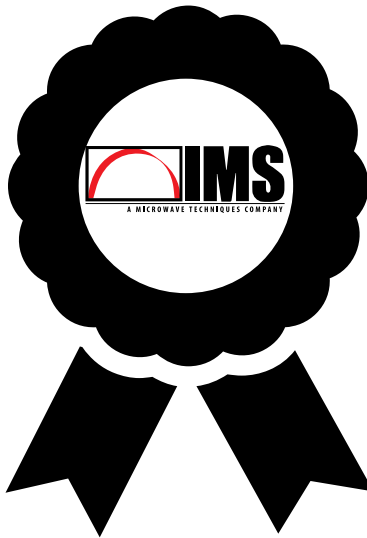


PATENT AWARD

U.S. Patent # 6797929B2 | Issued: September 28, 2004

Industrial Microwave Systems

A Microwave Techniques Company



A Cylindrical Reactor with an Extended Focal Region

An elliptical exposure chamber has an extended focal region. A plurality of cylindrical reactors (25) form the extended focal region. Reducing the size of the opening (58) to each reactor (25) reduces the amount of energy reflected and increases the overall heating. In order to efficiently deliver the electromagnetic energy to the reduced opening (58), a tapered waveguide (55) has a concave end (56). A power splitter (42) divides power from a central waveguide (52) to the plurality of reactors (25). The power that is delivered to each reactor (25) can be adjusted by adjusting the impedance of each reactor (25), the width of each reactor (25) or the width of the opening (58) to each reactor (25). The width of the opening (58) to each reactor (25) can be controlled by a movable metal plate (44). A dielectric wheel can be used to shift hot spots along the focal region.