sinto

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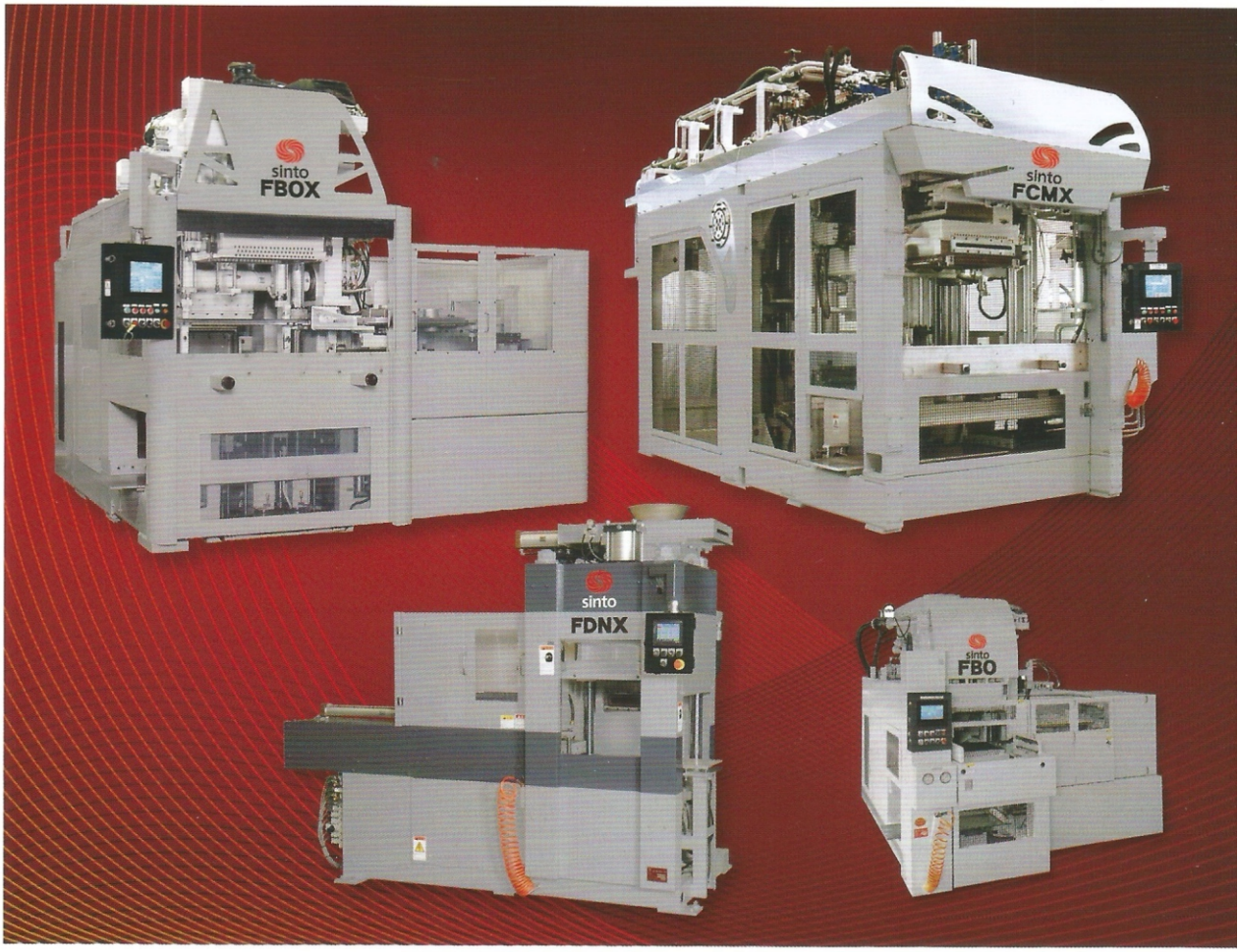
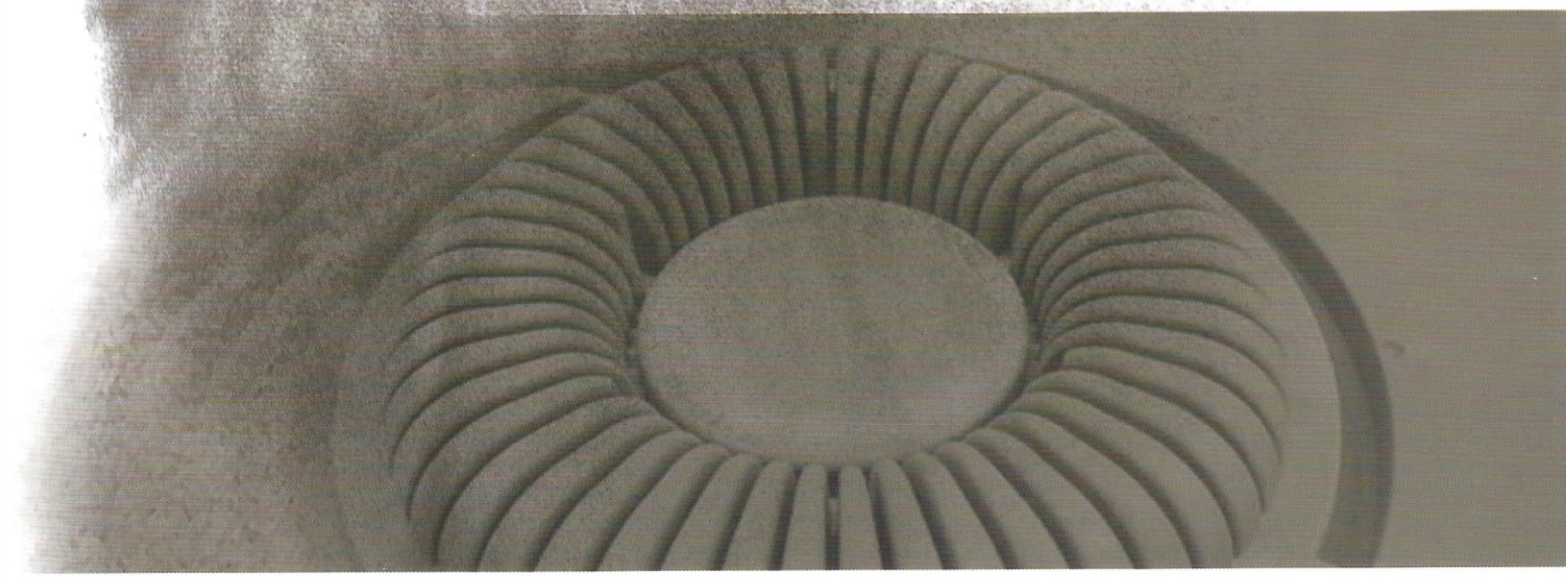
FOUNDRY TECHNOLOGY

