JAPAN HIGH COMM

Microwave Drying System

Dry Faster, Save Time, Space and Energy Bill.

Batch Type

Conveyor Type

Microwave Shell Drying System

Dry Faster, Save Time, Space and Energy Bill

Dry 1 Layer only in 30 Minutes

Advantages & Key Features

- **Super Fast Dry**
  - **Drastic lead time reduction in lost wax shell production. (5 days to 4 hours - 96% reduction rate)**
  - **Wax temperature kept low - approximately 25C (77F).**
  - **Combination use of microwave and cold air facilitates fast shell drying.**
- **No Shell Cracks.**
- **Numeric Dryness Measurement with Shell Weight Change. (PATPEND)**
- **Both Normal and Special Slurry Applicable.**
- **Flexible Application.**
- **Simple and Easy Operation.**

Microwave Drying Furnace for Complex Shaped Molds

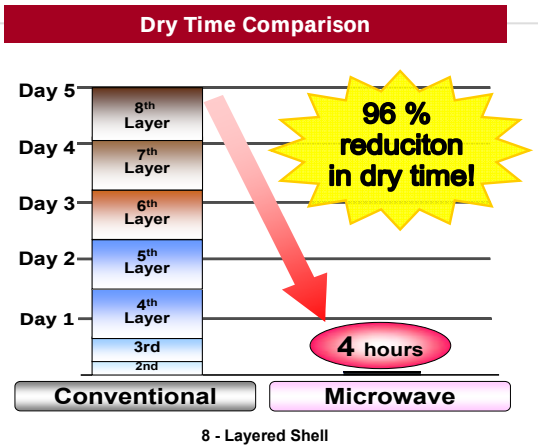
Applications

Example 1

Full Automatic

- Suitable for Large Item Small Volume Production -

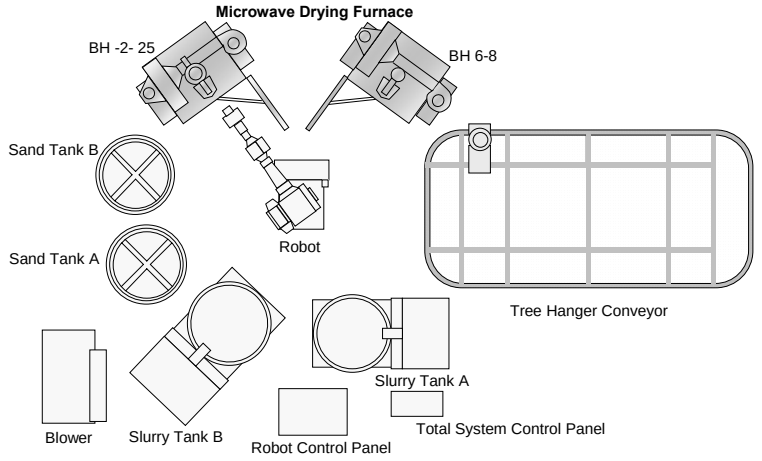
Dry Shells in Short Time - Only 30minutes per layer



8 - Layered Shell

Whereas with conventional methods of shell drying it takes approximately 2 - 3 hours for the 1st and 2nd layer, 3 - 4 hours for 3rd - 5th layers, and 4 - 8 hours for the following layers, Japan High Comm Microwave furnace dries shells only in 30 minutes per layer.

Molds with Hole



Operation Procedure

> Unload mold tree from conveyor with robot.

> Dip mold tree into slurry and coat sand.

> Put mold tree into multiple microwave drying furnaces by turns.

> Take out mold tree from microwave drying furnace.

