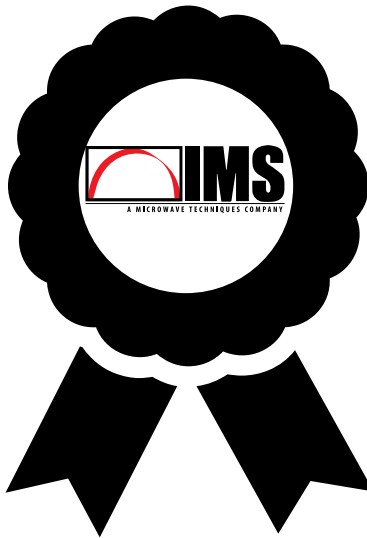


PATENT AWARD

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Industrial Microwave Systems

A Microwave Techniques Company



Multi-stage Cylindrical Waveguide Applicator Systems

A microwave applicator system exposing a material flowing through multiple applicator stages to a different radial heating pattern in each stage for uniform heating. A two-stage applicator system has a pair of back-to-back applicators, each having offset, outwardly jutting walls on opposite sides of a material flow path through a microwave exposure region. The offset, cylindrical juts formed in the wide walls of the generally rectangular waveguide cause hot spots to occur in material flowing through and between the narrow walls of the waveguide at opposite radial positions on a radial line oblique to the longitudinal direction of the waveguide. Uniform product heating can be achieved by directing a material sequentially through these two applicators in opposite directions. A cascaded applicator in which each wide wall has a pair of outward juts offset from each other and from the pair of juts on the other side wall may be used. Other multi-stage applicator systems may be used to expose a flowing material to multiple heating patterns to achieve uniform heating.