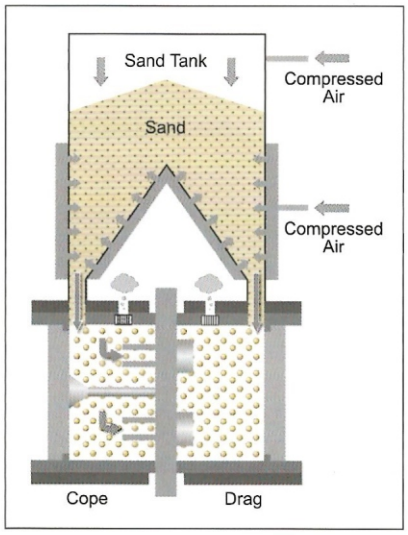
# Horizontal Parting Flaskless Molding Machine



# Aeration sand filling makes mold difference.

"Good castings depend on good molds" is
the common saying among professional foundrymen
worldwide for quite a long time.
This saying carries more stringent and profound meaning
today, because the requirements for the cast products are
getting more and more severe.
In fact, high quality molds in dimensions, hardness and
strength are critical and indispensable for the production of
high quality castings.
Under this circumstance, we, Sinto adhered to
"Uniform mold sand filling" as one of the basics for the
mass production of superior quality molds.
This concept has been materialized by
"Aeration Sand Filling" system.
Aeration air at comparatively low pressure range fluidizes
sand in sand tank and delivers it uniformly to every cavity
and corner of pattern.
The new molding machine series has been developed by
combining the aeration sand filling with the most advanced
molding technology.