Microwave Shell Drying System

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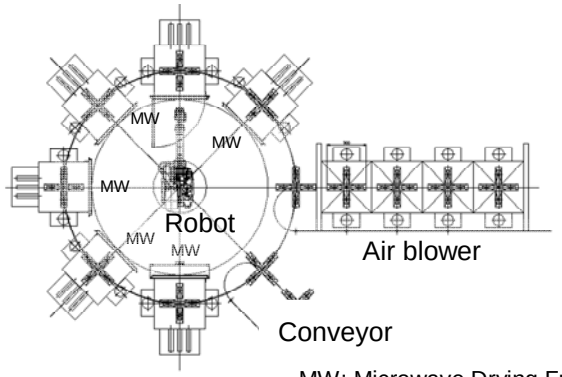
■ Applications

Example 2

Full Automatic

- Suitable for Small Item Large Volume Production -



MW: Microwave Drying Furnace

Operation Procedure

> Unload mold tree from conveyor with robot.

> Put mold tree into microwave drying furnace

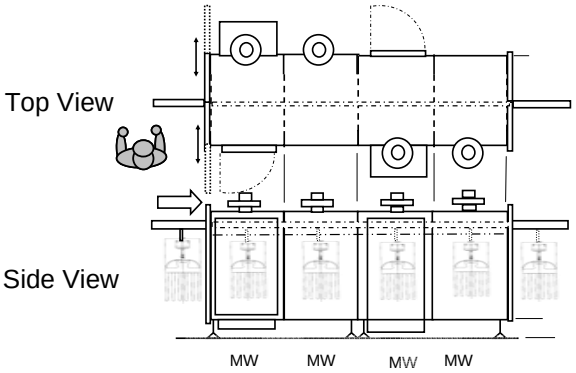
> Take out mold tree from microwave drying furnace.

> Put mold tree into clod air blower tunnel.

Example 3

Semiautomatic

- Suitable for Small Item Large Volume Production -



Operation Procedure

The following operation will be done by operator.

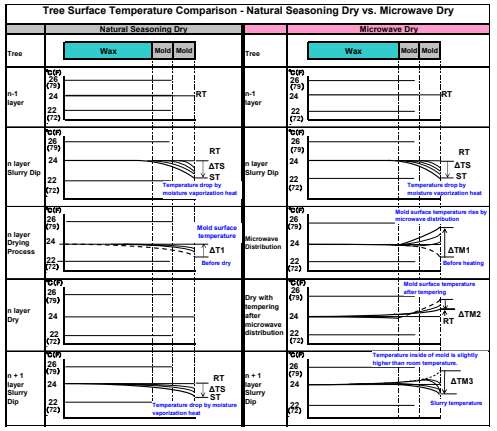
> Hang mold tree to hanger conveyor.

> Put mold tree into microwave drying furnace.

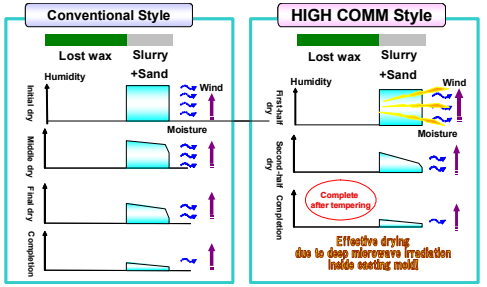
> Take out mold tree from microwave drying furnace.

■ Shell Drying Mechanism with Microwave

Mold Temperature Change in Microwave Distribution (Estimation)



Moisture Content Transition

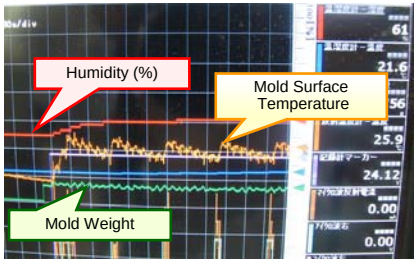


Inside of Mold during Dry Process

■ Humidity Reduction during Drying Time

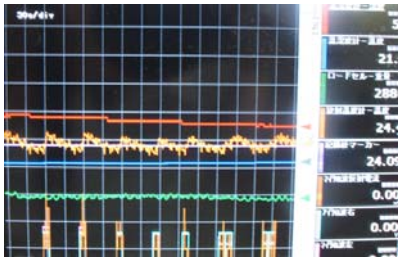
Temperature Transit after Slurry Dipping and Sanding

- Mold Surface Temperature: Started from 18C (64.4F), reached the target temperature 25C (77F) in 30 seconds and controlled at 25±2C (77±35.6F).
- Humidity reduced from 60% to 55% in 7 minutes.



