

Sinto Global Network

23 Companies in 12 countries worldwide

U.S.A.

Roberts Sinto Corporation
SandMold Systems, Inc.
National Peening Inc.
Technical Metal Finishing Inc.
CTP Sinto America, LLC

Mexico

Roberts Sinto De Mexico, S.De R.L.De C.V.

Brazil

Sinto Brasil Produtos Limitada

Germany

Heinrich Wagner Sinto Maschinenfabrik GmbH
Frohn GmbH

Austria

Chemisch Thermische Prozesstechnik GmbH

China

Qingdao Sinto Machinery Co., Ltd.
Wuxi Tai Sintong Machinery Co., Ltd.
Sintokogio (Kunshan) Co., Ltd.
Zhejiang Sinto Abrasive Co., Ltd.
Guangzhou Xin Zhongtong Machinery Co., Ltd.

Korea

Korea Sinto Co., Ltd.

Japan

SINTOKOGIO, LTD.

Taiwan

Taiwan Sintong Machinery Co., Ltd.
Taiwanabrator Co., Ltd.

India

Sinto Bharat Manufacturing Pvt. Ltd.

Thailand

Thai Sintokogio Co., Ltd.
Siambrator Co., Ltd.

Indonesia

P.T. Sinto Indonesia

SINTOKOGIO, LTD.



1-11-11, Nishiki,
Naka-ku, Nagoya 460-0003, Japan
T e l (052) - 582 - 9211
F a x (052) - 586 - 2279
E-Mail webmaster@sinto.co.jp
HP http://www.sinto.co.jp

SandMold Systems, Inc.



313 W. State Street, P.O. Box 488
Newaygo, MI 49337, U.S.A.
T e l (1) - 231 - 652 - 1623
F a x (1) - 231 - 652 - 1629
E-Mail smssales@smssandmold.com
HP http://www.smssandmold.com

CTP Sinto America, LLC



3001 West Main Street, Lansing,
MI 48917, U.S.A.
T e l (1) - 740 - 602 - 1159
HP http://www.ctp-us.com

Qingdao Sinto Machinery Co., Ltd.



55 Xindong Road, Jiulong subdistrict
office, Jiaozhou City, Qingdao,
Shandong Province, China
T e l (86) - 532 - 8182 - 7898
F a x (86) - 532 - 8182 - 7900
E-Mail sinto@sinto.cn
HP http://www.sinto.cn

Zhejiang Sinto Abrasive Co., Ltd.



P.C.314200 No. 2511 Xinkai Road,
Pinghu Economic Development Zone,
Zhejiang, China
T e l (86) - 573 - 89170123
F a x (86) - 573 - 89170120
HP http://www.sinto-zb.com/

Taiwan Sintong Machinery Co., Ltd.



No. 415, Hua Cheng Rd.,
Xin Zhuang Dist., New Taipei City,
Taiwan
T e l (886) - 2 - 8521 - 5837
F a x (886) - 2 - 8522 - 1774
E-Mail sinto@ms26.hinet.net
HP http://www.tw.sinto.com

Siambrator Co., Ltd.



227/9 Moo 5, Phaholyothin Road,
Klong No.1 Klongluang,
Patumthani Province 12120, Thailand
T e l (66) - 2 - 285 - 3086
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E-Mail jirat@siambrator.com
HP http://www.siambrator.com

Heinrich Wagner Sinto Maschinenfabrik GmbH



Bahnhofstr. 101
D-57334 Bad Laasphe, Germany
T e l (49) - 2752 - 9070
F a x (49) - 2752 - 907280
E-Mail info@wagner-sinto.de
HP http://www.wagner-sinto.de

National Peening, Inc.



1902 Weing Street Statesville,
NC 28677, U.S.A.
T e l (1) - 704 - 872 - 0113
F a x (1) - 704 - 872 - 0114
HP http://www.nationalpeening.com

Roberts Sinto De Mexico, S.De R.L.De C.V.



Michoacán #1013
Col. Nuevo Pueblo Monterrey,
N.L. 64700, Mexico
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F a x (52) - 81 - 8190 - 1818
E-Mail info@robertssinto.com
HP http://www.sinto.mx

Wuxi Tai Sintong Machinery Co., Ltd.



69, Hongxiang Road, Hongshang
Sub-district, Wuxi Xinqu, Wuxi City,
Jiangsu Province, China
T e l (86) - 510 - 8562 - 6650
F a x (86) - 510 - 8562 - 8108

Guangzhou Xin Zhongtong Machinery Co., Ltd.



No.3, Jinsha Road, Nansha District,
Guangzhou, China
T e l (86) - 20 - 3905 - 1865
F a x (86) - 20 - 3905 - 1789

Taiwanabrator Co., Ltd.



No.586, Sec 2, Zhong Shan S. Rd.,
Da Yuan, Tao Yuan, Taiwan.
T e l (886) - 3 - 381 - 3812
F a x (886) - 3 - 381 - 6329
E-Mail tbs@tbsshot.com.tw
HP http://www.tbsshot.com.tw

P.T. Sinto Indonesia



Kawasan Industri Greenland Jl Greenland
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Bekasi 17530 Indonesia
T e l (62) - 21 - 899 - 73252
F a x (62) - 21 - 899 - 73253

Frohn GmbH



Nettesir-83-87 D-58762 Altena, Germany
T e l (49) - 2352 - 9281 - 0
F a x (49) - 2352 - 9281 - 30
HP http://www.frohn.com

Roberts Sinto Corporation



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Lansing, MI 48901-7960, U.S.A.
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E-Mail info@robertssinto.com
HP http://www.robertssinto.com

Technical Metal Finishing Inc.



