

FOUNDRIY 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.

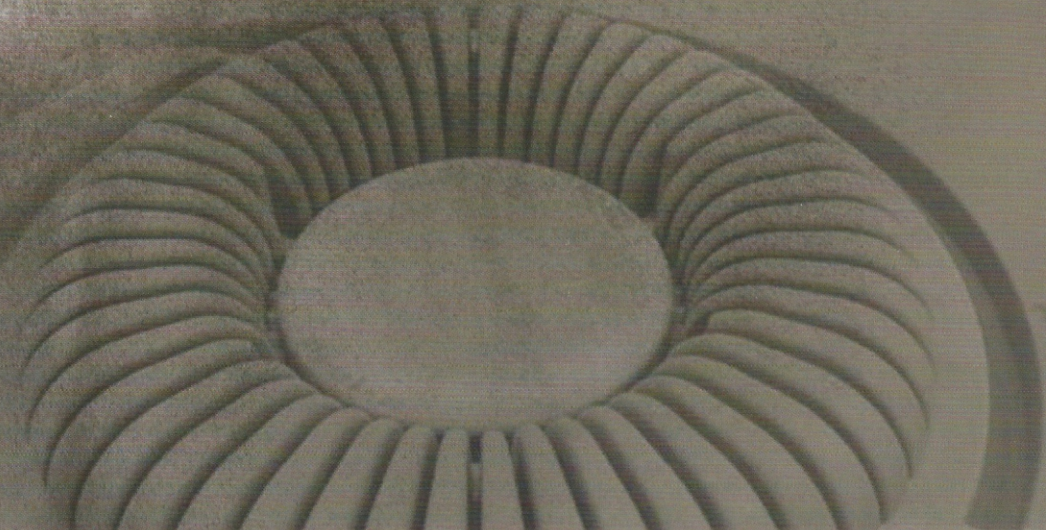
In fact, high quality molds in dimensions, hardness and strength are critical and indispensable for the production of high quality castings.

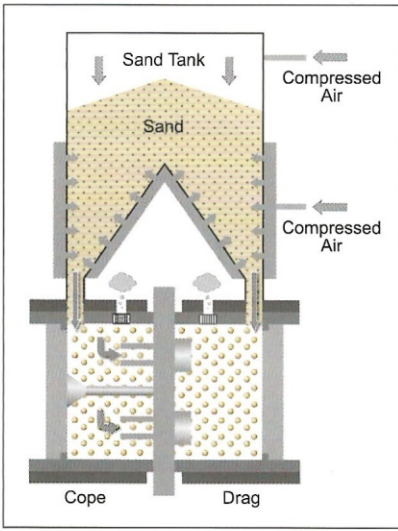
Under this circumstance, we, Sinto adhered to “Uniform mold sand filling” as one of the basics for the mass production of superior quality molds.

