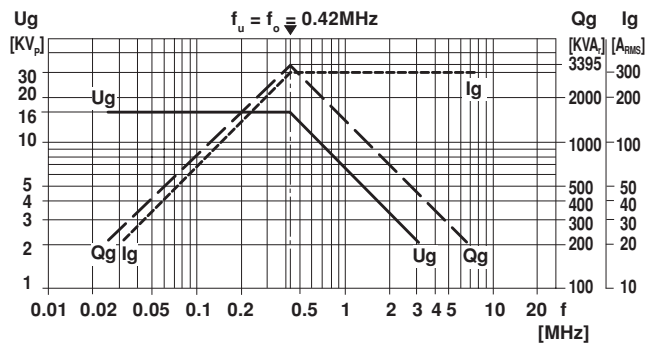
24 TWXF 125300 10KV_p 10000pF R85



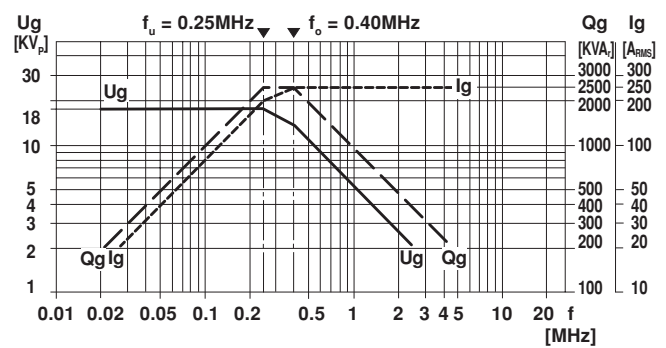
25 TWXF 125405 14KV_p 10000pF R85



26 TWXF 165335 16KV_p 10000pF R85



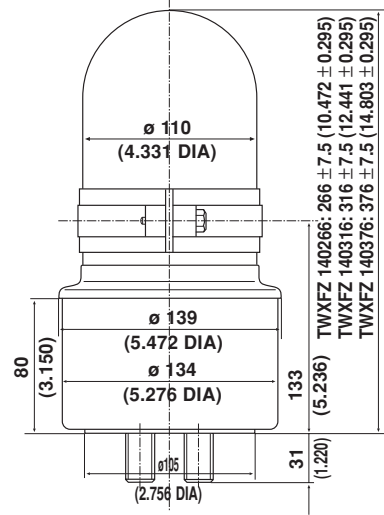
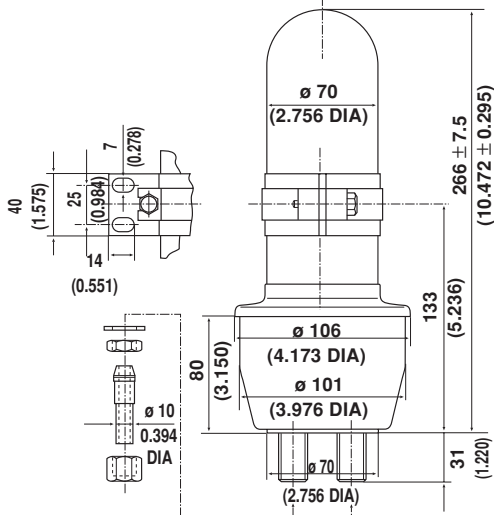
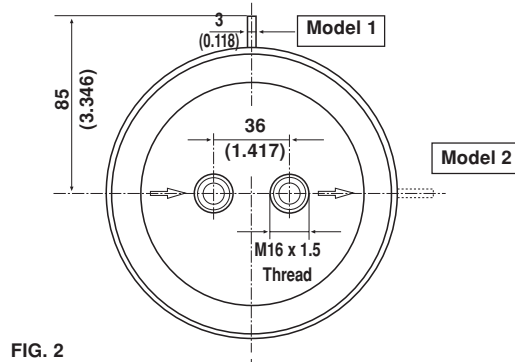
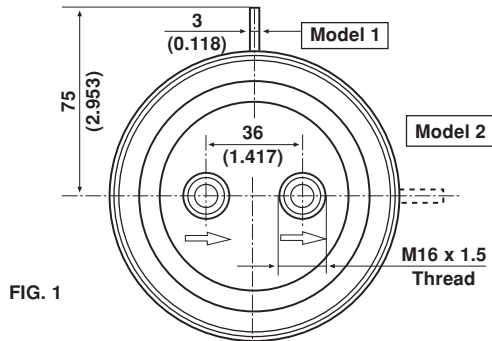
27 TWXF 165420 18KV_p 10000pF R85



Watercooled Power RF-Capacitors (Internal Cooling)

TWXFZ 106266 16KV_p to 20KV_p

TWXFZ 140266 14KV_p
TWXFZ 140316 22.5KV_p
TWXFZ 140376 20KV_p



• Dimensions in millimeters (inches)

MATERIAL:

Capacitor elements made from Class 1 ceramic dielectric with noble metal electrodes.
 Inner electrode surface completely protected with a glass passivation layer.
 Connection Terminals: Copper/brass, silver plated.

FINISH:

Capacitor shaft completely lacquered. Contoured rim protected with silicone rubber.

MARKING:

Type designator, Capacitance value and tolerance, Rated voltage (peak value), Production date code, Ceramic material code, DRALORIC Logo, Serial number.

ACCESSORIES ADDED:

The capacitor is supplied with all necessary screws and washers to make the electrical connection to the inner electrode element. 10mm-Tube fittings for the water supply connections are also included.

INSTALLATION POSITION:

These capacitors are designed to be installed in a vertical position, connection fittings of the water cooling system downside. Please note also the two available positions of the outer electrode connections with MODEL 1 and MODEL 2.

ORDERING INFORMATION					
TWXFZ 140316	22.5KV _p	7500pF	± 10%	R 85	MODEL 1
MODEL	RATED VOLTAGE	CAPACITANCE VALUE	TOLERANCE	CERAMIC	

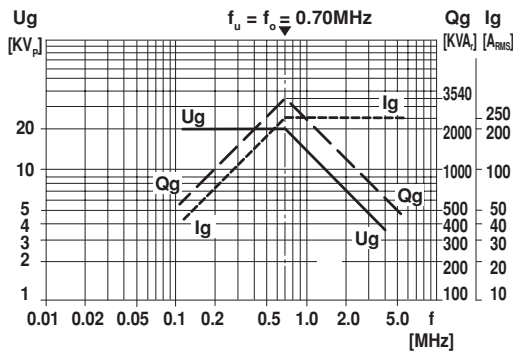


MODEL	FIGURE	RATED VOLTAGE	CAPACITANCE VALUE	CERAMIC	RATED POWER	RATED CURRENT	MIN. WATER FLOW RATE PER MINUTE	
		[KV _p]	[pF]		[KVA _r]	[A _{RMS}]	[LITER]	[US-gal.]
TWXFZ 106266	1	20	4000	R 85	3540	250	2.5	0.70
TWXFZ 106266	1	16	5000		2830	250	2.1	0.57
TWXFZ 140316	2	22.5	7500		4000	350	3.0	0.80
TWXFZ 140266	2	14	10000		3000	350	3.0	0.80
TWXFZ 140376	2	20	10000		4000	350	3.0	0.80