# **Aeration** Sand Filling Technology

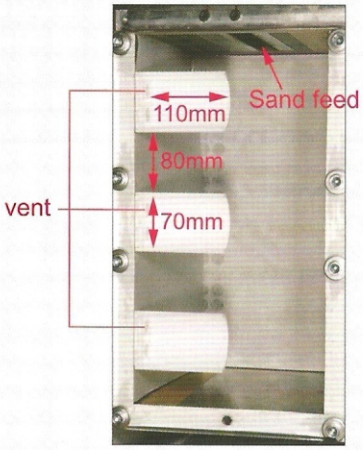
Low pressure air fluidizes the sand to fill the complicated edges and pockets in the pattern with sand.

**Feature**

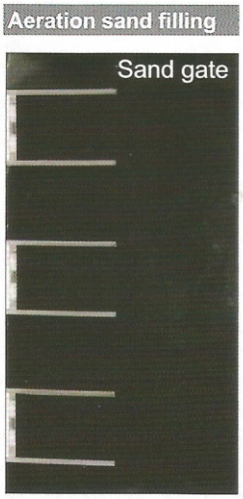
## Primary sand filling that is ideal for the production of molds with superior accuracy and uniformly high strength

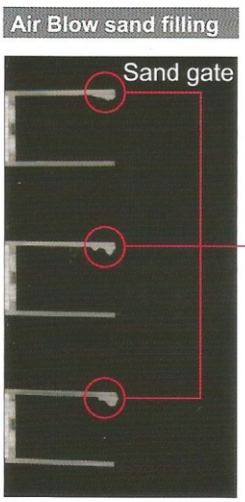
- Achieves uniform sand filling density.
- Uniform sand filling is realized without causing bridging at the complicated pattern profiles and throat of narrow pockets.
- Air consumption is reduced by as much as 70% compared to blow system. (compared to Sinto conventional flaskless models)
- Low noise FCMX・FBOX…75 dB(A) FDNX…72 dB(A)

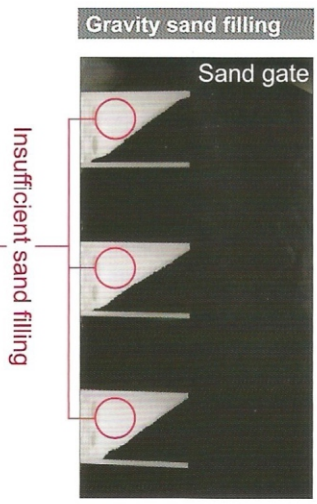
## ☐Sand filling demo as observed by Sinto sand filling verification test device