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

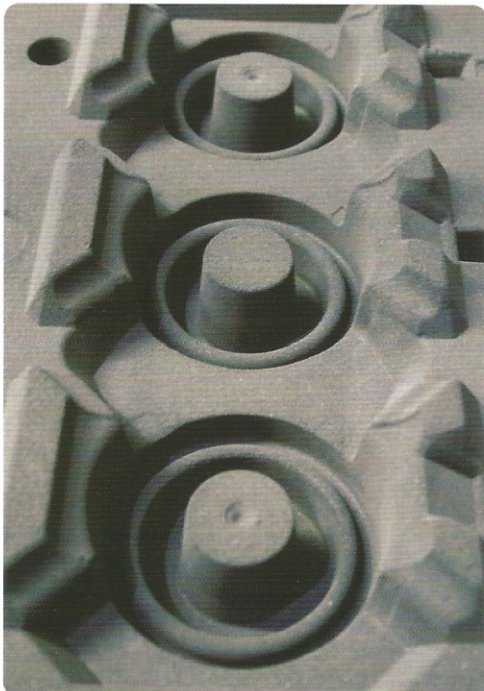
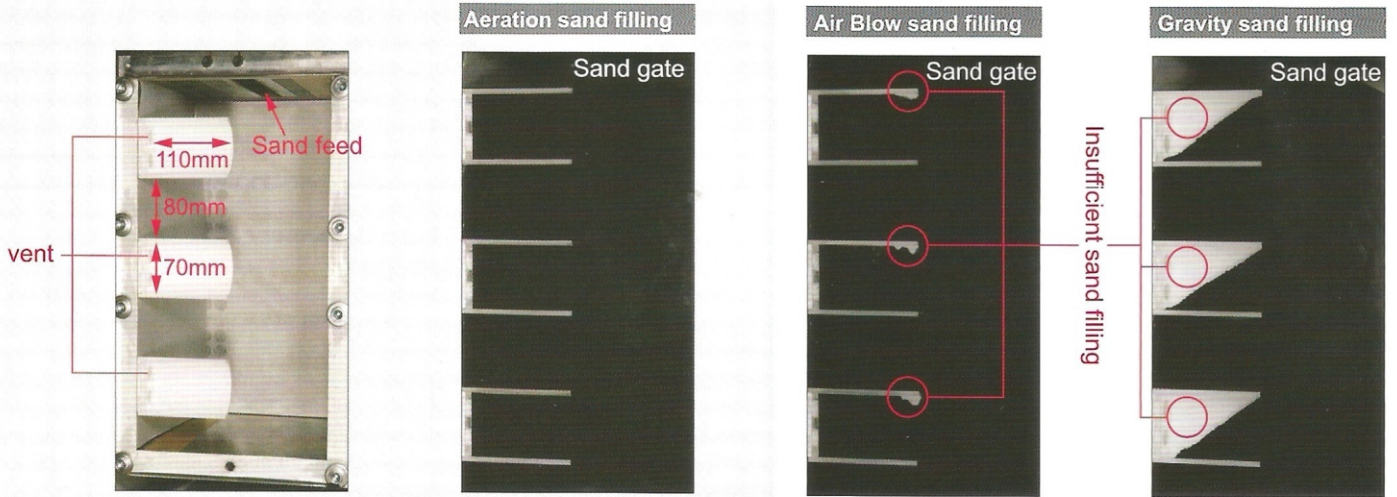
Low pressure air fluidizes the sand to fill the complicated edges and pockets in the pattern with sand.

Feature

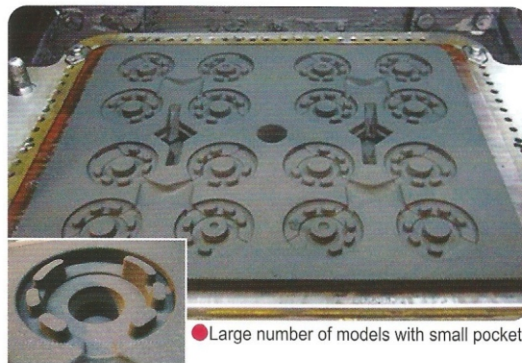
Primary sand filling that is ideal for the production of molds with superior accuracy and uniformly high strength

- 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)

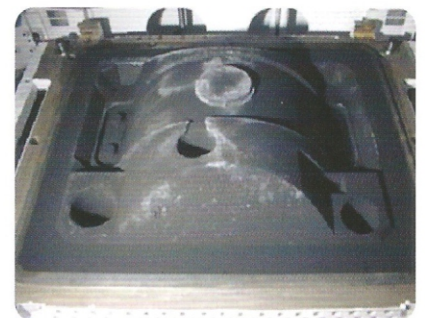
□ Sand filling demo as observed by Sinto sand filling verification test device



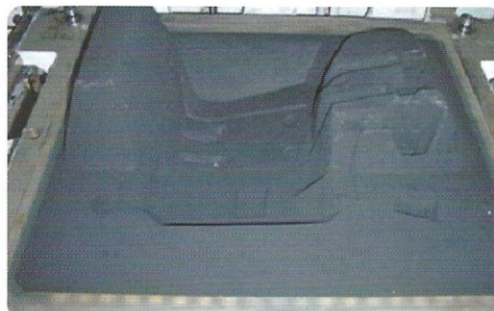
● Complicated pattern configurations with pockets