29 Capital Drive, Wallingford,
Connecticut, 06492, U.S.A.
T e l (1) - 203 - 284 - 7825
F a x (1) - 203 - 284 - 7826
HP http://www.tmfshotpeening.com

Sinto Brasil Produtos Limitada



Rua Costa Barros, 3021,
Jardim Guairaca, CEP 03210-001
Sao Paulo, SP, Brazil
T e l (55) - 11 - 3321 - 9500
F a x (55) - 11 - 3321 - 9616
E-Mail fale@sinto.com.br
HP http://www.sinto.com.br

Sintokogio (Kunshan) Co., Ltd.



88 Baifu Road, Kunshan Economic
Development Zone, Baifu Office
Park B-F2, China
T e l (86) - 512 - 5500 - 0696
F a x (86) - 512 - 5516 - 3163
HP http://www.sinto-csk.cn/EN/

Korea Sinto Co., Ltd.



13, Nongong-ro 91-gil, Nongong-eup,
Dalseong-gun, Daegu, Korea
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F a x (82) - 53 - 615 - 2110
E-Mail koreasinto@koreasinto.com
HP http://www.koreasinto.com

Thai Sintokogio Co., Ltd.



Rojana industrial park 2
44 Moo 4 Banchang, U-Thai,
Ayutthaya 13210
T e l (66) - 35 - 200 - 710
F a x (66) - 35 - 200 - 719
E-Mail sales@thaisinto.co.th
HP http://www.thaisinto.co.th/

Sinto Bharat Manufacturing Pvt. Ltd.



204, G.S.T Road NH-45,
Kolambakkam Village, Madurantagam Taluk,
Kancheepuram District, Tamilnadu-603308
T e l (91) - 44 - 2756 - 5125
E-Mail marketing@sintobharat.com
HP http://www.sintobharat.com

Chemisch Thermische Prozesstechnik GmbH



Schmiedlestrasse, 10, 8042
Graz, Austria
T e l (43) - 316 - 4101
F a x (43) - 316 - 4101 - 80
HP http://www.ctp-airpollutioncontrol.com/en/homepage/



sinto

New Harmony » New Solutions™

www.sinto.com

FOUNDRY TECHNOLOGY Horizontal Parting Flaskless Molding Machine



Sinto products are designed with attention for safety and environmental quality concerns.

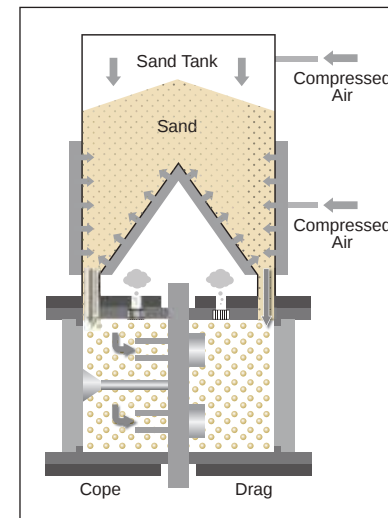
Before using Sinto equipment, please read and understand the supplied Operation Manual and operate the equipment properly.

SINTOKOGIO, LTD.

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Naka-ku, Nagoya 460-0003, Japan
Tel +81 52 582 9211 Fax +81 52 586 2279
www.sinto.com

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

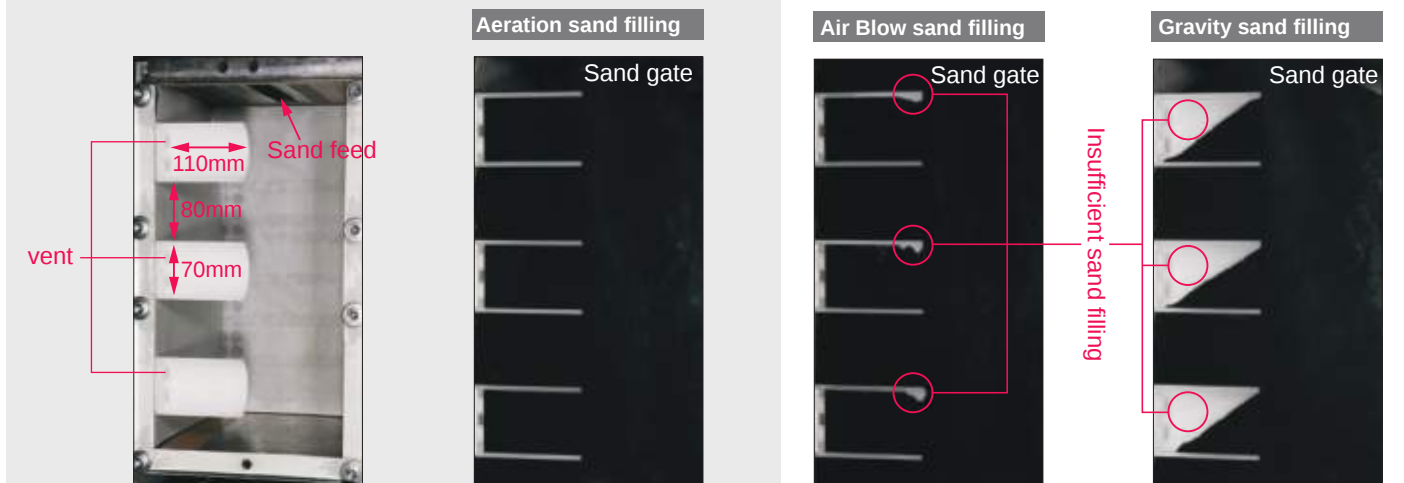
Low pressure air fluidizes the sand to fill the complicated edges and pockets in the pattern with sand.

