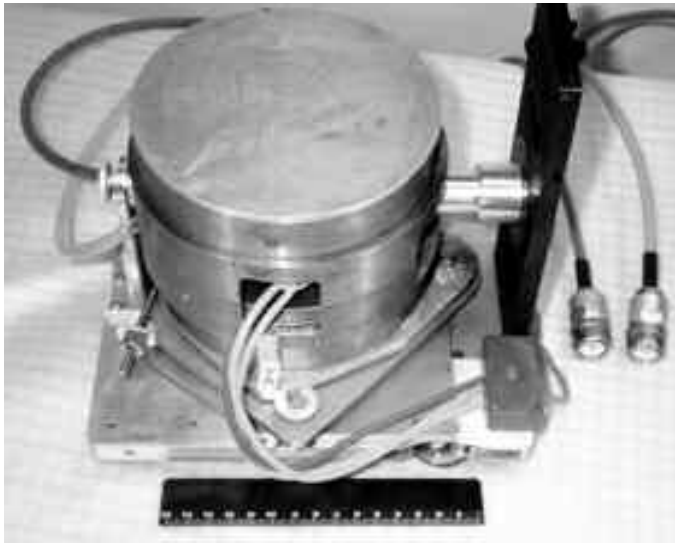


Millimeter and Submillimeter Wave Wide-Range BWO Sweepers



- 180-1110 GHz in 7 bands
- Full waveguide sweep in all bands
- Fast sweep possibility, 200 μ s typical
- Fully packaged and automated
- Remote controlled, phase lockable
- High output power



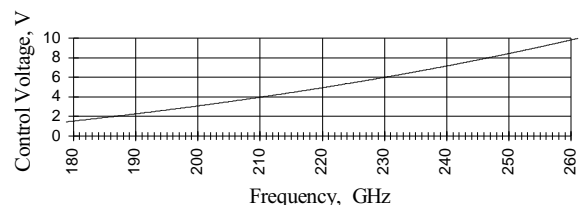
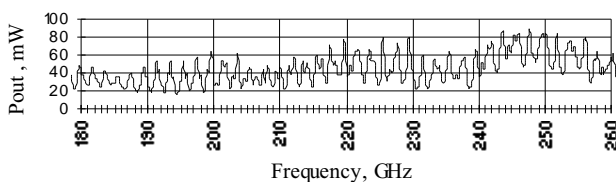
Applications

- Instrumentation automated subsystems
- Laboratory measurement and test equipment
- Source for Network Analysers, Plasma diagnostics and spectrometry
- Sweeping Heterodyne Receivers, frequency and spectrum analysis for gyrotrons

Description

ELVA-1 series **SMW-XX** is fully packaged sweeper. It consists of BWO **OB-XX** series, permanent or electric magnet, tube alignment mechanical system and power supply. Optionally fully closed water cooling system would be supplied. On the left photo BWO tube is shown installed in the permanent magnet 0.8T. The power supply is presented on the right photo (upper cover is removed). The device contains all the electronic circuitry and power supplies required to provide the operation of BWO. BWO tube is fully protected against mistake of all operation voltage applications. Water flow alarm system provides trouble-free operation. High voltage monitor is built-in. There is input for control of frequency by means of an external voltage. Phase locking possibility is provided.

We supply each device with a personal calibration for output power and frequency. Typical dependencies are presented on the plot below for 180-260 GHz, **SMW-24** model:



The results presented above are obtained under the contract with JET (Joint European Torus, the largest tokamak in the world).

Specifications

Model	SMW-24	SMW-30	SMW-32	SMW-80	SMW-81
BWO tube model	OB-24	OB-30	OB-32	OB-80	OB-81
Operating range, GHz	179-263	258-375	370-535	526-714	667-857
Output power, typ, mW	20-50	10-20	4-15	4-15	4-15
Output power*, min, mW	1-10	1-10	1-5	1-5	1-5
Power difference in the range, max, dB	13	13	13	13	13

Model	SMW-82	SMW-83
BWO tube model	OB-82	OB-83
Operating range, GHz	789-968	882-1111
Output power, typ, mW	3-10	3-10
Output power*, min, mW	1-3	1-3
Power difference in the range, max, dB	13	13

* Minimal output power depends on the used tube and can be different for various tubes of the same model.

Common Specifications

Frequency accuracy in the CW mode, %	± 0.01
Frequency stability for 15 min**	10^{-4}
AM stability**, max, %	1
Residual FM, max	$\pm 5 \cdot 10^{-5}$
Sweep time, min, ms	0.2 - 0.5
Duration of Impulse Response Function (IRF) on the 3 dB level, max, ms	0.02
Delay to the peak of IRF, max, ms	0.006
Frequency control voltage, V	0-10
High voltage monitor, V	0-10
Operating temperature range, C°	5-40
AC Input Voltages:	220 VAC, 50 Hz or 110 VAC, 60 Hz
Consumed power, VA	600
Size, mm	
permanent magnet with BWO	300x250x300
power supply	495x380x480
Weight total, kg	45

** Stability is presented for the scheme with a permanent magnet.

Controller for PC microcomputer and software are available upon request.



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