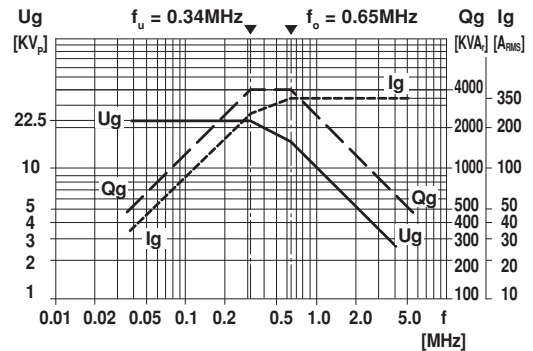
CAPACITANCE TOLERANCE: ± 10%

DERATING DIAGRAMS

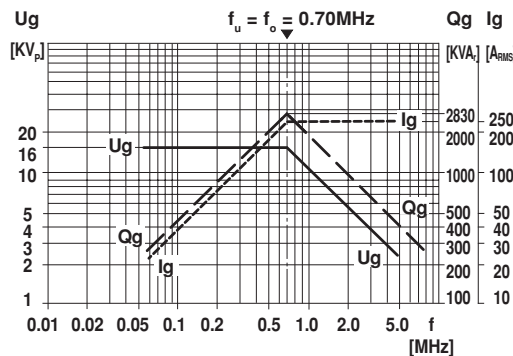
TWXFZ 106266 20KV_p 4000pF



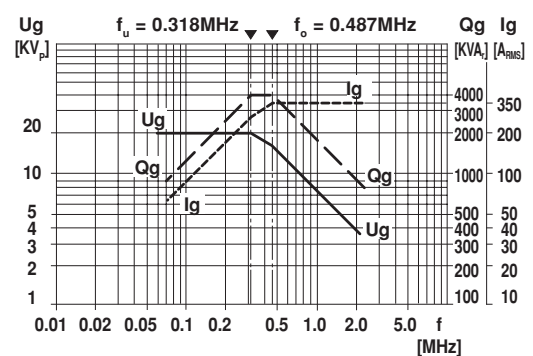
TWXFZ 140266 22.5KV_p 7500pF



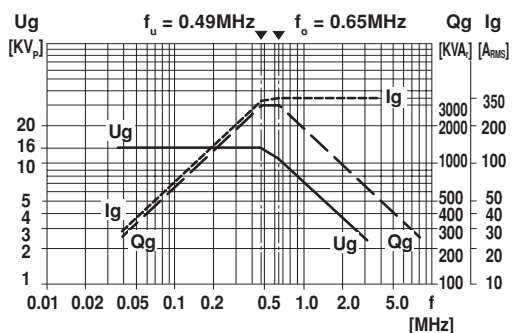
TWXFZ 106266 16KV_p 5000pF



TWXFZ 140376 20KV_p 10000pF

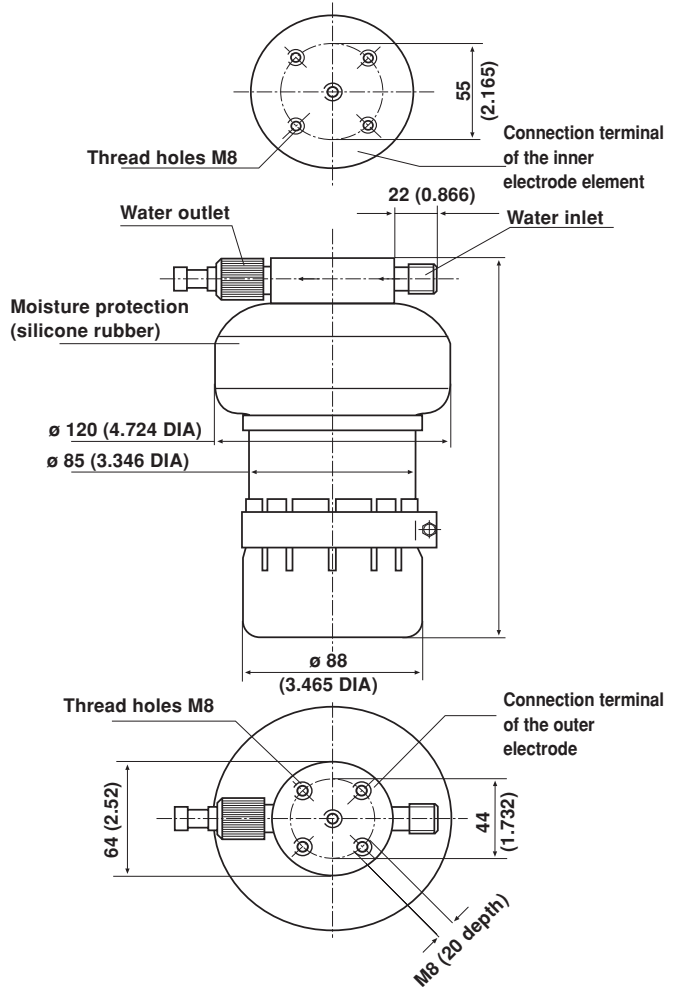


TWXFZ 140266 14KV_p 10000pF



Watercooled Power RF-Capacitors (Internal Cooling)

TWIF 085175 14KV_p
TWIF 085215 14KV_p
TWIF 085260 14KV_p



MATERIAL:

Capacitor elements made from Class 1 ceramic dielectric with noble metal electrodes. Inner electrode surface completely protected with a glass passivation layer. Connection Terminals: Copper/brass, silver plated.

FINISH:

Capacitor shaft completely lacquered. Contoured rim protected with silicone rubber.

MARKING:

Type designator, Capacitance value and tolerance, Rated voltage, Production date code, Ceramic material code, DRALORIC Logo, serial number.

ACCESSORIES ADDED:

The capacitor is supplied with 10mm-Tube fittings for the water supply connections.

INSTALLATION POSITION:

These capacitors are designed to be installed in a vertical position, connection fittings of the water cooling system upside. Horizontal installation position is permissible, whereby the water-outlet must be on top-side.