Feature

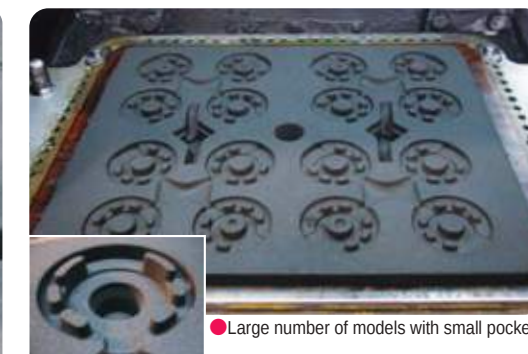
Primary sand filling that is ideal for the production of molds with superior accuracy and uniformly high strength

- 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

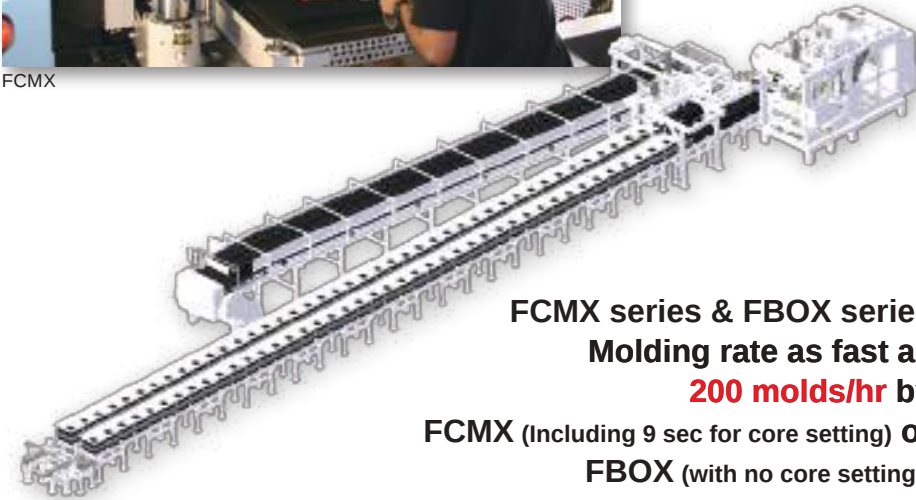
Point 1

High speed production with core setting flexibility

High-speed type



FCMX



FCMX series & FBOX series
Molding rate as fast as
200 molds/hr by
FCMX (Including 9 sec for core setting) **OR**
FBOX (with no core setting).

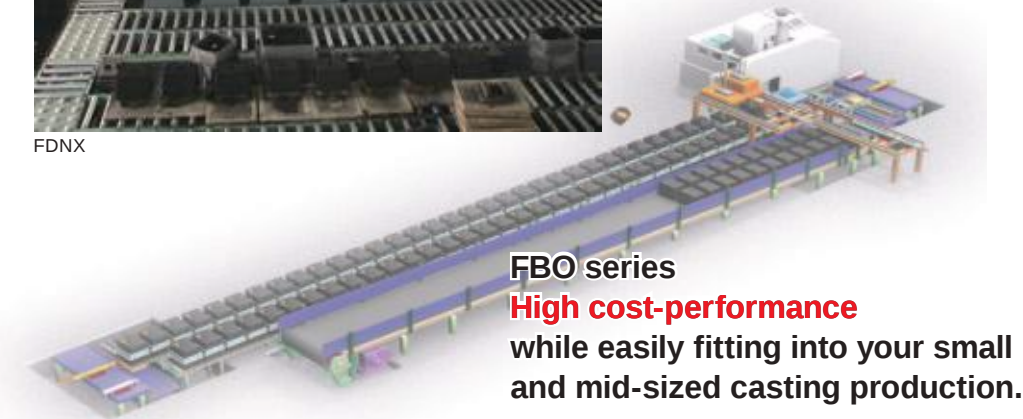
Point 2

Entry and standard model for small or medium volume production with high cost-performance

Entry & Standard type



FDNX



FBO series
High cost-performance
while easily fitting into your small
and mid-sized casting production.

FDNX series
Easy set-up.
Easy maintenance.
Start up and training
program is available
upon request.

