State of the art advanced magnetrons for accelerator RF power source

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Magnetrons for linac systems

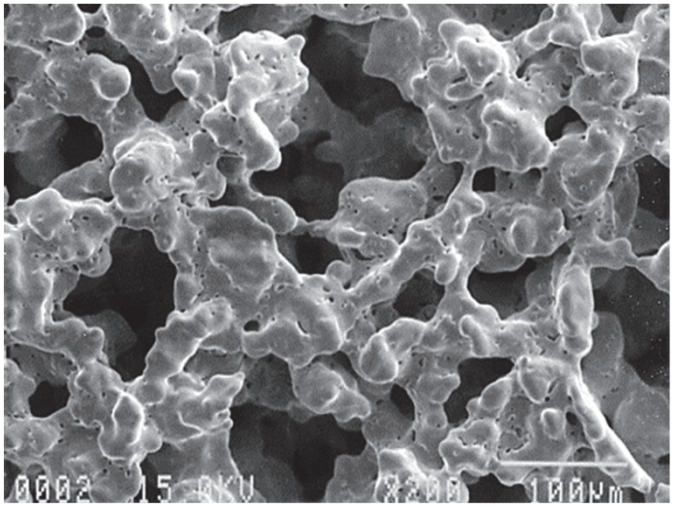
Low cost
Compact size
High performances

		S band	C band	X band
Frequency (MHz)		2993 to 3002	5702 to 5722	9275 to 9325
Dimensions (mm)	W	200	200	170
	D	186	217	175
	H	375	309	306
Volume (m^3)		0.0038	0.0024	0.0019
Weight (kg)		16	14	11

49% less

31% less

1. Cathode temperature reduction design



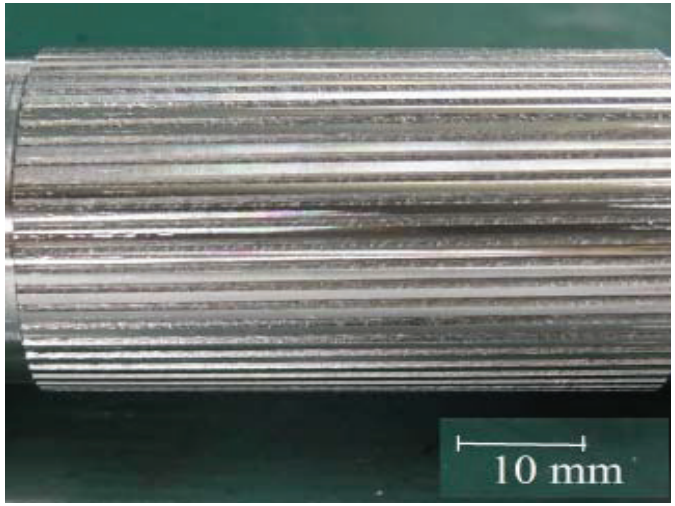


Figure 3:

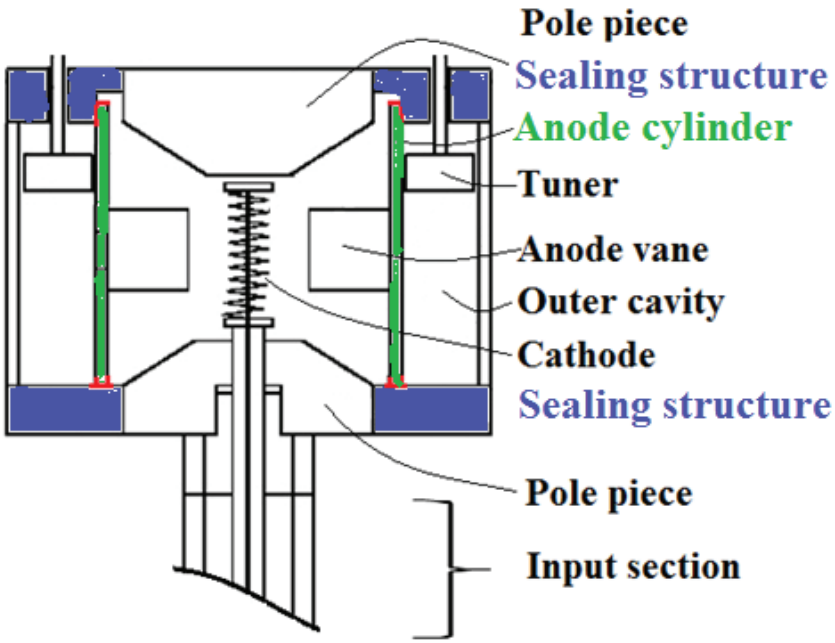
Irregular configuration of base metal

Grooves on cathode base metal cylinder

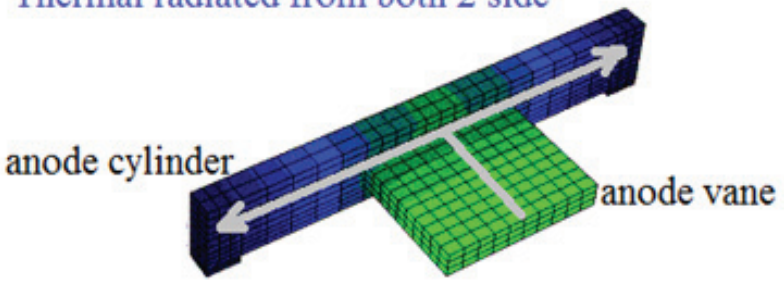
These structure reduce cathode temperature over 115 degrees

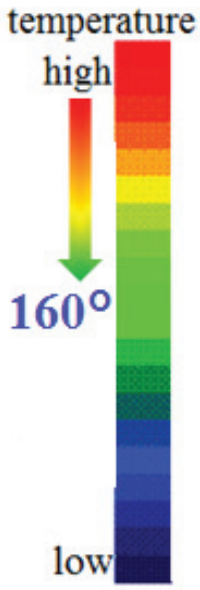
2. Anode temperature reducing design

Special anode cylinder construction reduces the anode vanes' temperature

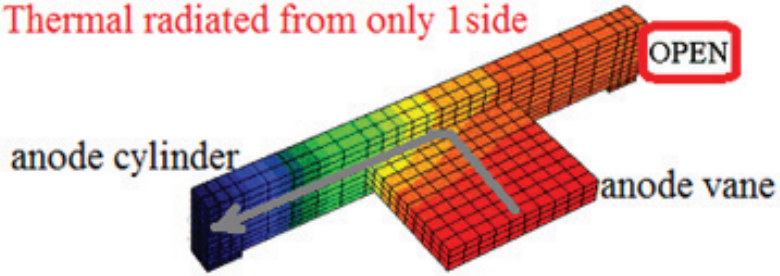


MX76 series design
Thermal radiated from both 2 side





Conventional design
Thermal radiated from only 1side



Conclusion

Magnetron with new design methodologies can operate under the high output power and high pulse duty.

Accelerator designers can choose the frequency from S, C, and X band.