Technical information per module

Microwave power	19,2 kW to 60 kW
Power consumption	35 kW to 105 kW
Internal dimensions height/width	1.400 mm x 1.400 mm to 3.000 mm x 3.000 mm
Length of first/last module	1.650 mm
Length intermediate module	1.500 mm
Electrical supply	400V 3-phase/PE/50-60Hz
Exhaust air	8.500 m³
Fresh air supply	2 x 3.500 m³
Compressed air	6 – 10 bar, quick release coupling 3/8“
Control system	Siemens
Magnetron	2.45 GHz

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An ExOne company
www.exone.com

Microwave Technology

heating
drying
degasing
tempering
curing

MWT

… Extremely fast , environmentally and core friendly drying (up to 100 %)!

Perfect drying and degassing of cores and mold packages

In the conventional hot air drying, long-wave thermal radiation is absorb from the outer to inner area of the sand cores for example as in gas or air convection ovens. Therefore the outer regions heat up very quickly but the inner core areas, heat very slowly due to the poor conductivity of sand. Here there is a risk that the inner region of the cores may not be completely heated, resulting in core gases being released and having a negative effect on the quality of the casting.

These problems are a thing of the past when using MWT microwave ovens. The short-wave heat radiation penetrates easily into the inner regions, even on large cores, and dries completely and homogeneously.

Applications

- Coating drying
- Drying of mineral substances
- Curing of ceramic materials
- Polymerization of plastics and foam
- Drying of food and pharmaceutical products
- Production of composite materials such as CFRP

Functional Concept: magnetrons

In traditional microwave devices with wave-guide, feeding the microwave energy cannot be concentrated in a controllable manor.
In contrast, an absolutely uniform energy distribution takes place with the MWT multi-mode technology by direct coupling of the magnetrons.

MWT microwave chamber is modular in design

The modular design of microwave systems offers an individual adaptation to the needs of the customer. In addition, the systems are universal extendible. Therefore a power of over 1,000 kW can be achieved. As standard, two different door variants can be provided: a horizontal sliding door (left or right opening), plus a vertical sliding door.
For individual modules, it is possible to load from the underside.
The integrated special roller conveyor system for accepting pallets is manufactured in such a way that it is protected against microwave radiation.

MWT builds microwave systems up to 20 meters in length:
20,000 mm x 2,000 mm x 1,600 mm
(length x width x height, internal dimensions)
Magnetron power from 520 kW.
The oven can be scaled from a lab size to a very large systems such as those used in the in the aviation industry.

Advantages of microwave technology

- Reduction in production costs: Reduced energy costs over conventional methods due to shorter heating, process and cooling cycles Targeted heating of the products - the oven chamber is not heated, cooling is therefore not necessary
- Use of metal parts such as conventional metal tools and delivery systems (roll conveyor) in the microwave field
- Targeted, volumetric heating of the parts/cores
- Increase in the heat rate and throughput by direct penetration of the microwaves into the material and targeted heating of only the parts/cores
- Automatic loading and unloading of the microwave oven by roller conveyor system possible
- Versatile applications