● Large number of models with small pockets



● Rugged wavy surface



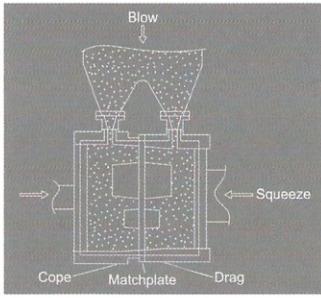
● Thin mold wall and deep cavity



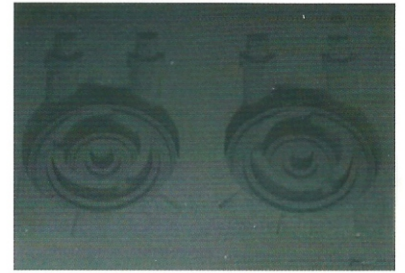
● Deep profile and complicated pockets

Simple mechanism, Standard model with easy setup

● Top Blow System



- Unique mechanism of blow pressure control realizes uniform sand filling density.
- Most of matchplates used for conventional manual machines are applicable with no large modification.
- Compact size allows to use existing floor space efficiently.
- Safe and operator friendly posture for core setting with drag mold shuttle mechanism.



Horizontal Parting Flaskless Molding Machine

FBO series • FBO-N series

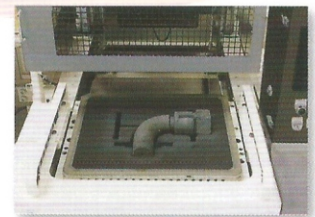
(Blow) (Aeration)

Easy core setting & Easy operation

Molding Rate (MAX): **150** molds/hr

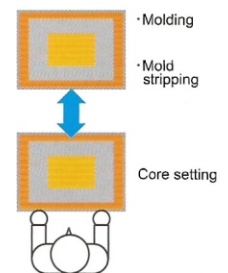
*Excluding core setting time

FBO-II • FBO-IIN



Drag mold slides out

Single station design



With aeration sand filling system

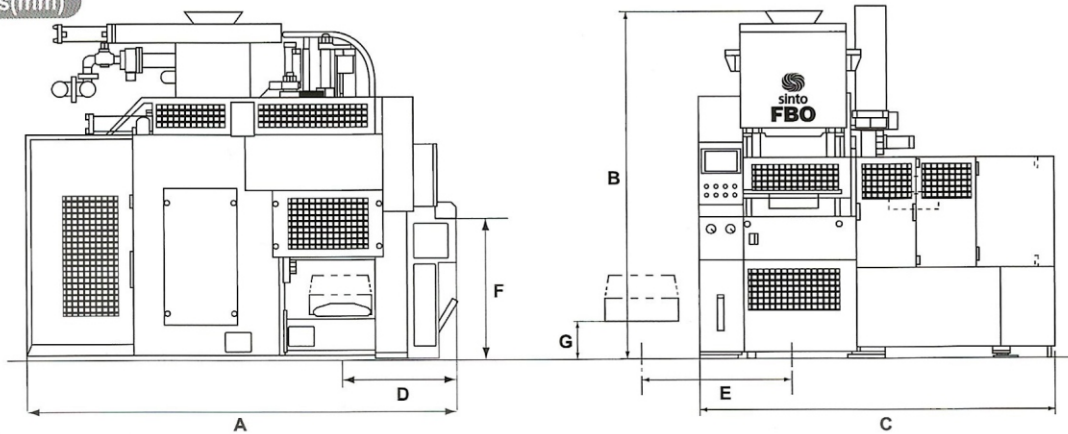
● FBO-N series (Aeration sand filling)

The aeration sand filling system has been adopted instead of the blowing system to ensure uniform sand filling density while maintaining excellent features of the FBO series. FBO-N series is superior in flexibility, operability, and production stability.