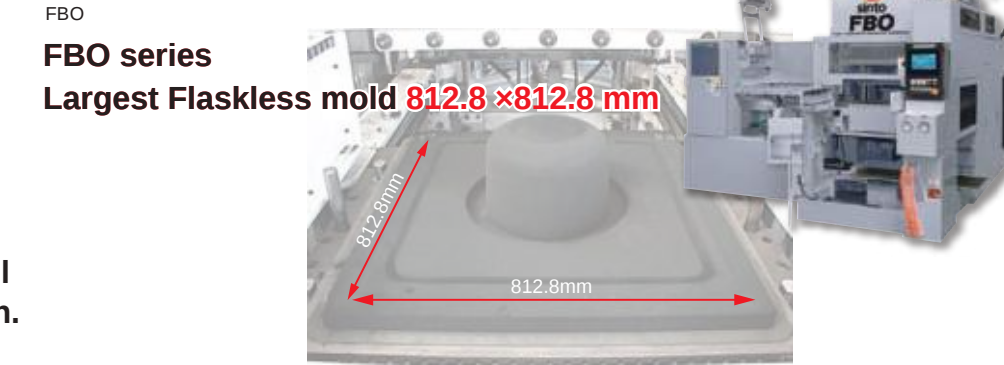
Point 3

Large molds with lower cost system

Standard type



FBO



FBO series
Largest Flaskless mold 812.8 × 812.8 mm

Line-up to answer the various needs of casting

Type	High-speed type		Entry type	Standard type
Molding Method	Aeration + Squeeze		Aeration + Squeeze	Top Blow + Squeeze
Model	FCMX-I · II · III		FDNX-0 · I	Nseries Aeration + Squeeze
	 pages 7 & 8		 pages 11 & 12	 pages 13 & 14
Features	High speed 2-station Highly accurate pattern draw & molding closing		Single-station Ideal for switching from manual to automatic molding in a day	Single-station Application to a wide variety of mold dimensions
Mold size (mm)	Min 500×400 - Max 700×600		450×350 · 500×400	Min 400×300 - Max 812.8×812.8 (FBO-V)
Molding Rate (Max)	Up to 200 molds/hr including 9 seconds of core setting time		Up to 100 molds/hr with no core setting	Up to 150 molds/hr with no core setting

Remarks: The above specifications and dimensions are subject to change without notice.

“Mold Quality” and “Productivity” Enhanced by Sinto Technology.

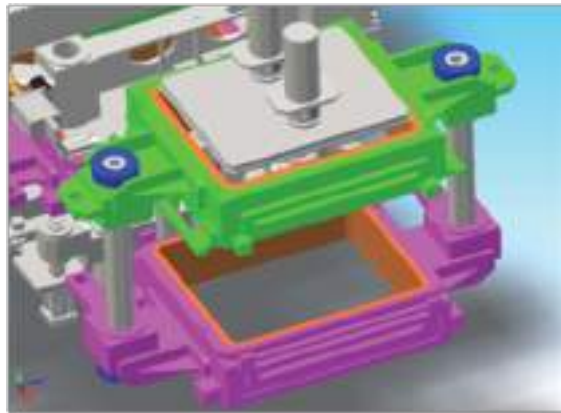
By combining cutting edge mold making technology with Aeration Sand Filling, Sinto achieves a combination of mold quality and productivity. We are upgrading mold making technology to the next level.



Improvement of Pattern Draw Accuracy

- Due to advanced pattern draw accuracy, Sinto's new molding machines succeeded in improving mold quality as well as minimizing the pattern draft angle.
- Casting reject ratio is reduced.

● Centered Supporting Mechanism with Double Guides (FCMX)



- Pattern draw accuracy: Pattern draft angle reduced by 1/2 compared to conventional model
- Mold matching accuracy: Conventional model ± 0.3 mm
→ FCMX ± 0.1 mm or less

Pattern draw and pattern transferability are achieved by protecting the pattern distortion from unbalanced squeeze pressures. (FCMX·FBOX)

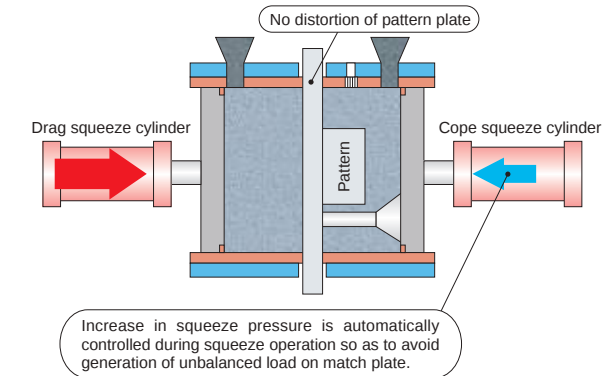
● Squeeze pressure balance control
The pattern is well protected from adverse effect of offset load. The pressure difference between cope and drag during the squeeze process is constantly monitored and automatically controlled within the setup range of pressure difference.

- No distortion occurs even with existing thin matchplates as well as those with large offset. FCMX and FBOX series possess superior pattern draw and highly accurate pattern transferability.



▲ Thin matchplate

- Squeeze pressure balance control regulates the difference in cope and drag squeezing speeds and forces. This gives you the ability to run pattern plates with vastly different cope vs. drag profiles or thinner plates which may be deformed by squeeze force imbalances.

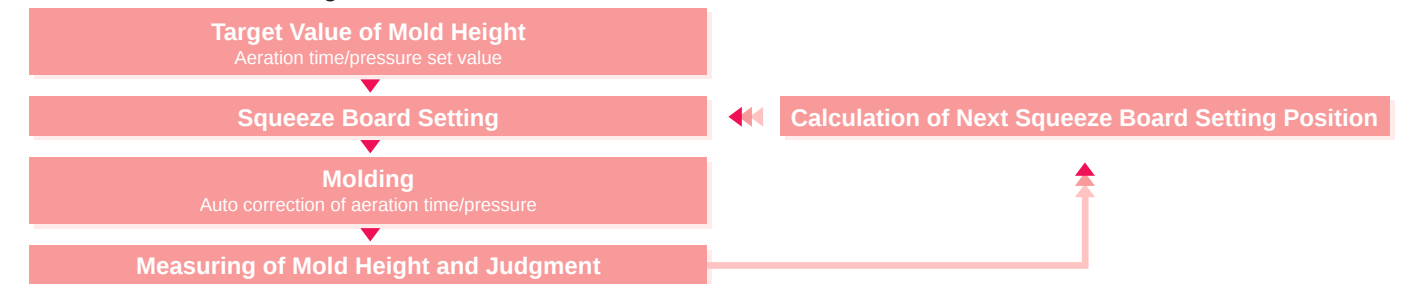


▲ Mold with large offset

Reduces volume of molding sand. Flexibly meet with variations of compactability. (FCMX·FBOX)

● Mold height feedback control
After molding, height of mold is measured and the sand feeding volume for the next mold is optimized by feedback control. This maintains a constant mold height. Sinto's Aeration system minimizes sand requirement, improves mold quality and accommodates variation of compactability.