• Dimensions in millimeters (inches)

MODEL	TWIF 085175	TWIF 085215	TWIF 085260
L	175 ± 2 (6.89 ± 0.08)	215 ± 2 (8.465 ± 0.08)	260 ± 2 (10.236 ± 0.08)

ORDERING INFORMATION				
TWIF 085260	14KV _p	4700pF	± 20%	R 85
MODEL	RATED VOLTAGE	CAPACITANCE VALUE	TOLERANCE	CERAMIC

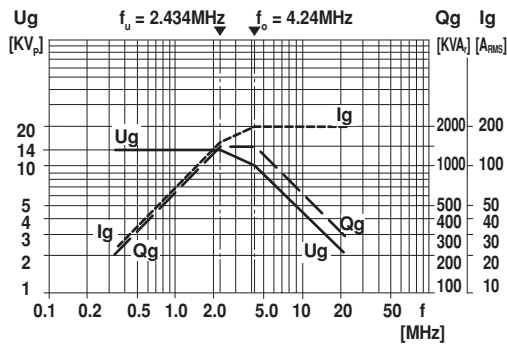


MODEL	RATED VOLTAGE [KV _p]	CAPACITANCE VALUE [pF]	CERAMIC	RATED POWER [KVA _r]	RATED CURRENT [A _{RMS}]	MIN. WATER FLOW RATE PER MINUTE	
						[LITER]	[US-gal.]
TWIF 085215	14	1000	R 42	1500	200	3.7	1.0
TWIF 085175		2200	R 85	1000		3.0	0.80
TWIF 085260		4700	R 85	1500		4.5	1.2

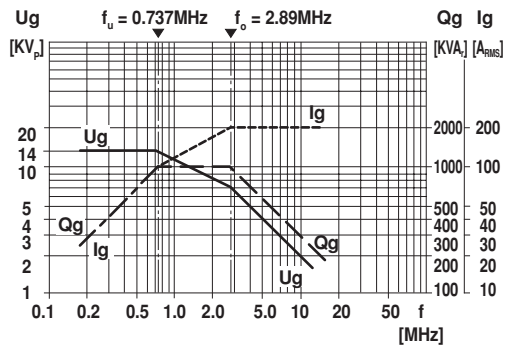
CAPACITANCE TOLERANCE: ± 20%

DERATING DIAGRAMS

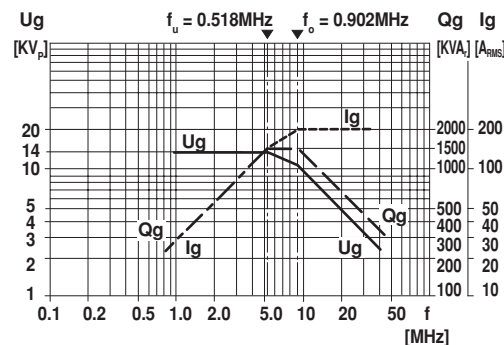
TWIF 085215 14KV_p 1000pF R42



TWIF 085175 14KV_p 2200pF R85



TWIF 085260 14KV_p 4700pF R85





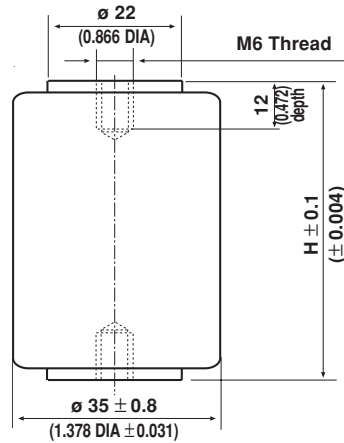


Stand-Off Insulators for RF-Equipment

Contents

3540/6, 35125/6 Stand-off insulators, cylindrical, with threaded terminals	102
4040/6, 5058/6 Stand-off insulators, contoured, with threaded terminals	103

Ceramic Stand-off Insulators for RF-Equipment



- Dimensions in millimeters (inches)

MODEL	DIMENSIONS H	CAPACITANCE VALUES [pF]	FLASHOVER VOLTAGE AT 50Hz AND 60% REL. AIR HUMIDITY [KV _{RMS}]	OPERATING VOLTAGE [KV _{RMS}]	DISSIPATION FACTOR
3540 / 6	40 (1.575)	2.5	25	10	≤ 0.5 • 10 ⁻³ [1MHz]
3550 / 6	50 (1.969)	1.9	29	12	
3558 / 6	58 (2.283)	1.2	33	13	
3560 / 6	60 (2.362)	1.2	33	13	
3570 / 6	70 (2.756)	0.9	37	15	
3580 / 6	80 (3.150)	0.7	41	16	
35100 / 6	100 (3.937)	0.5	48	19	
35125 / 6	125 (4.921)	0.3	56	22	

Thread holes M8 and M10 as well as thread-holes according to US standard are available on request.

MATERIAL:

Stand - off insulator elements made from Class 1 Ceramic material (C 221-IEC 60672-3), body completely glazed.
Connection terminals: brass

MARKING:

None

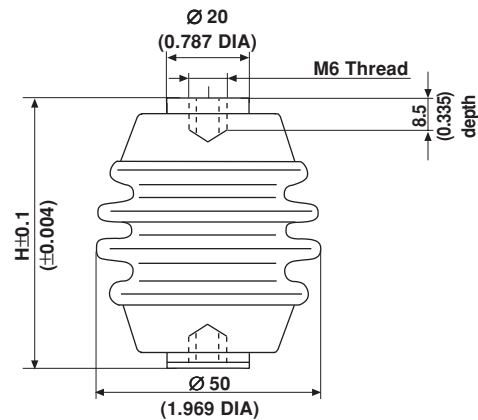
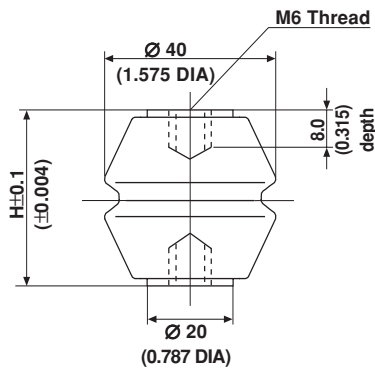
OPERATING CONDITIONS:

Maximum operating temperature + 100°C
Maximum compressive load 3.0kN
Maximum tensile load 7.5kN
Maximum reactive current 3A_{RMS}

ORDERING INFORMATION

Stand-off insulator 35100 / 6

Ceramic Stand-off Insulators for RF-Equipment



- Dimensions in millimeters (inches)

STAND-OFF INSULATOR 4040/6						
DIMENSION H	CAPACITANCE VALUE [pF]	FLASHOVER VOLTAGE AT 50Hz AND 60% REL. AIR HUMIDITY [KV _{RMS}]	OPERATING VOLTAGE [KV _{RMS}]	DISSIPATION FACTOR	COMPRESSIVE LOAD [kN]	REACTIVE CURRENT [Arms]
40 (1.575)	1.6	24	4 max.	$\leq 0.5 \cdot 10^{-3}$ [1MHz]	5.0 max.	1 max.

