



COMPACT DOWNSTREAM PLASMA SOURCE WR340

DOWNSTREAM WR340 AP AA XX

The compact plasma Downstream source WR340 is designed to be used equally in R&D laboratories and industry for a very large range of applications: etching, surface treatment, diamond deposition, coating, oxygen determination etc.

This type of source generates plasmas whose parameters depend on the gas type & pressure and the total microwave power absorbed by the plasma.

The compact Downstream plasma source WR340 consists of a manual 3-stub tuner, a Downstream plasma source and a manual sliding short-circuit – Fig. 1.

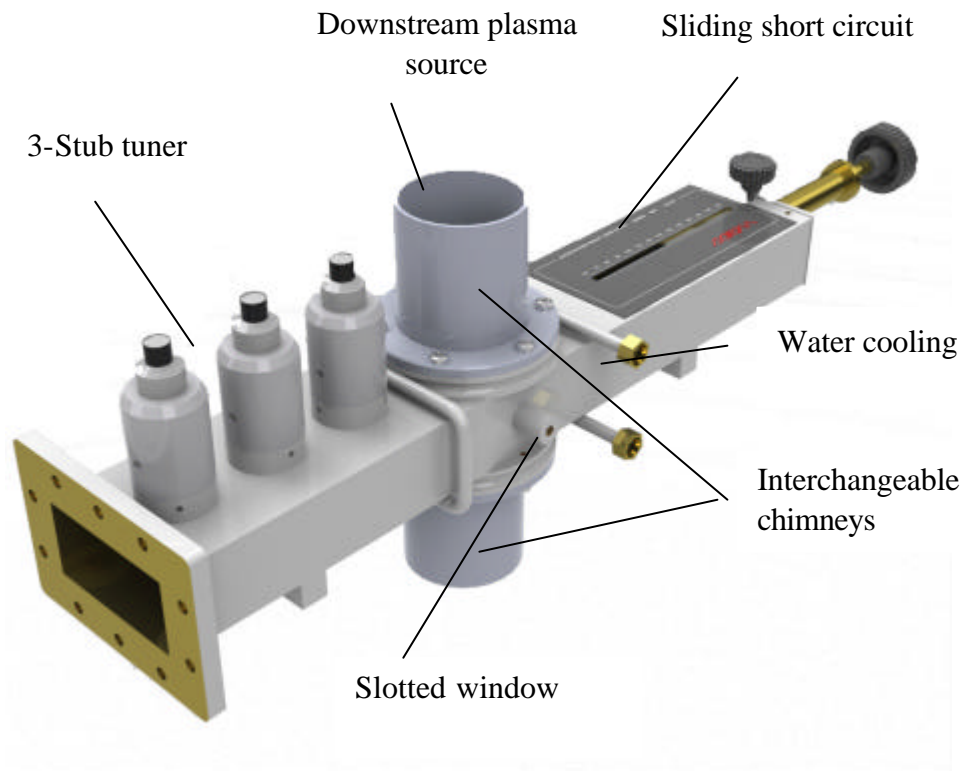


Fig. 1. Compact Downstream plasma source WR340

WE DO NOT SUPPLY THE DISCHARGE TUBE

The source must be used with low loss, high temperature-resistant dielectric such as fused silica (quartz), PyrexTM or ceramic with external diameters between 10 and 66 mm (not provided). To assure a good functionality of the plasma source, the diameter of the metal chimney represented in Fig. 1, must be adapted to the diameter of the discharge tube, i.e. the internal diameter of the chimney will be dimensioned to be just slightly larger than the diameter of the discharge tube. This means that the chimneys must be changed if the external diameter of the discharge tube changes; the chimneys are connected to the waveguide via a circular flange.

Technical specifications

REF	DOWNSTREAM WR340 SP SA XX*
Frequency	2450 MHz \pm 25 MHz
Microwave power	Max. 6 kW
Connections	Standard WR340 flange
Discharge tube external diameter	Max. 66 mm; MUST be specified when ordering
Cooling	Water, ¼ NPT
Materials used	Brass, aluminium & copper (water cooling circuit)
Sight windows	1 slotted & 1 hollowed on the lateral parts of the source for plasma analysis & control (temperature, light detection etc.)
Weight	cca

*XX = internal diameter of the chimney

The functionality of this plasma source is possible if the source is connected to a 2.45 GHz microwave generator; as an example, see Fig. 2.

OBSERVATIONS

1. We can deliver chimneys to be drilled by the user according to the diameter of the discharge tube;
2. When working with harmful gases or mixtures gas – solid (ex. plasma synthesis of nanoparticles) we strongly recommend the use of a microwave adapted window between the microwave generator and the downstream source. This window will act as a barrier protecting the magnetron against any debris/corrosive agent that could escape from the plasma source and cause irreversible damage to the magnetron and isolator.