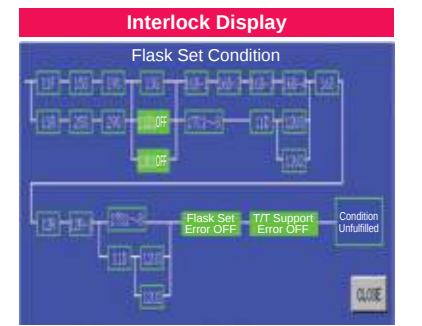
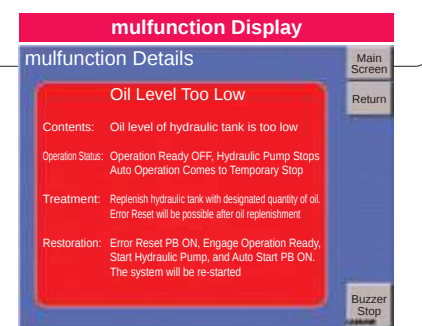
● Flow Chart of Mold Height Feedback Control



For Better Use of High Functions

● Molding monitor and other various software

- **Easy Maintenance (FCMX)**
 - Accuracy of mold closing process is maintained over a long period.
 - Maintenance of the molding flask is simplified thanks to the flask unit construction and it has become easier to remove flasks from the machine.
 - Porous aeration filter reduces the frequency of filter cleaning.
- **Display Function**
 - Improved error detection and greater feedback.
 - Explanations are indicated so that anyone can easily restore the proper condition of the machine.
 - The cause of machine stoppage is easily detected by interlock display.
- **Aeration Auto Correcting Function (FCMX·FBOX)**
 - In case of minor irregularities in the aeration system, the machine performs small molding condition adjustments automatically so that the operation and efficiency are not affected.
- **Diagnosing of molding machine by Molding Analysis Monitor (FCMX·FBOX)**
(Aeration pressure monitor is a standard accessory. Other monitors are optional.)
 - Data, such as motion of actuators and variation of pneumatic and hydraulic pressure are collected, stored and displayed on monitor and utilized for diagnosing the operating condition of molding machine.



Horizontal Parting Flaskless Molding Machine

FCMXseries



Award of Japan
• 27th President's Award for Outstanding Energy Saving Machinery by Japan Machinery Federation 2006
• Toyota Award 2007 by Japan Foundry Engineering Society
• Included in the category of preferential taxation for energy saving machines by Ministry of Economy, Trade & Industry
• Okochi Memorial Production Award by Okochi Memorial Foundation

High speed with core setting time & Spacious working space

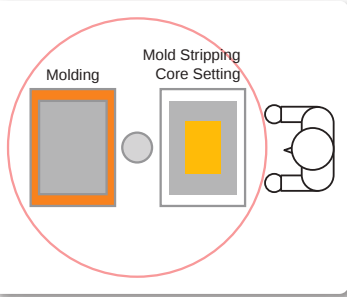
Molding Rate (MAX): 200 molds/hr

*Including 9 sec for core setting
FCMX-I and II



With aeration sand filling system

2-Station design



- Excellent mold strength and accuracy have been realized with the use of "Aeration Sand Filling" and "Centered Supporting 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).

Centered Supporting Mechanism with Double Guides

FCMX, without pins and bushes, achieves highly precise pattern draw and mold matching by supporting cope and drag flasks with robust guiding.



Spacious working space allowing core setting by 2 operators



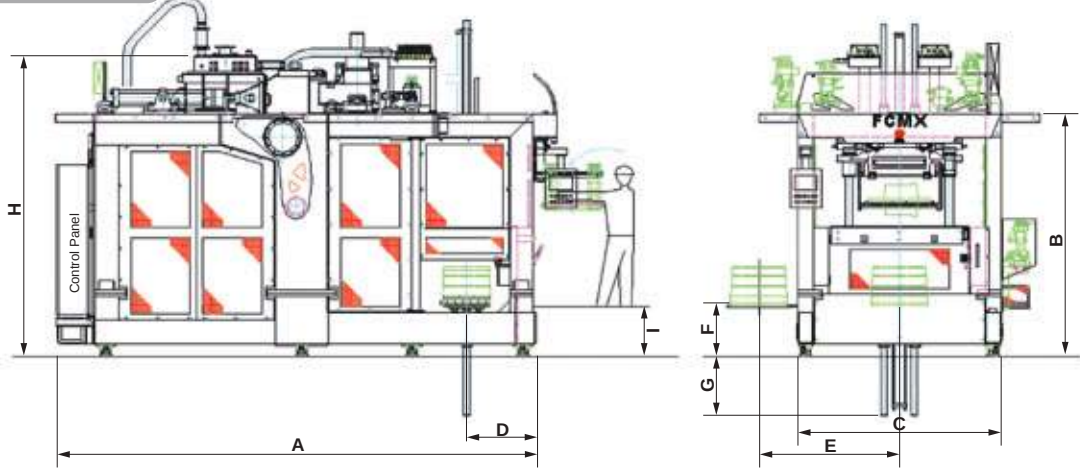
Core setting

Easy pattern change



Matchplate is taken out quite easily by shifting to Pattern Change mode.