Thread holes M8 as well as thread-holes according to US standard are available on request.

STAND-OFF INSULATOR 5058/6						
DIMENSION H	CAPACITANCE VALUE [pF]	FLASHOVER VOLTAGE AT 50Hz AND 60% REL. AIR HUMIDITY [KV _{RMS}]	OPERATING VOLTAGE [KV _{RMS}]	DISSIPATION FACTOR	COMPRESSIVE LOAD [kN]	REACTIVE CURRENT [Arms]
58 (2.283)	1.0	35	12 max.	$\leq 0.5 \cdot 10^{-3}$ [1MHz]	20.0 max.	3 max.

Thread holes M8 and M10 as well as thread-holes according to US standard are available on request.

MATERIAL:

Stand-off insulator elements made from Class 1 Ceramic material (C221-IEC 60672-3), body completely glazed.
Connection terminals: brass

OPERATING CONDITIONS:

Maximum operating temperature + 100°C

MARKING:

None

ORDERING INFORMATION

Stand-off insulator 5058 / 6



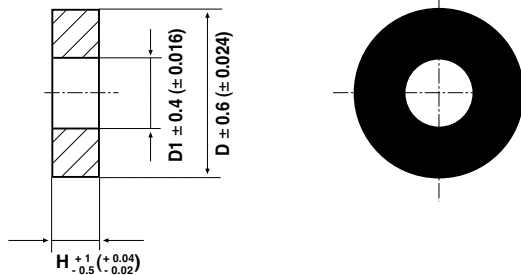


Ceramic High Voltage Capacitors

Contents

HR 22, HR 30, HR 35 Ring style high voltage capacitors 2.8KV _p to 5.6KV _p 100pF to 5000pF	106
HPC, HPD High voltage disc capacitors, screw mounting 20KV _{DC} 350pF to 5000pF	107
..DK., ..KT.. High voltage disc capacitors, screw mounting 10KV _{DC} to 40KV _{DC} 300pF to 10000pF	108
..AC., ..AE., ..AZ.. High voltage disc capacitors with axial leads 10KV _{DC} to 40KV _{DC} 180pF to 10000pF	110
General Information	112
GDMQ Capacitor stacks with lead terminal	113
GFMQ, GFWQ Capacitor stacks with solder tags	114
GFMM Capacitor stacks with solder tags	115
RHK Voltage multiplier sets	116

HR 22 2.8KV_p
HR 30 2.8KV_p to 5.6KV_p
HR 35 2.8KV_p to 3.5KV_p



• Dimensions in millimeters (inches)

CERAMIC	CAPACITANCE VALUES [pF]	RATED VOLTAGE [KV _p]	D	D1	H
R 85	100	3.5	35 (1.378)	12 (0.472)	7.0 (0.276)
R 2000 H	750	2.8	22 (0.866)	10 (0.394)	7.5 (0.295)
	1000		22 (0.866)	10 (0.394)	5.6 (0.220)
	1500	3.5	30 (1.81)	12 (0.472)	7.6 (0.295)
R 6000	2000	2.8	22 (0.866)	10 (0.394)	8.0 (0.315)
	2500	5.6	30 (1.81)	12 (0.472)	10.0 (0.394)
	3000	2.8	22 (0.866)	10 (0.394)	5.3 (0.209)
	5000		30 (1.181)	12 (0.472)	5.0 (0.197)
R 4000	5000	2.0	35 (1.378)	12 (0.472)	5.2 (0.205)

CAPACITANCE TOLERANCES:

R 85, R 2000 H: ± 20%
 R 4000, R 6000: - 20 + 50%

MATERIAL:

Capacitor elements made from Class 1 or 2 ceramic dielectric with noble metal electrodes.

FINISH:

Inner and outer insulating area lacquered. Electrodes free of lacquer

MARKING:

Capacitance value and tolerance, Rated voltage (peak value)

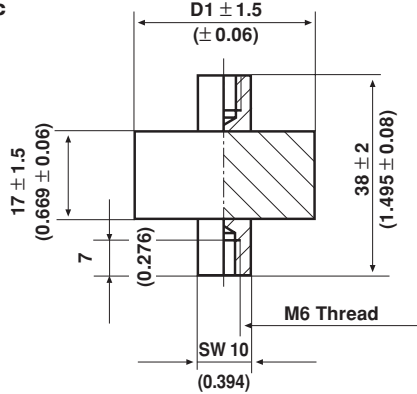
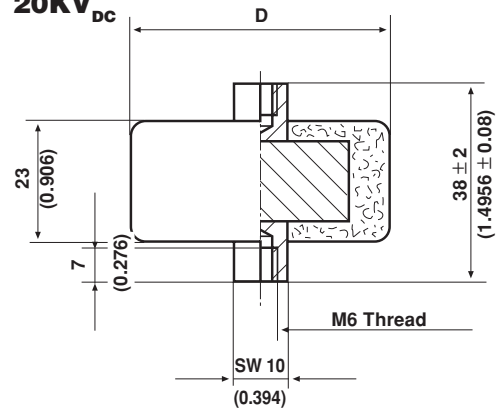
APPLICATION:

Ring style high voltage capacitors made from Class 2 ceramic dielectric can be used as coupling and bypass capacitors, capacitors where low power ratings are required and larger capacitance changes where temperature can be tolerated.

ORDERING INFORMATION

HR (22)	2.8KV _p	1000pF	± 20%	R 2000 H
MODEL	RATED VOLTAGE	CAPACITANCE VALUE	TOLERANCE	CERAMIC

High Voltage Disc Capacitors, Screw mounting

HPD, 20KV_{DC}

HPC, 20KV_{DC}


• Dimensions in millimeters (inches)

CERAMIC	CAPACITANCE VALUE [pF]	RATED VOLTAGE*	RF - RATED CURRENT**	D1	D
R 2000 H	350	20KV _{DC} or 15KV _{RMS} up to 120Hz	6 A _{RMS} max.	21 (0.827)	50 max. (1.969 max.)
	500			25 (0.984)	50 max. (1.969 max.)
	750			30 (1.181)	50 max. (1.969 max.)
	1000			35 (1.378)	50 max. (1.969 max.)
	1500			43 (1.693)	60 max. (2.362 max.)
	2000			49 (1.929)	60 max. (2.362 max.)
	3000			59 (2.323)	70 max. (2.756 max.)
	5000			75 (2.953)	90 max. (3.453 max.)

* For model HPD these values apply only under conditions of high insulation, e.g. when operating under oil. When using the capacitors in free air, the rated voltage is reduced to 7KV_{DC}.

** Max. ambient temperature + 60°C

CAPACITANCE TOLERANCE: ± 20%

MATERIAL:

Capacitor elements made from Class 1 or 2 ceramic dielectric with noble metal electrodes.