- Top blow system of FBO does not require severe control of molding sand. The machine accepts tough property of sand with a high compactability value.
- Blow pressure control system realized uniform sand filling density in a mold. FBO is tolerable and less sensitive for a wider property range of molding sand, and is possible to offer a compatibility of easy sand control and high accuracy of mold to customers.
- Automatic drag shuttle mechanism allows safe and easy core setting in a comfortable posture.

Application to a wide variety of mold dimensions.

Machine Dimensions(mm)



Model No.	A	B	C	D	E	F	G
FBO-II (N)	3,515	2,810(2,855)	2,890	945	1,190	1,140	375
FBO-III (N)	3,630	2,987(3,182)	3,185	1,050	1,375	1,140	375
FBO-IV (N)	5,035	4,477	4,225	1,450	1,700	1,585	550
FBO-V	5,825	5,397	4,542	1,625	1,850	1,900	600
FBO-V(812.8×812.8)	5,905	5,447	4,542	1,725	1,850	1,900	600

*Aeration type in parentheses (B dimensions for FBO-IV N depend on the size of the flask)

Specifications

Model No.		FBO-II (N)	FBO-III (N)	FBO-IV (N)	FBO-V		
Mold Size	Width x Length (mm)	400×300 430×310 450×350 483×356 (19"×14")	500×400 508×406 (20"×16") 520×420 550×450	600×500 609.6×508 (24"×20") 660.4×508 (26"×20") *4)	700×600 711.2×508 (28"×20") 711.2×609.6 (28"×24") 711.2×660.4 (28"×26")	762×609.6 (30"×24") 812.8×762 (32"×30")	812.8×812.8 (32"×32")
	Height (mm)	Cope:130-200 Drag:130-200 (400×300, 430×310 Cope:100-150 Drag:100-150) 3-steps optionally set		Cope:180-250 Drag:180-250 3-steps optionally set	Cope:230-300 Drag:230-300 3-steps optionally set	Cope:280-350 Drag:280-350 3-steps optionally set	
Molding System		Top blow + Squeeze (FBO-N series:Aeration Sand Filling + Squeeze)					
Molding Rate (Max) (Excluding core setting time)		150 molds/hr *1) (24 sec/mold)	133 molds/hr *1) (27 sec/mold)	100 molds/hr *2) (36 sec/mold)	90 molds/hr *3) (40 sec/mold)	80 molds/hr *3) (45 sec/mold)	
Squeeze Surface Pressure (Max)		1.0 MPa. 4 selectable stages					
Power System		Air & Oil (15 kW - Water cooled)		Air & Oil (30 kW - Water cooled)	Air & Oil (52 kW - Water cooled)		
Air Consumption		1.0 m³(N)/mold	1.2 m³(N)/mold	2.5 m³(N)/mold	3.5 m³(N)/mold	4.0 m³(N)/mold	
Operating Air Pressure		0.5-0.55 MPa					
Weight of Mold (Min-Max)		36 kg-148 kg	117 kg-201 kg	227 kg-352 kg	321 kg-557 kg	554 kg-694 kg	

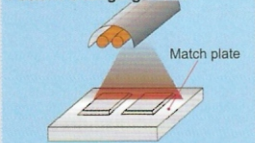
- *1) Molding speed given here stands for fastest case with maximum setting of mold thickness and without core. If cores are set, the cycle time is prolonged for 4 sec. for drag shuttling + core setting time.
 *2) Molding speed given here stands for fastest case with maximum setting of mold thickness and without core. If cores are set, the cycle time is prolonged for 5 sec. for drag shuttling + core setting time.
 *3) Molding speed given here stands for fastest case with maximum setting of mold thickness and without core. If cores are set, the cycle time is prolonged for 6 sec. for drag shuttling + core setting time.
 *4) Available with mold height of 180-250mm (both cope and drag), with molding rate of 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 changing station



Pattern plate preheater

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



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.

Drag air blow-off

Blows drag when drag is sliding. Prevents sand inclusion and improves casting quality.

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.