Machine Dimensions(mm)



Model No.	A	B	C	D	E	F	G	H	I
FCMX-I	4,870	2,640	2,100	610	1,450	505	570	3,196	300
FCMX-II	5,100	2,640	2,200	655	1,550	505	610	3,268	300
FCMX-III	6,140	3,100	2,640	890	1,800	655	735	3,850	640

Specifications

Model No.		FCMX-I	FCMX-II	FCMX-III
Mold Size	Width x Length (mm)	500×400 508×406 (20"×16") 520×420	550×450 610×508 (24"×20")	700×600
	Height (mm)	Cope:130-200 Drag:130-200 Optionally set	Cope:130-200 Drag:130-200 Optionally set	Cope:180-250 Drag:180-250 Optionally set
Molding System		Aeration Sand Filling + Squeeze		
Molding Rate (Max) *1) (Including 9 sec for core setting)		200 molds/hr (18 sec/mold)	200 molds/hr (18 sec/mold)	171 molds/hr (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)		78 kg-131 kg	97 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.

Remarks

1) CE version is also available as an option.

2) The above specifications and dimensions are subject to change without notice.

Option



Automatic pattern changer
Automatic changeover of the master plate reduces replacement cycle time eliminating required man-hours. (Includes one master plate)



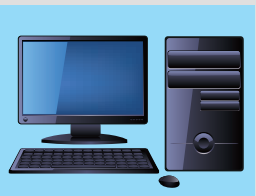
Magnet type sprue cup
Sprue change can be done with a single press of a button reducing man-hours required for sprue attachment.



Aeration tank nozzle (UHPE)
UHPE nozzle reduces nozzle wear achieving less maintenance and longer life.



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.

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.

Horizontal Parting Flaskless Molding Machine

FBOXseries



Award of Japan
•Okochi Memorial Production Award by
Okochi Memorial Foundation

High speed & Wide working space

Molding Rate (MAX): 200 molds/hr

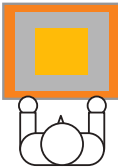
*Excluding core setting time
FBOX-II and III



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).

● 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.



Proportional valve setting screen

Spacious working space for core setting



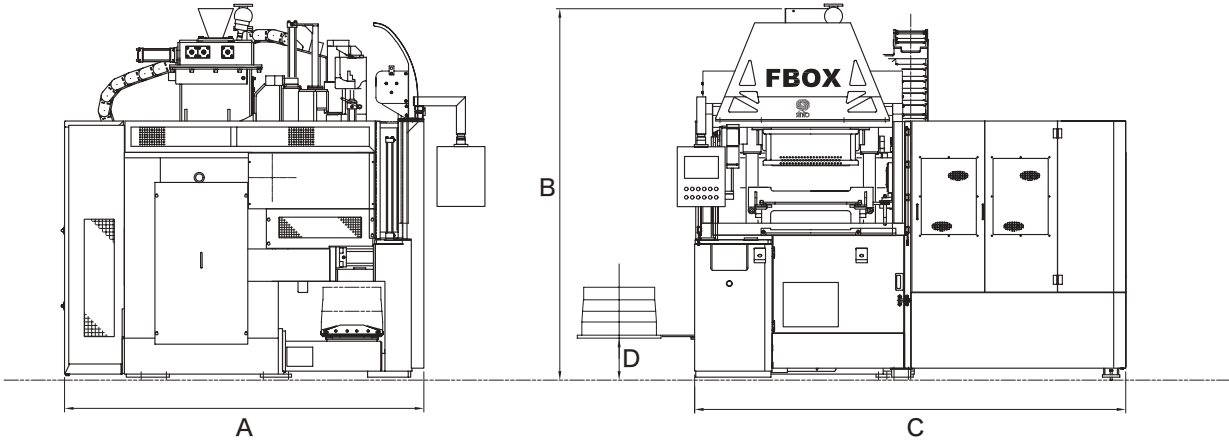
FBOX-III

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)	450×350 483×356 (19"×14") 500×400 520×420 550×450	600×500 610×508 (24"×20")	700×600
	Height (mm)	Cope:130-200 Drag:130-200 Optionally set	Cope:130-200 Drag:130-200 Optionally set	Cope:180-250 Drag:180-250 Optionally set
Molding System		Aeration Sand Filling + Squeeze		
Molding Rate (Max) *1) *2) (Excluding core setting time)		200 molds/hr (18 sec/mold)	200 molds/hr (18 sec/mold)	171 molds/hr (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.

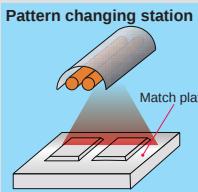
*2) Total molding rate including 9 seconds for core setting (MAX) : FBOX-II・III・・・133 molds/hr IV・・・120 molds/hr

Remarks

1) CE version is also available as an option.

2) The above specifications and dimensions are subject to change without notice.

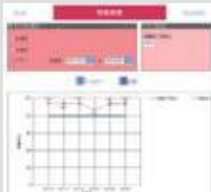
● Option



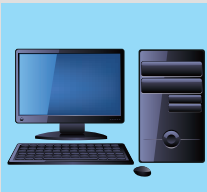
● **Pattern plate preheater**
A heater attached above match plate prevents sand sticking to match plate by minimizing temperature difference between plate and sand.



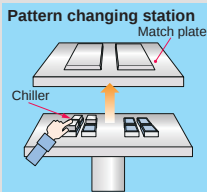
● **Pattern changing area safety light curtain**
Door on the pattern changing area can be changed from the conventional type to light curtain type. This option reduces man-hour for pattern changing and makes pattern cleaning easier.



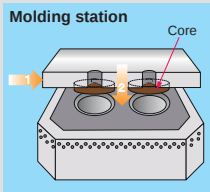
● **Molding analysis monitor software**
Operation status data is collected during molding and graphed for easier traceability. (Recommended PC: Molding analysis monitor PC)



● **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.