FINISH:

Capacitor body completely lacquered (HPD model) or protected with silicone rubber (HPC model).

MARKING:

Capacitance value and tolerance, DRALORIC Logo

APPLICATION:

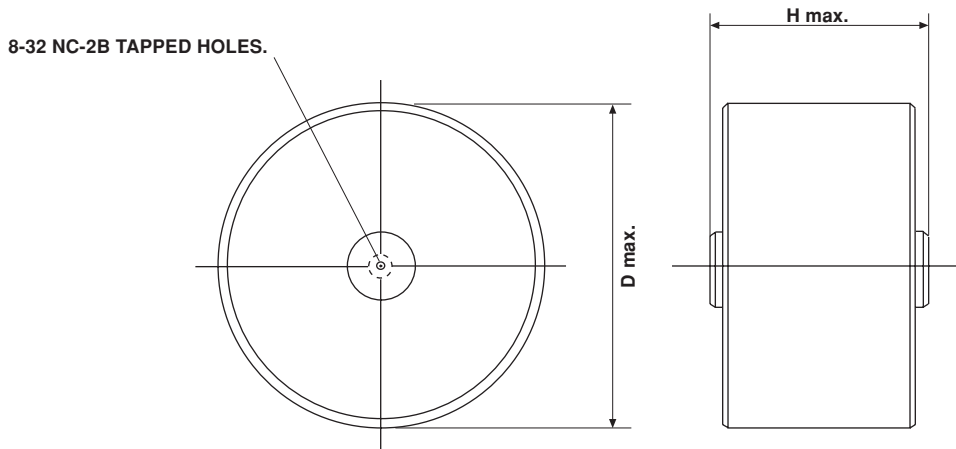
High voltage capacitors made from Class 2 - ceramic dielectric can be used as coupling and bypass capacitors where low power ratings are required and larger capacitance changes with temperature can be tolerated.

ORDERING INFORMATION				
HPC (60)	20KV_{DC}	2000pF	± 20%	R 2000 H
MODEL	RATED VOLTAGE	CAPACITANCE VALUE	TOLERANCE	CERAMIC

High Voltage Disc Capacitors, Screw mounting

10KT... 10KV_{DC}
15KT... 15KV_{DC}
20KT... 20KV_{DC}
30KT... 30KV_{DC}
40KT... 40KV_{DC}

15DK... 15KV_{DC}
20DK... 20KV_{DC}
30DK... 30KV_{DC}
40DK... 40KV_{DC}



NOTE: Screw torque limit must be 12 inch pounds. Use #8-32, 3/16" long screw to prevent bottoming

• Dimensions in millimeters (inches)

DIELECTRIC STRENGTH

150% of rated voltage, charging current limited to 50mA

DISSIPATION FACTOR $\tan\delta$

N4700: $\leq 2 \cdot 10^{-3}$ (1kHz)

Y5U: $\leq 20 \cdot 10^{-3}$ (1kHz)

INSULATION RESISTANCE

MIN. 200,000 megohms or 1000 Ω F, min. @ 25°C

CORONA LIMIT

Ranges from 50MHz for small diameters to 10 MHz for large diameters

OPERATING TEMPERATURE RANGE

- 30°C to + 85°C

MATERIAL

Capacitor elements made from Class 1 or Class 3 ceramic in a molded epoxy case. Screw terminals: brass, silver plated

MARKING

Type designator, Capacitance value, Rated DC voltage, Ceramic material code, Production date code, CERAMITE Logo

POWER DISSIPATION

Limit to 25°C rise above ambient, measured on case.

ORDERING INFORMATION

15DKD20	15KV _{DC}	2000pF	- 20+ 80%	Y5U
MODEL	RATED VOLTAGE	CAPACITANCE VALUE	TOLERANCE	CERAMIC



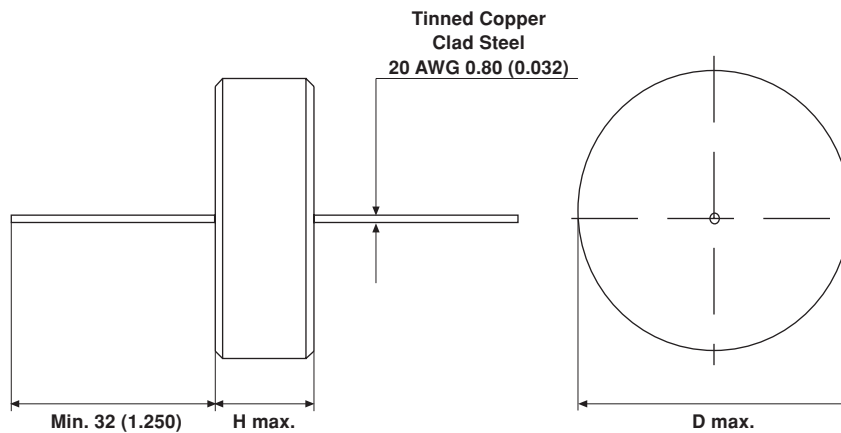
MODEL	CERAMIC	CAPACITANCE VALUES [pF]	RATED VOLTAGE [KV _{DC}]	RATED VOLTAGE [KV _{RMS}]	D _{max.}	H _{max.}
10KT...						
10KTD10	N4700	1000	10	4	33.0 (1.30)	19.8 (0.78)
10KTD22		2200			39.4 (1.55)	19.8 (0.78)
10KTD39		3900			54.1 (2.13)	19.8 (0.78)
10KTD47		4700			58.4 (2.30)	19.8 (0.78)
15KT...						
15KTT82	N4700	820	15	6	33.0 (1.30)	22.9 (0.90)
15KTD19		1900			54.1 (2.13)	22.9 (0.90)
15KTD33		3300			58.4 (2.30)	22.9 (0.90)
20KT...						
20KTT56	N4700	560	20	8	33.0 (1.30)	25.4 (1.00)
20KTD10		1000			39.4 (1.55)	25.4 (1.00)
20KTD19		1900			54.1 (2.13)	25.4 (1.00)
20KTD27		2700			61.5 (2.42)	25.4 (1.00)
30KT...						
30KTT40	N4700	400	30	10	33.0 (1.30)	30.0 (1.18)
30KTT66		660			39.4 (1.55)	30.0 (1.18)
30KTD12		1200			54.1 (2.13)	30.0 (1.18)
30KTD18		1800			61.5 (2.42)	30.0 (1.18)
40KT...						
40KTT30	N4700	300	40	13	33.0 (1.30)	34.5 (1.36)
40KTT64		640			45.7 (1.80)	34.5 (1.36)
40KTD10		1000			54.1 (2.13)	34.5 (1.36)
40KTD13		1300			61.5 (2.42)	34.5 (1.36)
15DK...						
15DKD15	Y5U	1500	15	4	26.7 (1.05)	22.9 (0.90)
15DKD20		2000			33.0 (1.30)	22.9 (0.90)
15DKD33		3300			39.4 (1.55)	22.9 (0.90)
15DKD47		4700			39.4 (1.55)	22.9 (0.90)
15DKS10		10000			58.4 (2.30)	22.9 (0.90)
20DK...						
20DKT50	Y5U	500	20	5	22.4 (0.88)	25.4 (1.00)
20DKD10		1000			33.0 (1.30)	25.4 (1.00)
20DKD13		1300			33.0 (1.30)	25.4 (1.00)
20DKD25		2500			39.4 (1.55)	25.4 (1.00)
20DKD33		3300			45.7 (1.80)	25.4 (1.00)
20DKD47		4700			54.1 (2.13)	25.4 (1.00)
20DKD68		6800			61.5 (2.42)	25.4 (1.00)
30DK...						
30DKT50	Y5U	500	30	7	26.7(1.05)	34.5 (1.36)
30DKD10		1000			33.0 (1.30)	30.0 (1.18)
30DKD25		2500			39.4 (1.55)	30.0 (1.18)
30DKD33		3300			54.1 (2.13)	30.0 (1.18)
30DKD47		4700			58.4 (2.30)	30.0 (1.18)
40DK...						
40DKT30	Y5U	300	40	9	22.4 (0.88)	34.5 (1.36)
40DKT50		500			26.7 (1.05)	34.5 (1.36)
40DKT78		780			33.0 (1.30)	34.5 (1.36)
40DKD10		1000			39.4 (1.55)	34.5 (1.36)
40DKD16		1600			45.7 (1.80)	34.5 (1.36)
40DKD25		2500			54.1 (2.13)	34.5 (1.36)
40DKD33		3300			58.4 (2.30)	34.5 (1.36)

