

DOWNSTREAM PLASMA SOURCE WR340

DOWNSTREAM WR340 3 XX

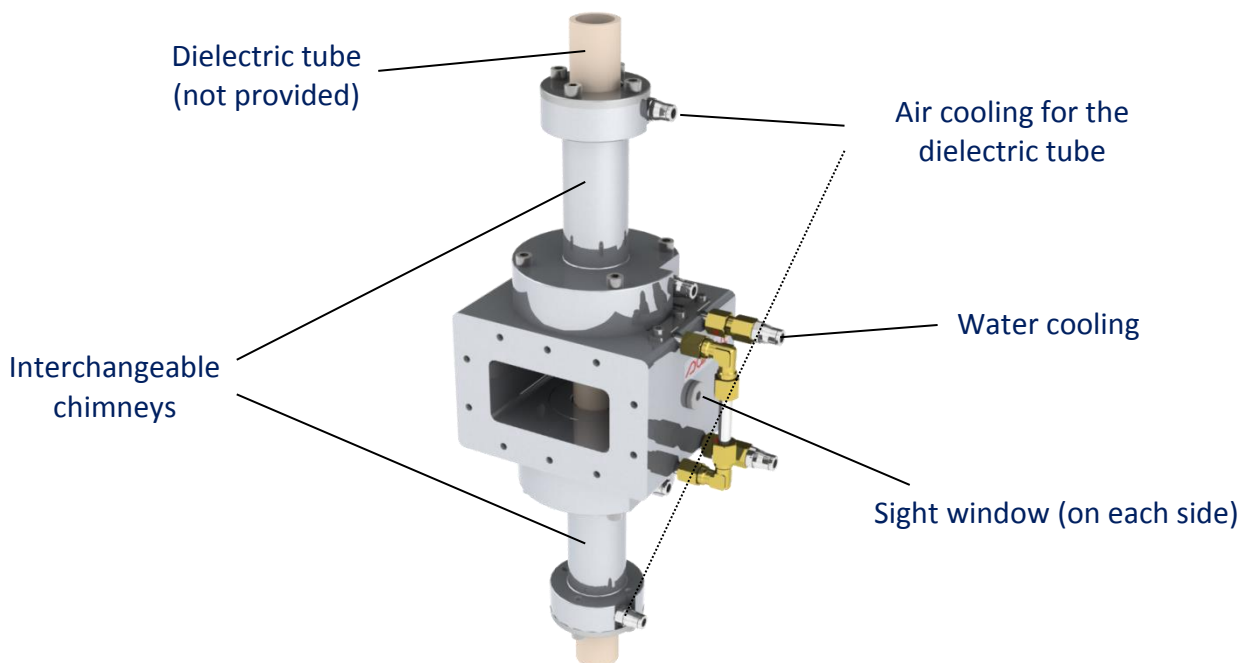
This surface wave type of plasma source generates plasma in a dielectric material tube placed in a standard WR340 waveguide. This plasma source enables the ignition and sustaining of long plasma columns depending on the pressure, the microwave power and the gas nature.

The Downstream plasma source is ideal for working at pressures between 10^{-1} mbar and a few tens of mbar with dielectric tubes diameters between 30 and 50 mm; it can equally work at atmospheric pressure.

The Downstream plasma source WR340 is designed to be used in R&D laboratories and industry for a very large range of applications. Typical applications of such source are creation of radicals, surface activation, PECVD (dielectric materials, diamond...), gas abatement, gasification, sterilization, etching...

The Downstream plasma source could be used with an alumina tube but other low loss, high temperature resistant dielectric materials such as quartz, Pyrex™ or boron nitride could be used. Inlet and outlet chimneys were designed to sustain and centre the dielectric tube. Moreover, in order to extend the operating conditions in the atmospheric pressure range and/or in the high power range, the dielectric tube can be air cooled and the downstream source can be water cooled.