Horizontal Parting Flaskless Molding Machine

FDNXseries

Entry model
Simple and affordable

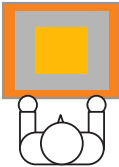
Molding Rate (MAX): 100 molds/hr
*Excluding core setting time
FDNX-0



With aeration sand filling system

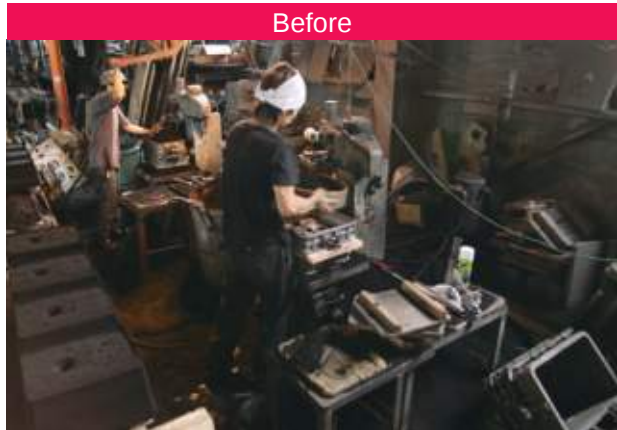
Single station design

Molding → Core Setting → Mold Stripping



- Aeration sand filling technology for producing high quality castings.
- Ready to use by just connecting power (100V AC-240V AC), compressed air, and sand supply.
- Low-noise working envioroment of 72dB(A).
- Ideal for switching from manual molding to automatic molding.

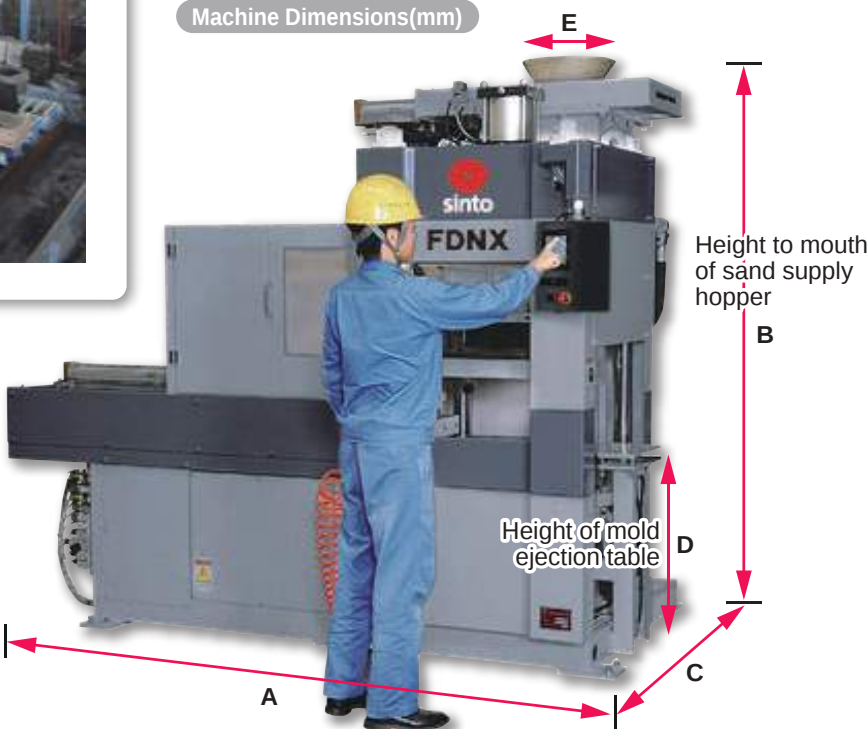
*Startup and training package is avairable upon request.



Dozens of jolt-squeezers making molds manually



A couple of automatic molding machines producing same number of molds



Model No.	A	B	C	D	E
FDNX-0	2,608	2,365	1,772	820	395
FDNX-I	2,781	2,690	2,050	940	395

Specifications

Model No.		FDNX-0	FDNX-I
Mold Size	Width x Length (mm)	450x350	500x400
	Height (mm)	Cope:150 Drag:150	Cope:180 Drag:180
Molding System		Aeration Sand Filling + Squeeze	
Molding Rate (Max) *1) *2) *3) (Excluding core setting time)		100 molds/h (36 sec/mold)	90 molds/hr (40 sec/mold)
Squeeze Surface Pressure (Max)		0.7 MPa. 4 selectable stage	
Aeration Pressure		0.05-0.18 MPa	
Power System		Air & Air on Oil	
Air Consumption		1.0 m³(N)/mold	1.5 m³(N)/mold
Operating Air Pressure		0.56±0.04 MPa	
Weight of Mold		71 kg	108 kg

*1) Molding speed may vary depending on ambient temperature, compressed air source pressure and squeeze pressure.
*2) Total molding rate including 9 seconds for core setting (MAX) : FDNX-0···80 molds/hr FDNX-I···78 molds/hr
*3) Molding rate of CE version models : 90 molds/hr (FDNX-0), 80 molds/hr (FDNX-I)

Remarks
1) CE version is also available as an option.
2) The above specifications and dimensions are subject to change without notice.

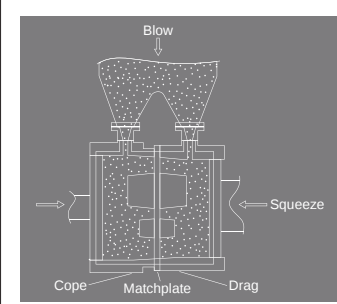
Option

- Mold width x length option
508x406(mm)(20"x16") for FDNX-I
- Mold height option
Cope:120 Drag:120(mm) for FDNX-0
Cope:150 Drag:150(mm) for FDNX-I
- 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.