CAPACITANCE TOLERANCES: KT... Series ± 20%
DK... Series: - 20 + 80%

Vishay Cera-Mite

High Voltage Capacitors with Axial Leads

10A... 10KV_{DC}
15A... 15KV_{DC}
20A... 20KV_{DC}
30A... 30KV_{DC}



• Dimensions in millimeters (inches)

DIELECTRIC STRENGTH

150% of rated voltage (in dielectric fluid), charging current limited to 50mA

DISSIPATION FACTOR tanδ

N4700: ≤ 2 • 10⁻³ (1kHz)
X7R, Z5U: ≤ 20 • 10⁻³ (1kHz)

INSULATION RESISTANCE

MIN. 200,000 megohms, @180VDC or 1000 ΩF

OPERATING TEMPERATURE RANGE

Up to + 125°C

MATERIAL

Capacitor elements made from Class 1 or Class 3 ceramic in a molded case, high temperature epoxy construction
Leads: Tinned copper clad steel

MARKING

Capacitance value and tolerance,
Rated DC voltage, T/C code,
Production date code, CM mark

ORDERING INFORMATION

20AZT68
MODEL

20KV_{DC}
RATED
VOLTAGE

680pF
CAPACITANCE
VALUE

± 20%
TOLERANCE

N4700
CERAMIC



MODEL	CERAMIC	CAPACITANCE VALUES [pF]	RATED VOLTAGE [KV _{DC}]	RATED VOLTAGE [KV _{RMS}]	D _{max.}	H _{max.}		
10A...								
10AZT47	N4700	470	10	3	21 (0.83)	13 (0.50)		
10AZD10	N4700	1000			30 (1.18)	13 (0.50)		
10AED15	Z5U	1500			21 (0.83)	13 (0.50)		
10AZD20	N4700	2000			37 (1.45)	13 (0.50)		
10AED22	Z5U	2200			21 (0.83)	13 (0.50)		
10AED33	Z5U	3300			30 (1.18)	13 (0.50)		
10ACD33	X7R	3300			30 (1.18)	15 (0.60)		
10AED47	Z5U	4700			30 (1.18)	13 (0.50)		
10ACD47	X7R	4700			37 (1.45)	15 (0.60)		
10AED68	Z5U	6800			30 (1.18)	13 (0.50)		
10AES10	Z5U	10000			37 (1.45)	13 (0.50)		
15A...								
15AZT39	N4700	390			15	5	21 (0.83)	13 (0.50)
15AZT82	N4700	820					30 (1.18)	13 (0.50)
15AED10	Z5U	1000	21 (0.83)	13 (0.50)				
15AED15	Z5U	1500	21 (0.83)	13 (0.50)				
15ACD15	X7R	1500	30 (1.18)	15 (0.60)				
15AZD15	N4700	1500	37 (1.45)	13 (0.50)				
15AED22	Z5U	2200	30 (1.18)	13 (0.50)				
15ACD22	X7R	2200	30 (1.18)	13 (0.50)				
15AED33	Z5U	3300	30 (1.18)	13 (0.50)				
15ACD33	X7R	3300	37 (1.45)	15 (0.60)				
15ACD39	X7R	3900	37 (1.45)	15 (0.60)				
15AED47	Z5U	4700	30 (1.18)	13 (0.50)				
15AED68	Z5U	6800	37 (1.45)	13 (0.50)				
20A...								
20AZT22	N4700	220	20	7	21 (0.83)	15 (0.60)		
20AET68	Z5U	680			21 (0.83)	15 (0.60)		
20AZT68	N4700	680			30 (1.18)	15 (0.60)		
20AED10	Z5U	1000			21 (0.83)	15 (0.60)		
20ACD10	X7R	1000			30 (1.18)	20 (0.80)		
20AZD10	N4700	1000			37 (1.45)	15 (0.60)		
20AED15	Z5U	1500			21 (0.83)	15 (0.60)		
20ACD15	X7R	1500			30 (1.18)	20 (0.80)		
20AED22	Z5U	2200			30 (1.18)	15 (0.60)		
20ACD22	X7R	2200			37 (1.45)	20 (0.80)		
20ACD25	X7R	2500			37 (1.45)	20 (0.80)		
20ACD27	X7R	2700			37 (1.45)	20 (0.80)		
20AED33	Z5U	3300			30 (1.18)	15 (0.60)		
20AED47	Z5U	4700			37 (1.45)	15 (0.60)		
20AED50	Z5U	5000			37 (1.45)	15 (0.60)		
30A...								
30AZT18	N4700	180	30	10	21 (0.83)	20 (0.80)		
30ACT33	X7R	330			21 (0.83)	24 (0.95)		
30AZT47	N4700	470			30 (1.18)	20 (0.80)		
30AET47	Z5U	470			21 (0.83)	20 (0.80)		
30AZT68	N4700	680			37 (1.45)	20 (0.80)		
30AET68	Z5U	680			21 (0.83)	20 (0.80)		
30AET82	Z5U	820			21 (0.83)	20 (0.80)		
30ACD10	X7R	1000			30 (1.18)	24 (0.95)		
30AED10	Z5U	1000			30 (1.18)	20 (0.80)		
30AED12	Z5U	1200			30 (1.18)	20 (0.80)		
30ACD15	X7R	1500			37 (1.45)	24 (0.95)		
30AED15	Z5U	1500			30 (1.18)	20 (0.80)		
30AED18	Z5U	1800			37 (1.45)	20 (0.80)		
30AED20	Z5U	2000			37 (1.45)	20 (0.80)		
30AED22	Z5U	2200			37 (1.45)	20 (0.80)		
30AED25	Z5U	2500			37 (1.45)	20 (0.80)		
30AED30	Z5U	3000			37 (1.45)	20 (0.80)		
30AED33	Z5U	3300			37 (1.45)	20 (0.80)		

