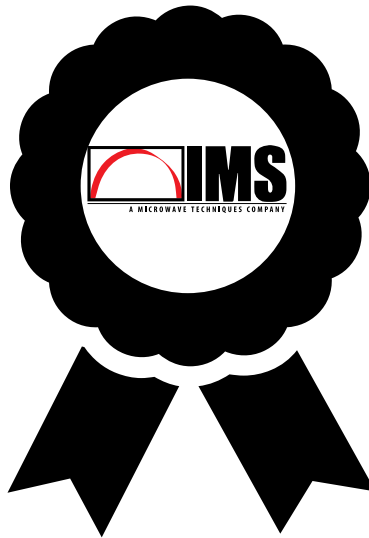


## PATENT AWARD

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### Industrial Microwave Systems

A Microwave Techniques Company



#### *Waveguide Exposure Chamber for Heating and Drying Material*

Heating and drying devices including generally rectangular waveguide applicators forming exposure chambers for uniformly heating materials. Material to be heated enters and exits a microwave exposure region of the chamber through entrance and exit ports at opposite ends of the chamber. Various techniques are used to achieve uniform or preferred heating effects. Exemplary techniques include: 1) passageways jutting outward of chamber side walls to accommodate and support the side edges of a conveyor belt to position the conveyed material close to the side walls; 2) ridges formed along top and bottom walls of the chamber to enhance edge heating; 3) metallic blocks extending along the length of the conveyor near the edges of the belt to enhance edge heating; 4) corner blocks to enhance heating of material in the middle of the chamber; 5) dormers formed in the top or bottom waveguide walls to support higher order, multi-peaked waveguide modes; 6) tapered waveguide segments to focus electromagnetic energy; 7) virtual short plates and virtual waveguide walls to selectively focus energy on the material; and 8) multiple-stage heaters having more than one chamber for extended dwell time or complementary heating effects on conveyed material.