

Water Cooled RF Power Pot Capacitors, External Cooling System



KEY BENEFITS

- High quality, service, and flexibility
- Production in Germany
- Vishay has been producing capacitors for more than 60 years
- Market leader for power capacitors
- Customized products available

APPLICATIONS

- Capable of operation at high power and high frequency
- Ideal for operation in LC tank circuits of high power RF oscillators
- RF generators (inductionheating and dielectric heating)
- Radio transmitters

RESOURCES

- Datasheets: TWX, TWXF - www.vishay.com/ppg?22131
- Further water cooled capacitors: www.vishay.com/capacitors/ceramic/rf-watercooled/
- For technical questions contact powcap@vishay.com
- Material categorization: for definitions of compliance see www.vishay.com/doc?99912

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FEATURES

- High voltage, current, and power ratings
- Compact design reduces terminal self inductance and permits high frequency operation
- Increased power density is achieved through water cooling. Enhanced reliability is achieved with a rugged mechanical design

APPLICATIONS

Water cooled RF power pot capacitors are designed for use in the tank circuits of high power RF equipment such as induction heating and welding equipment, dielectric heating, and a variety of specialized RF applications.

DESIGN SUPPORT TOOLS AVAILABLE



QUICK REFERENCE DATA													
DESCRIPTION	VALUE												
Ceramic class	1												
Ceramic dielectric	R7, R16, R42, R85												
Type	TWX					TWXF							
Voltage (V_p)	12 000	14 000	16 000	20 000	25 000	10 000	12 000	14 000	16 000	18 000	20 000	22 500	25 000
Min. capacitance (pF)	5000	100	4000	3000	2500	10 000	5000	100	4000	7600	3000	7500	2500
Max. capacitance (pF)	5000	5000	4000	3000	2500	10 000	5000	10 000	10 000	10 000	7600	7500	5000
Mounting	Screw terminal												

PRODUCT DESCRIPTION

TWX and TWXF pot-styled capacitors dissipate the heat produced under load by means of water flow around the capacitor element. 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 ceramic capacitor element is housed in a rugged copper case.

The electrical terminations are directly soldered onto the noble metal electrodes, providing a strong, rigid connection of unsurpassed reliability. The TWX model is made with a contoured, glazed insulation rim designed for use in a clean, dry environment. The TWXF types feature an umbrella shaped coating rim made from silicone elastomer to minimize the adverse effects of moisture, dust, and other soiling in the working environment, and to improve the characteristics of the electrical field.

MARKING

Type designator, capacitance value and tolerance, rated RF voltage, ceramic material code, production date code, manufacturer logo, serial number.

ACCESSORIES ADDED

All water cooled 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.

CAPACITANCE RANGE

100 pF to 10 nF

CAPACITANCE TOLERANCE

± 20 %; ± 10 %

CERAMIC DIELECTRICS

- R7 (TCC: +100 ppm/K)
- R16 (TCC: +100 ppm/K)
- R42 (TCC: -250 ppm/K)
- R85 (TCC: -750 ppm/K)

RATED VOLTAGE

- 10 kV_p
- 12 kV_p
- 14 kV_p
- 16 kV_p
- 18 kV_p
- 20 kV_p
- 22.5 kV_p
- 25 kV_p

DIELECTRIC STRENGTH TEST

200 % of rated AC voltage, 50 Hz

RF POWER TEST

125 % to 140 % of rated power, for 10 minutes in a test generator circuit

DISSIPATION FACTOR

R7: max. 0.07 %

R16: max. 0.04 %

R42, R85: max. 0.05 %

Measuring frequencies:

1 MHz (< 1 nF); 300 kHz or 100 kHz (≥ 1 nF)

INSULATION RESISTANCE

Min. 10 000 MΩ (at 25 °C)

OPERATING TEMPERATURE RANGE

Find details of water cooling under the “Guidelines” section in the [datasheet](#).