CAPACITANCE TOLERANCES: N4700, X7R Ceramic: ± 20%
 Z5U Ceramic: - 20 + 80%

Ceramic Capacitor Stacks for Voltage Multiplier Circuits

PRODUCT DESCRIPTION:

Ceramic capacitor stacks are used mainly in modern high voltage supplies e.g. in X-ray machines for medical applications, industrial radiography (flaw detection, baggage examination, etc.) or in electrostatic powder coating equipment.

A high frequency generator (about 20KHz) supplies the input a.c. voltage via a ferrite transformer to the multiplier circuit.

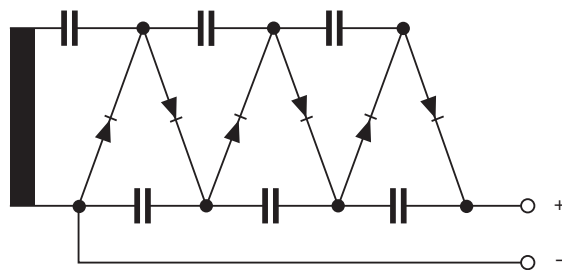
Output in excess of 100KV_{DC} can be produced depending on the number of switching steps.

VISHAY DRALORIC can supply the capacitor stacks for the voltage multiplier circuits to customers specified designs and requirements. The capacitor stacks and associated high voltage diodes are usually operated in high insulation environments such as oil or inert gas (sulphur hexafluoride SF₆) or are embedded in epoxy resin.

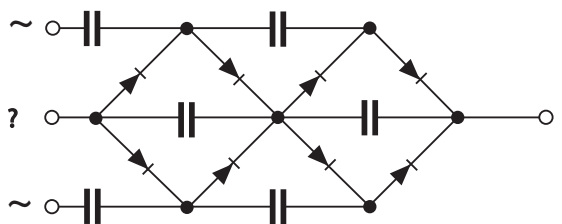
The number of individual capacitors in each stack and certain technical parameters can be varied to meet customer requirements within specified limits.

TYPICAL SCHEMATIC DIAGRAM

Half-wave-multiplier



Full-wave-multiplier



Ceramic Capacitor Stacks

DESIGN:

Ceramic capacitor stacks with leads

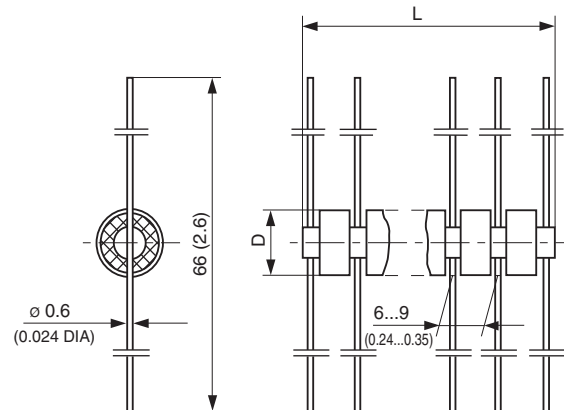
RATED VOLTAGE U_R :

see table below

DIELECTRIC STRENGTH:

see table below (Test voltage between leads)

DISSIPATION FACTOR $\tan \delta$:
 $\leq 25 \cdot 10^{-3}$
INSULATION RESISTANCE R_{is} :
 $\geq 1 \cdot 10^{11} \Omega$ (R 2000, R 3000)

 $\geq 1 \cdot 10^{10} \Omega$ (R 2005, R 6000)

CATEGORY TEMPERATURE RANGE θ_A :

* Dimensions in mm

(- 10 to + 85)°C

MODEL	CAPACITANCE (pF)	TOLERANCE	RATED VOLTAGE* (KVp)	TEST VOLTAGE** (KV _{DC})	CERAMIC DIELECTRIC	NO. OF DISCS IN SERIES	LENGTH L (mm/inches)	ØD (mm/inches)
GDMQ 0803	125	- 20 + 40%	8	12	R 2000	3	22/0.86 MAX.	8.8 - 0.4/ 0.35 - 0.016
GDMQ 0806						6	40/1.58 MAX.	
GDMQ 0807						7	46/1.81 MAX.	
GDMQ 0809						9	61/2.40 MAX.	
GDMQ 0704	250	- 20 + 40 %	8	13	R 2005	4	25/1 MAX.	7.7 ± 0.2/ 0.30 ± 0.04
GDMQ 0705						5	31/1.22 MAX.	
GDMQ 0706						6	37/1.46 MAX.	
GDMQ 0709						9	56/2.2 MAX.	
GDMQ 0710						10	62/2.44 MAX.	
GDMQ 0712	12	72/2.83 MAX.						
GDMQ 0803	250	- 20 + 40 %	8	13	R 3000	3	25/1 MAX.	8.8 - 0.4/ 0.35 - 0.016
GDMQ 0804						4	29/1.14 MAX.	
GDMQ 0805						5	35/1.38 MAX.	
GDMQ 0806						6	42.5/1.67 MAX.	
GDMQ 0809						9	61/2.40 MAX.	
GDMQ 0812						12	81/3.19 MAX.	
GDMQ 1005	500	- 20 + 40%	10	15	R 6000	5	47/1.85 MAX.	10.5 ± 0.4/ 0.41 ± 0.016

*In an insulating environment

**Min. 3s in an insulating liquid

Other capacitance values and number of discs are available on request

ORDERING INFORMATION

GDMQ 0803	8KV _p	125pF	- 20 + 40%	R 2000
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Ceramic Capacitor Stacks

DESIGN:

Ceramic capacitor stacks with solder tags

RATED VOLTAGE U_R :

see table below

DIELECTRIC STRENGTH:

see table below (Test voltage between solder tags)

DISSIPATION FACTOR $\tan \delta$:

