

ISTOK TECHNICAL DATA

ISTOK IMG-915-100KA

Industrial Magnetron



The ISTOK™ IMG-915-100KA Industrial Magnetron is a 915 MHz fixed-tuned, electromagnet-focused 100 kW CW magnetron. It features ceramic-metal construction, liquid and air cooling, and very rugged construction for industrial applications.

The IMG-915-100KA is one of the few 100kW 915MHz magnetrons with a completely new design for conservative 100kW operation. A significant feature of this design is the RF output coupling structure. It is the only industrial magnetron available with direct conduction cooling through the vacuum envelope to the air cooling stream. The unique design provides exceptional cooling for handling 100kW RF power output conservatively.

Solenoids and wave guide transitions/launchers manufactured in the West for 60 and 75 kW magnetrons are plug compatible. This magnetron is designed for an industrial environment. It meets all electrical performance criteria under the temperature and shock/vibration conditions encountered in industrial applications.

The ISTOK IMG-915-100KA magnetron is manufactured in Fryazino, Russia, near Moscow. The strict manufacturing and quality control procedures for Russian military products are enforced throughout the Fryazino plant for all products.

General Characteristics

Electrical (Magnetron)

Center Frequency	915 ± 5	MHz
RF Output (Nominal)	100	kW
Filament		
Nominal Voltage	14.5	Vac
Nominal Current at 14.5 Volts	115	A

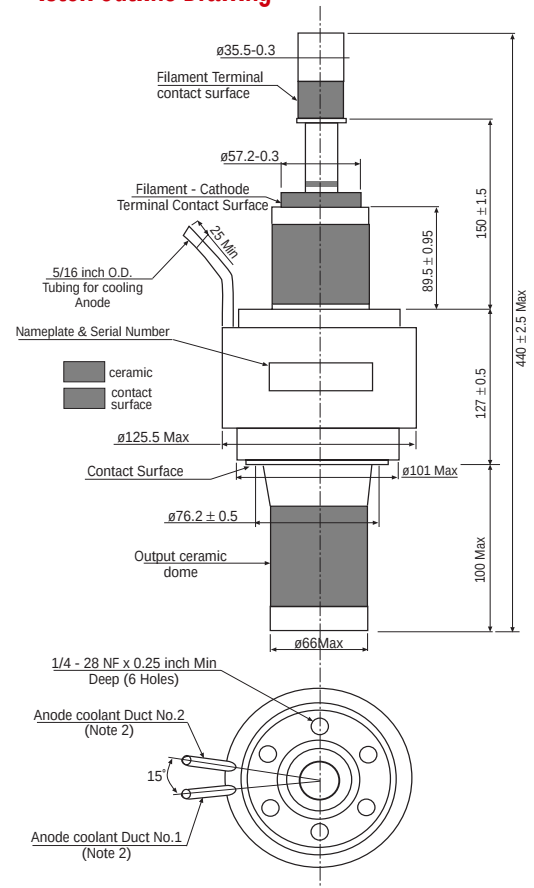
Electrical (Solenoid)

Resistance	12	Ω
Current (max)	7.0	A

Mechanical (Magnetron)

Cooling	Air and Liquid	
Anode Cooling, liquid	11 gal/min (40 l/min)	
Cathode Cooling, air	9 CFM (1/4 m³/min)	
Dome Cooling, air	35 CFM (1m³/min)	
Operating Position	Vertical, Dome Down or Up	
Maximum Dimensions		
Length	440 ± 2	mm
Diameter	126	mm
Weight	6.5 kg (14.3 lbs)	
RF Output:	Magnetron Antenna (Dome) to WR-975 Transition	
Shock	5	G
Vibration	10 - 80	Hz
Ambient Operating Temperatures		
Maximum	+70°	C
Minimum	-55°	C
Humidity at 40° C	98	%

Istok Outline Drawing



Notes:

1. Dimensions in millimeters.
2. Recommended direction of anode coolant flow: Duct No.2 is IN and Duct No.1 is OUT when tube is operated with output ceramic dome DOWN. With output ceramic dome UP, the flow should be reversed.
3. Magnetron may be delivered with customer specified 37° or 45° flared fittings on cooling lines.
4. RF Gasket and pole piece supplied with each magnetron.



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Mechanical (Solenoid)

Cooling	Liquid	
Maximum Dimensions:		
Height	172	mm
Outer Diameter	325	mm
Weight	50 kg	(110 lbs)

Maximum Ratings, CW Oscillator

Anode Voltage	25	kV
Anode Current	7.0	A
Load VSWR**	1.5:1	Max

Typical Operation * 915 MHz

Filament Current	78	A
Anode Voltage	19.8	kV
Anode Current	6.1	A
Solenoid Current***	5.0	A
RF Output	102	kW
Efficiency	84	%

* Each IMG-915-100KA is delivered with a performance certificate including recommended operating data.

**Anode voltage to be removed in 10 milliseconds or less for any fault.

***Proper on off sequencing of solenoid current required

Application Drawing