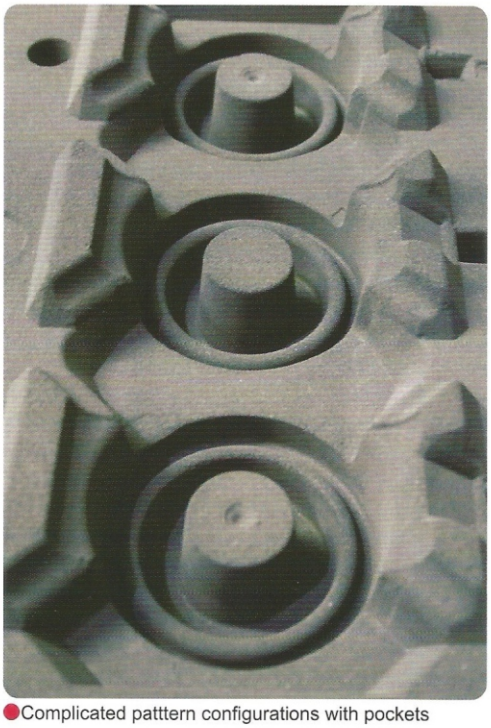



**Demerit due to conventional sand filling**

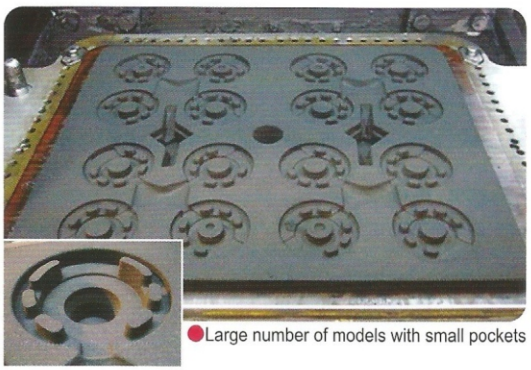


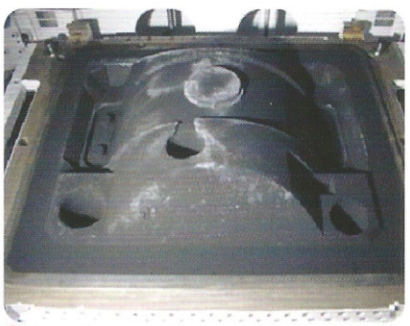



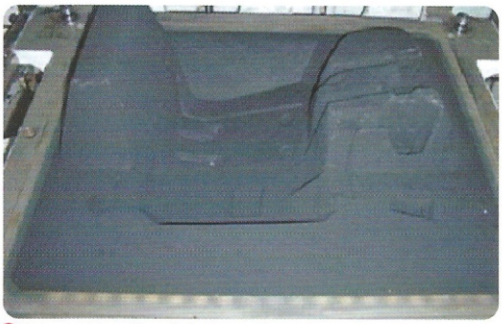
●Complicated patttern configurations with pockets