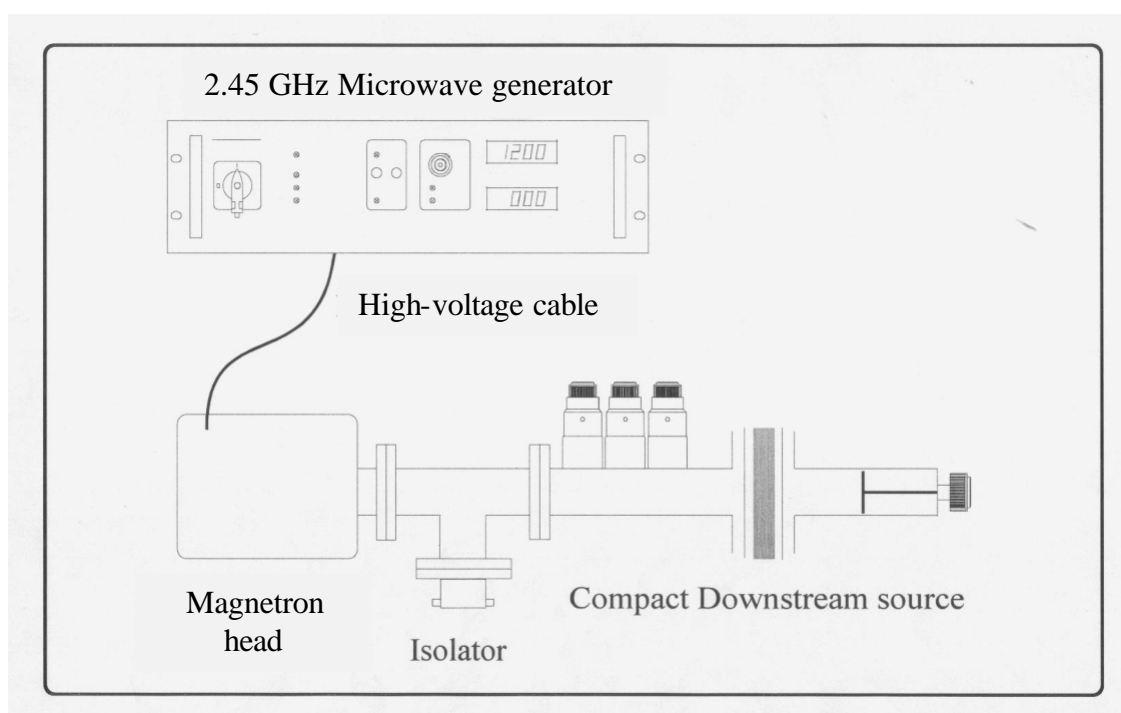
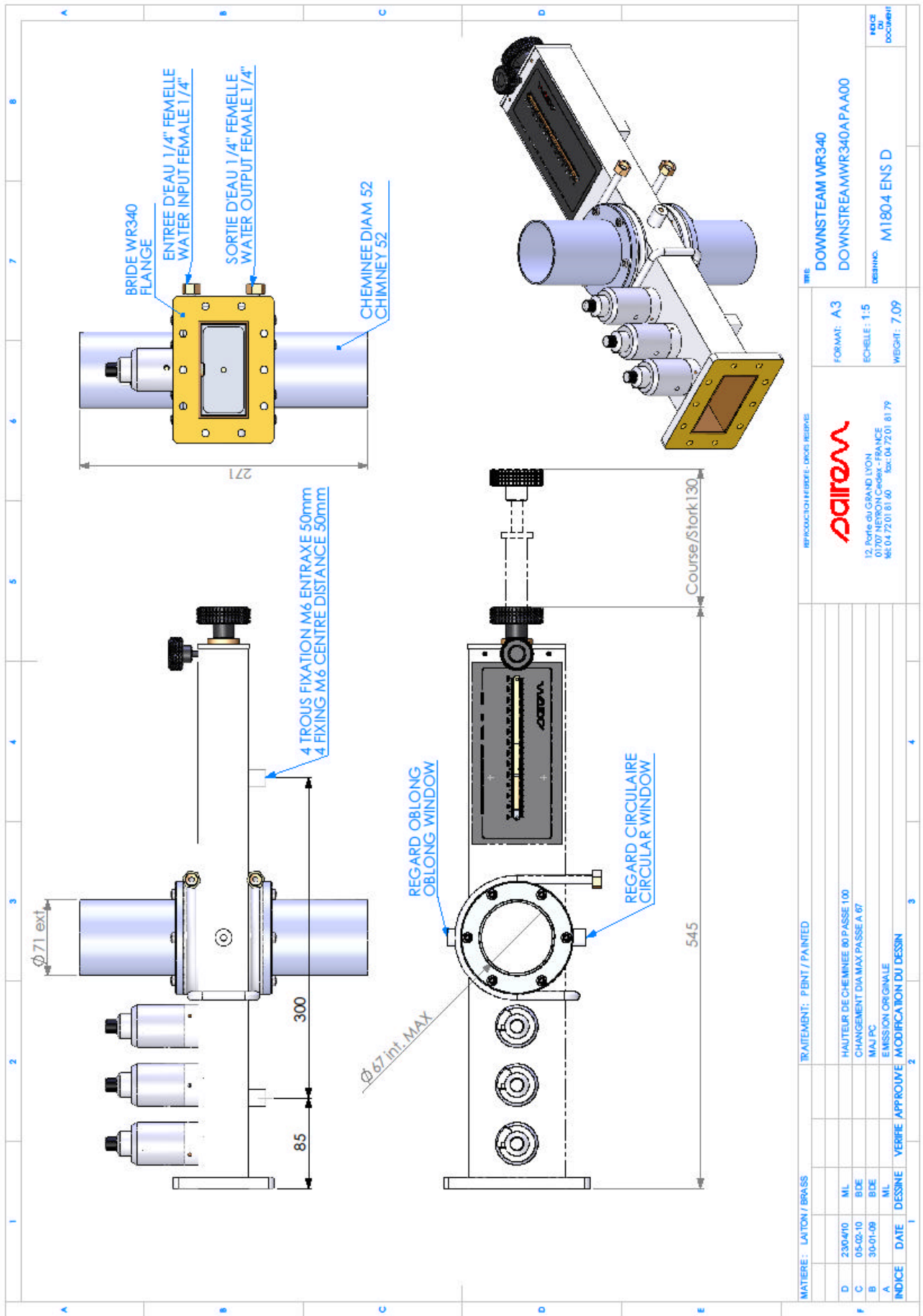


Fig. 2. Example of a microwave plasma set-up with SAIREM's compact Downstream plasma source



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