Downstream plasma source WR340



Technical specifications

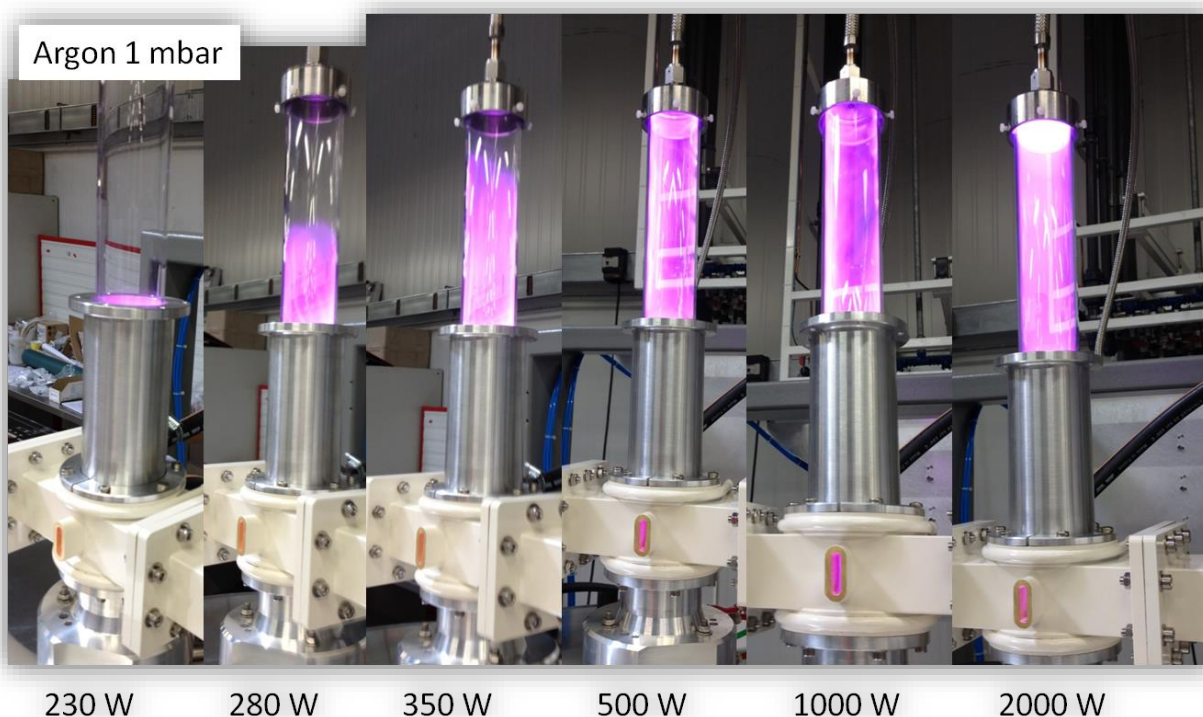
REF	DOWNSTREAM WR340 3 XX*
Frequency	2450 MHz \pm 25 MHz
Microwave power	Max. 6 kW
Working pressure range	A few 10 ⁻² mbar to atmospheric pressure
Connections	Standard WR340 flange (UG 553 A/U, RG 112/U)
Discharge tube external diameter	30 mm, 40 mm or 50. MUST be specified when ordering. <u>Tube not provided</u>
Cooling	Water, quick connectors for OD 8 mm tubing Air, quick connectors for OD 6 mm tubing
Weight	cca 2.7 kg

*XX = external diameter of the discharge tube

OBSERVATIONS

1. Inlet and outlet chimneys are interchangeable and matched to the external diameter of the dielectric tube; additional chimneys for dielectric tube OD 30, 40 and 50 can be ordered;
2. The use of a microwave adapted window (alumina, quartz) between the microwave generator and the Downstream source is strongly recommended - to prevent accidental arcing travelling back to the magnetron and equally to act as a barrier/seal to protect the magnetron against any debris/corrosive agents that could escape from the plasma source and cause irreversible damage to the magnetron and isolator.

Argon plasma column in downstream source at 1 mbar vs. microwave power



COMMON ASSEMBLY

The functionality of this plasma source is possible if the source is connected to a 2.45 GHz microwave generator and means of impedance tuning, e.g. manual short circuit, 3-stub tuner, iris etc.

Standard Downstream set-up