●Large number of models with small pockets



●Rugged wavy surface



●Thin mold wall and deep cavity

●Deep profile and complicated pockets

# Horizontal Parting Flaskless Molding Machine

## FBOX series

**High speed & Wide working space**

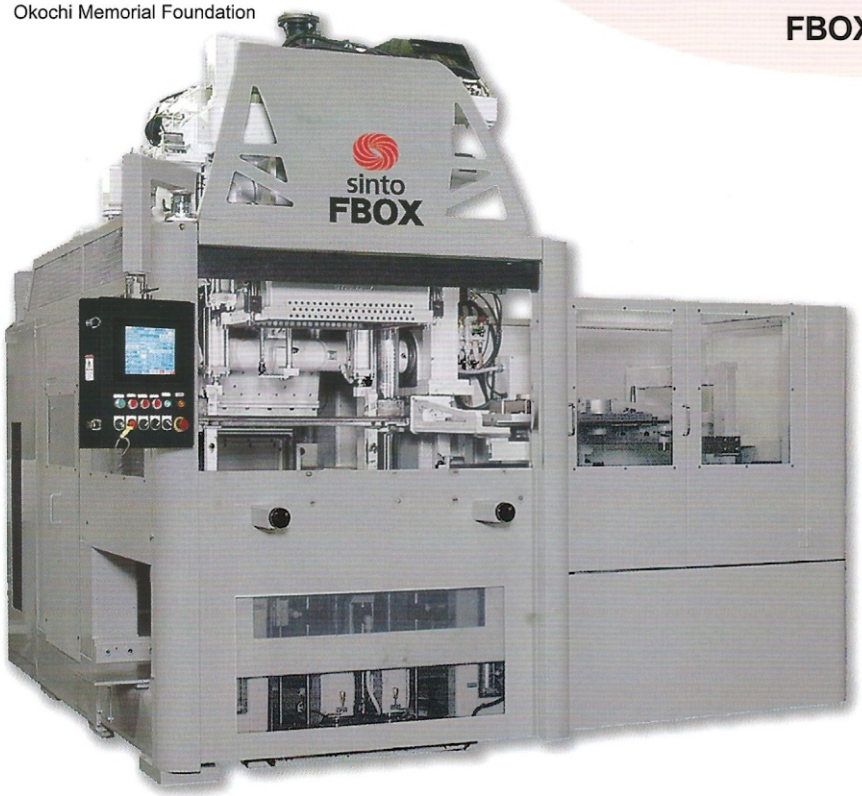
**Molding Rate (MAX): 200 molds/hr**

*Excluding core setting time

FBOX-Ⅱ and Ⅲ

**Award of Japan**

・Okochi Memorial Production Award by Okochi Memorial Foundation

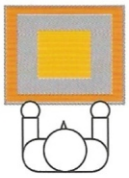



**Aeration**

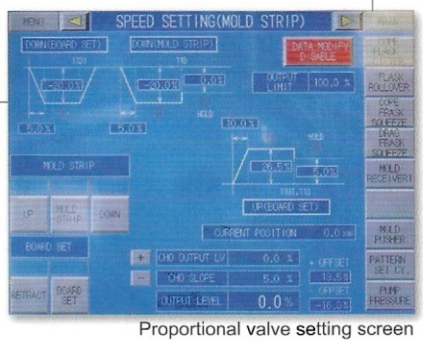
With aeration sand filling system

**Single station design**

Molding ➡ Core Setting ➡ Mold Stripping



- Excellent mold strength and accuracy have been realized with the use of "Aeration Sand Filling" and "Accurate Drawing Mechanism".
- The "squeeze pressure balance control" ensures stable molding by improving the pattern transferability and preventing pattern distortion.
- The "mold height feedback control" reduces the sand consumption and compensates for compactability variations.
- Environment-friendly and energy-saving. The noise level is as low as 75 dB (A).




Proportional valve setting screen

## Easy Maintenance and Less Downtime

### User friendly function (Operating touch panel)

Can easily change proportional valve speed or pressure setting values on the touch panel. Many functions useful for preventive maintenance are also available including warnings for part wear, notifications for locations needing inspection or inspection periods, and calibrating maintenance of molding machines.

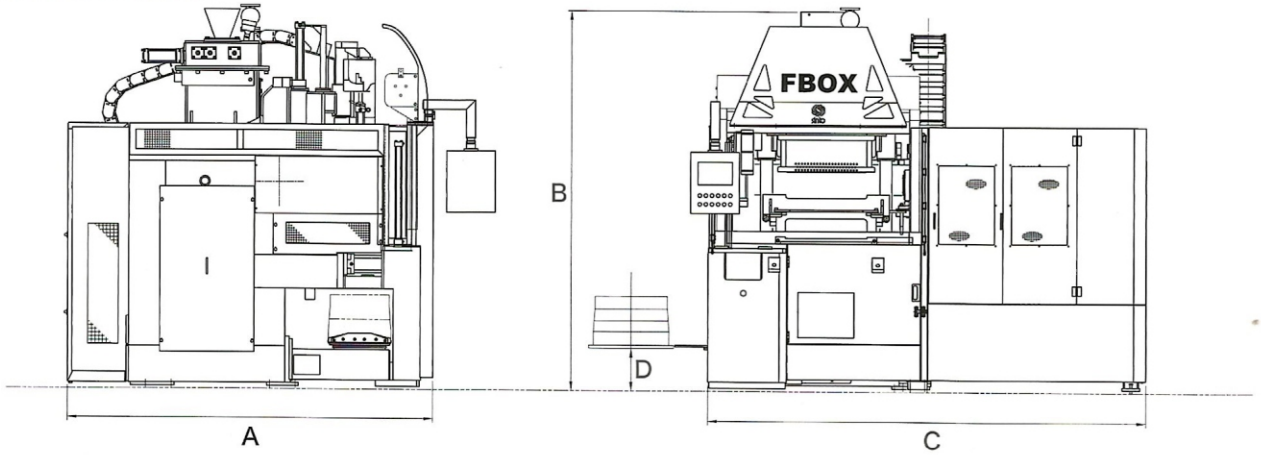
**Spacious working space for core setting**