$\leq 25 \cdot 10^{-3}$

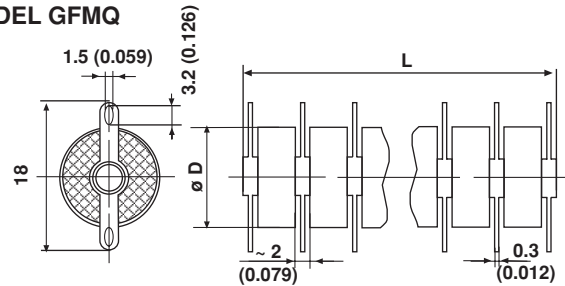
INSULATION RESISTANCE R_{is} :

$\geq 1 \cdot 10^{10} \Omega$ (R 2005)

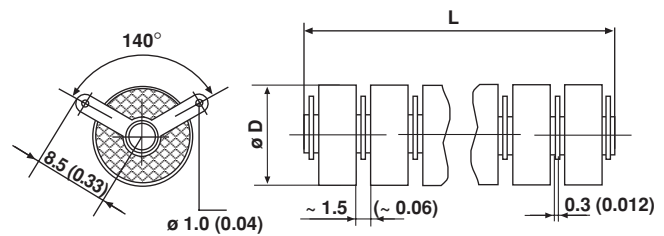
CATEGORY TEMPERATURE RANGE ϑ_A :

(- 10 to + 85)°C

MODEL GFMQ



MODEL GFWQ



• Dimensions in millimeters (inches)

MODEL	CAPACITANCE (pF)	TOLERANCE	RATED VOLTAGE* (KV _p)	TEST VOLTAGE** (KV _{DC})	CERAMIC DIELECTRIC	NO. OF DISCS IN SERIES	LENGTH L (mm/inches)	ØD (mm/inches)
GFMQ 1010	370	± 20 %	8	13	R 2005	10	61/2.4 MAX.	10.5 ± 0.3/ 0.41 ± 0.012
GFWQ 1010						10	61/2.4 MAX.	
GFMQ 1012	500	± 20 %	8	13	R 2005	12	74/2.91 MAX.	12.0 ± 0.2/ 0.47 ± 0.008
GFWQ 1012						12	74/2.91 MAX.	
GFMQ 1208	500	± 20 %	8	13	R 2005	8	51/2 MAX.	12.0 ± 0.2/ 0.47 ± 0.008
GFWQ 1208						8	51/2 MAX.	
GFMQ 1210	500	± 20 %	8	13	R 2005	10	65/2.56 MAX.	12.0 ± 0.2/ 0.47 ± 0.008
GFWQ 1210						10	65/2.56 MAX.	
GFMQ 1212	500	± 20 %	8	13	R 2005	12	74/2.91 MAX.	12.0 ± 0.2/ 0.47 ± 0.008
GFWQ 1212						12	74/2.91 MAX.	

*In an insulating environment

**Min. 3s in an insulating liquid

Other capacitance values and number of discs are available on request

ORDERING INFORMATION

GFWQ 1212	8KV _p	500pF	± 20%	R 2005
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Ceramic Capacitors Stacks

DESIGN:

Ceramic capacitor stacks with solder tags and protective lacquering

RATED VOLTAGE U_R :

see table below

DIELECTRIC STRENGTH:

see table below (Test voltage between solder tags)

DISSIPATION FACTOR $\tan \delta$:

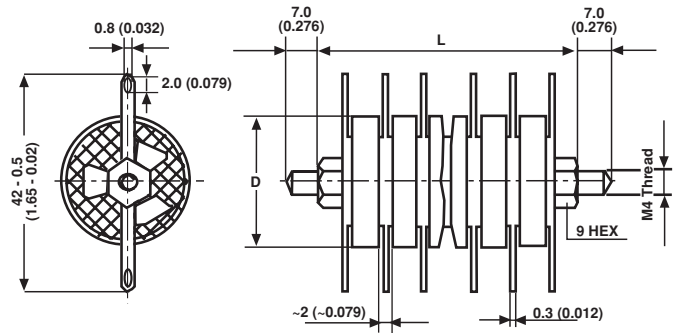
$\leq 25 \cdot 10^{-3}$

INSULATION RESISTANCE R_{is} :

$\geq 1 \cdot 10^{10} \Omega$

CATEGORY TEMPERATURE RANGE ϑ_A :

(- 10 to + 60) $^{\circ}$ C



Insulating rim of the ceramic discs has protective lacquering

• Dimensions in millimeters

MODEL	CAPACITANCE (pF)	TOLERANCE	RATED VOLTAGE* (KV _p)	TEST VOLTAGE** (KV _{DC})	CERAMIC DIELECTRIC	NO. OF DISCS IN SERIES	LENGTH L (mm/inches)	ØD (mm/inches)
GFMM 2505	1300	- 10 + 60%	19	25	R 4000	5	70/2.76 MAX.	25.5 ± 0.5/ (1 ± 0.02)
GFMM 2505	2200	- 10 + 50%	11	15	R 6000	5	70/2.76 MAX.	
GFMM 2507						7	77/3.03 MAX.	

*In an insulating environment

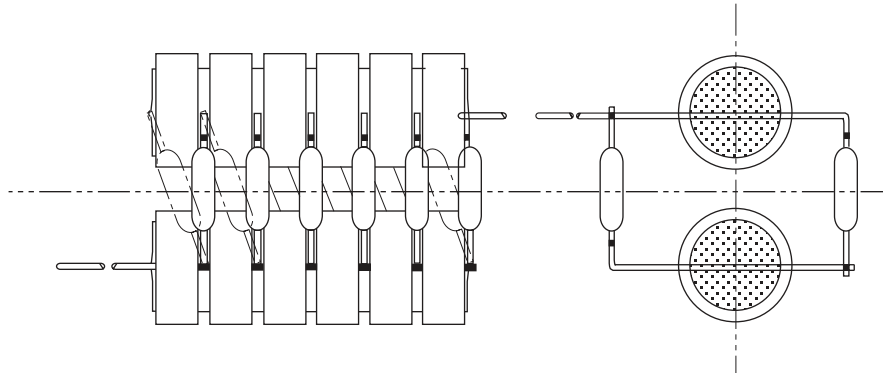
**Min. 20s in an insulating liquid

Other capacitance values and number of discs are available on request

ORDERING INFORMATION

GFMM 2505	11KV _p	2200pF	- 20 + 50%	R 6000
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Voltage Multiplier Sets



VOLTAGE MULTIPLIER SETS

Vishay Draloric have the facilities to produce custom style Voltage Multiplier Sets:

- build up from two or more stacks
- completely soldered with diodes and resistors

The RHK... Cascade above, shows an example of 2 stacks complete with diode.

If you have an application with a non-standard requirement, contact us and our design team will work with you to find a solution.

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