Start of Drying

7 minutes



During Drying Process

Microwave Shell Drying System

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■ Specifications

Suitable Use			Ordinarily Manufactured Goods			Large Production	Complex Shape Mold	High Quality Large Sized Mold
Model Type			B - 6 - 8	B - 2 - G2.5		B - 8 - G2.5	B - 2 - G1.5, G2.5	B - 4 - G1.5, G2.5
			Prototype（light use）	Prototype	Upgraded Prototype			
								Available in December, 2013
Hardware	Inside Dimension of Furnace		950 x 950 x 1200 mm (3'11" x 3'11" x 3'94")	950 x 950 x 1200 mm (3'11" x 3'11" x 3'94")		1350 x 1350 x 1855 mm (4'43" x 4'43" x 6'09")	1350 x 1350 x 1500 mm (4'43" x 4'43" x 4'92")	1350 x 1350 x 1500 mm (4'43" x 4'43" x 4'92")
	Material of Furnace Inside		Stainless Steel	Stainless Steel		Stainless Steel	Stainless Steel	Stainless Steel
	Tree Hanger	Hanging Device	1	1	1	4	1	1
		No. of Trees/Batch	1 - 3	1 - 3		1 - 4 (4 axis)	1 - 2	1 - 2
		Capacity Weight	5 -15kg x 3 (11.02 - 33.07 lb)	5 -15kg x 3 (11.02 - 33.07 lb)		20 - 80kg x 4 (44.09 - 176.4 lb)	5 - 20kg x 2 (11.02 - 44.09 lb)	5 - 80kg x 2 (11.02 - 176.4 lb)
	Microwave Generator	Type	850W	2.5KW		2.5KW	1.5, 2.5KW	1.5, 2.5KW
		No. of Unit	6	2		2	3	4
		Location	Back	Back		Both sides	One side＋Bottom	One side＋Bottom
	Fresh Air Supply into Furnace	Blower	Side Flow	Side Flow		Up Flow	Up Flow	Up Flow
		Silencer	N	N		Y	Y	Y
		Filter	N	N		Y	Y	Y
	Air Circulation Fan Inside of Furnace		N	N		N	Y	Y
	Air Blow nozzle for Hole		N	N	Y	N	Y	Y
	Mold Turning Functions		Y	Y		Y	Y	Y
	Mold Handling		Manual / Robot	Manual / Robot		Manual / Handling Equipment	Manual / Robot	Manual / Robot
Software	Mold Surface Temperature	Measurement	Y	Y		Y	Y	Y
		Control Function	Y	Y		Y	Y	Y
		Control Method	ON/OFF Control	ON/OFF Control	ON/OFF Control＋ Inverter	ON/OFF Control + Inverter	ON/OFF Control + Inverter	ON/OFF Control + Inverter
	Mold Surface Temperature Distribution	Measurement	N	N		N	N	Y
		Control Function	N	N		N	N	Y
		Control Method	N	N		N	N	Y
	Air Blower Control		Manual	Manual		Inverter	Inverter	Inverter
	Air blow Direction Switching Control		N	N		N	Y	Y
	Mold Dryness Measuring System		N	Y		N	N	N
	Mold Detecting Function		Y	Y		Y	N	N
Safety	Safe Door Closing Function		N	N		N	Y	Y
	Alarm in Door Opening and Closing		N	N		N	Y	Y
Production Control	Link with Production Control System		Y	Y		Y	Y	Y
	Barcode Reader		N	N		Y	Option	Option

Y: Yes N: No

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