FBOX-Ⅲ

**Easy gate stick setting**

Screw type

## Machine Dimensions(mm)



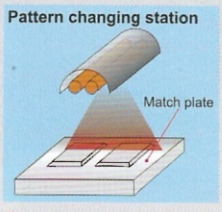

| Model No. | A | B | C | D |
|---|---|---|---|---|
| FBOX-Ⅱ | 2,974 | 2,996 | 3,425 | 375 |
| FBOX-Ⅲ | 3,049 | 3,101 | 3,496 | 375 |
| FBOX-Ⅳ | 4,275 | 3,781 | 4,665 | 550 |

## Specifications

| Model No. | | FBOX-Ⅱ | FBOX-Ⅲ | FBOX-Ⅳ |
|---|---|---|---|---|
| Mold Size | Width x Length (mm) | 450×350<br>483×356 (19"×14")<br>500×400<br>520×420<br>550×450 | 600×500<br>610×508 (24"×20") | 700×600 |
| | Height (mm) | Cope:130-200<br>Drag:130-200<br>Optionally set | Cope:130-200<br>Drag:130-200<br>Optionally set | Cope:180-250<br>Drag:180-250<br>Optionally set |
| Molding System | | Aeration Sand Filling + Squeeze | | |
| Molding Rate (Max) *1) *2) (Excluding core setting time) | | 200 molds/hr<br>(18 sec/mold) | 200 molds/hr<br>(18 sec/mold) | 171 molds/hr<br>(21 sec/mold) |
| Squeeze Surface Pressure (Max) | | 1.0 MPa. 4 selectable stages | | |
| Aeration Pressure | | 0.05-0.18 MPa | | |
| Power System | | Air & Oil (30 kW-Water cooled) | Air & Oil (37 kW-Water cooled) | Air & Oil (30 kW+30 kW-Water cooled) |
| Air Consumption | | 0.6 m³(N)/mold | 0.7 m³(N)/mold | 1.5 m³(N)/mold |
| Operating Air Pressure | | 0.5-0.55 MPa | | |
| Weight of Mold (Min-Max) | | 61 kg-148 kg | 117 kg-186 kg | 226 kg-315 kg |

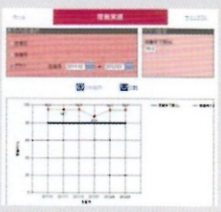
*1) Molding speed shown above stands for the fastest case with the mold thickness setting of Thick/Thick.
*2) Total molding rate including 9 seconds for core setting (MAX) : FBOX-Ⅱ·Ⅲ···133 molds/hr Ⅳ···120 molds/hr
Remarks
1) CE version is also available as an option.
2) The above specifications and dimensions are subject to change without notice.

## Option



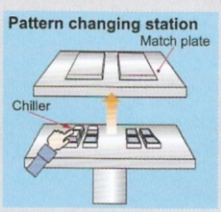

**Pattern plate preheater**
A heater attached above match plate prevents sand sticking to match plate by minimizing temperature difference between plate and sand.

**Pattern changing area safety light curtain**
Door on the pattern changing area can be changed from the conventional type to light curtain type. This option reduces man-hour for pattern changing and makes pattern cleaning easier.

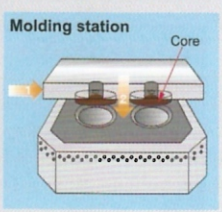


**Molding analysis monitor software**
Operation status data is collected during molding and graphed for easier traceability. (Recommended PC: Molding analysis monitor PC)

**Molding analysis monitor PC**
This custom PC is recommended for use with the molding analysis monitor software.




**Chiller setter**
Automatically sets the drag chiller.




**Core setter**
Automates setting of cores.

**Cold climate specifications (Hydraulic unit heater)**
Reduces heating time for hydraulic unit operating oil.

**Hot climate specifications (Operation panel air conditioner)**
Prevents overheating inside the operation panel.

**Receiver tank**
Stable supply of compressed air.

**Recommended spare parts**
These are the spare parts we recommend keeping on hand as well as the consumables required for the first year of operation.