Watercooled RF Power Barrel Capacitors for Dielectric Heating Equipment

QUICK REFERENCE DATA	
DESCRIPTION	VALUE
Ceramic Class	1
Ceramic Dielectric	R16 HQ
Type	TOSW 118115
Voltage (V_p)	13 500
Min. Capacitance (pF)	125
Max. Capacitance (pF)	125
Mounting	Screw terminal

MATERIAL

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

Connection terminals:
thread terminal, brass, silver plated.

Allowable torque: 5.0 Nm (44 lbf in)

FINISH

Capacitor body completely glazed.

MARKING

Type designator, capacitance value and tolerance, test voltage (peak value), ceramic material code, production date code, manufacturer logo, serial no.

FEATURES

These capacitors feature a high 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. This capacitor type can be used as replacement for fixed vacuum capacitors. The construction provides the advantage of a long lifetime without vacuum deterioration.
The TOSW 118115 has additionally watercooling systems on both electrodes. That provides very high power ratings up to 1940 kvar.

APPLICATIONS

Dielectric heating equipments in industrial segment

CAPACITANCE RANGE

125 pF

CAPACITANCE TOLERANCE

± 10 %

CERAMIC DIELECTRICS

R16 High Q (TCC + 100 ppm/K)

RATED VOLTAGE

13.5 kV_p

DIELECTRIC STRENGTH TEST

157 % rated AC voltage (21 200 V_{RMS}, 50 Hz, 5 minutes)

RF-POWER TEST

140 % of rated power, for 5 minutes in a test generator circuit

DISSIPATION FACTOR

Max. 0.025 % (1 MHz)

INSULATION RESISTANCE

Min. 100 000 MΩ (at 25 °C)

OPERATING TEMPERATURE RANGE

-55 °C to +100 °C

WATERCOOLING SYSTEM

Allowable intake water pressure: 15 bar (218 psi)

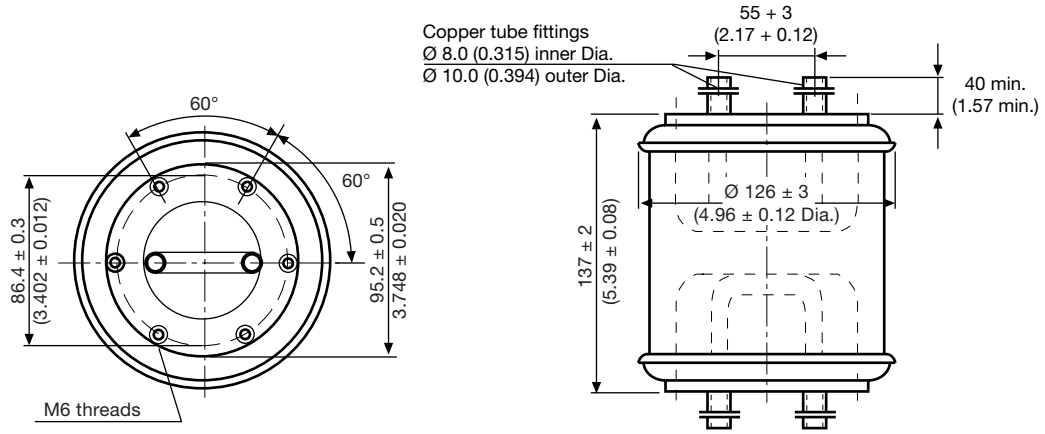
SAP PART NUMBER AND ELECTRICAL DATA

PART NUMBER	CERAMIC	CAP. VALUES (pF)	RATED VOLTAGE (kV_p)	RATED POWER (1) (kvar)	RATED CURRENT (A_{RMS})
BW118115XT125P36CB	R16 High Q	125	13.5	Up to 1940	203

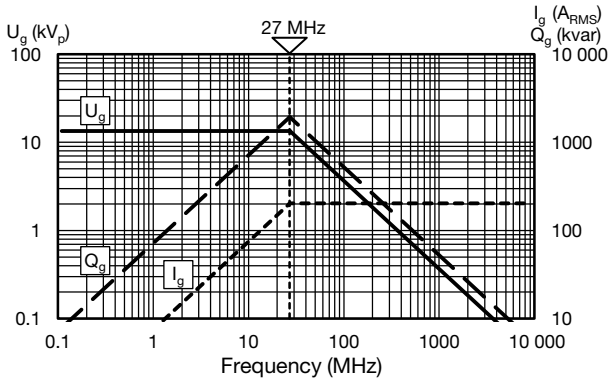
Note

(1) The temperature of the connection terminals must be less than 30 °C

DIMENSIONS in millimeters (inches)



DERATING DIAGRAM



WATERCOOLING SYSTEM

The watercooling systems are designed with 8 mm / 10 mm copper tube fittings. The fittings must not be used as a mechanical support for other devices or components.
Each cooling system is designed to operate at a maximum water pressure of 15 bars (218 psi).
A coolant temperature rate monitor must provide a fail-safe on / off power control for the RF equipment.
Normal tap water or de-mineralized water may be used for cooling. The water must be reasonably free of $CaCO_3$ and clear of foreign particles or milkyness. The pH-value of the coolant should be between 6 and 8.

INSTALLATION

The electrical 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 capacitors.

RELATED DOCUMENTS

General Information	www.vishay.com/doc?22071

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