Simple mechanism, Standard model with easy setup & easy operation

Application to a wide variety of mold dimensions.

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

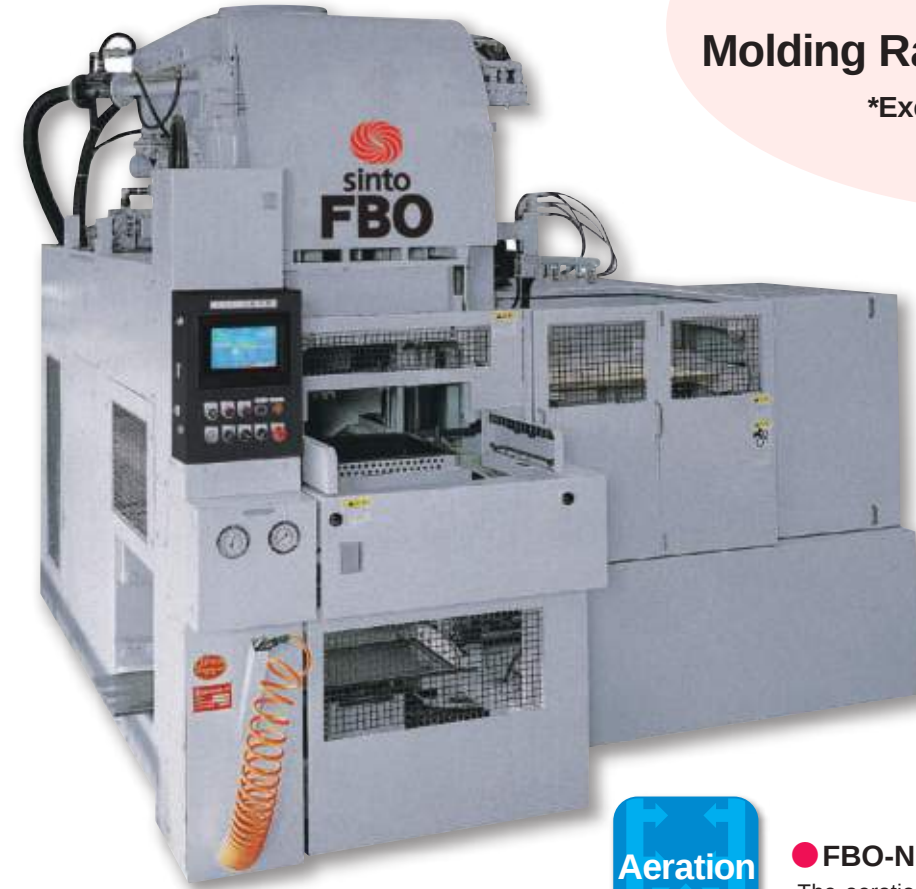
FBO series • **FBO-N** series
(Blow) (Aeration)

Easy core setting & Easy operation

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

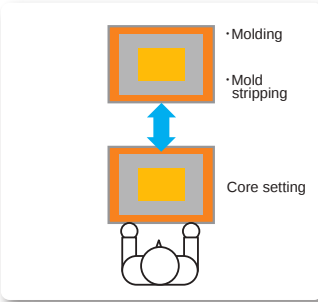
*Excluding core setting time

FBO-II • FBO-IIN



Drag mold slides out

Single station design



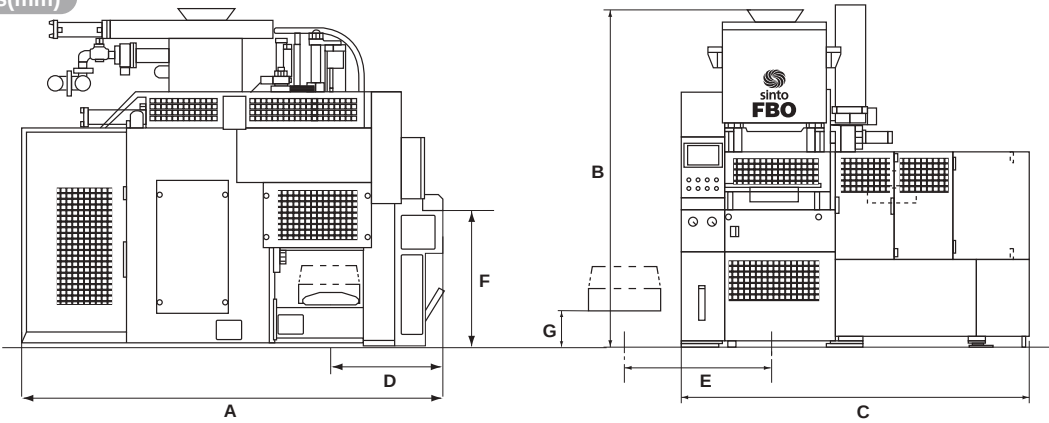
With aeration sand filling system

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.

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

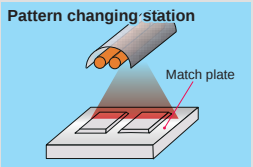
*1) Molding speed given here stands for fastest case with maximum setting of mold thickness and without core. If cores are set, the cycle time is prolonged for 4 sec. for drag shuttling + core setting time.
*2) Molding speed given here stands for fastest case with maximum setting of mold thickness and 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 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.

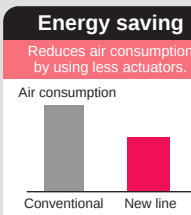
We offer the best foundry system including process selection, according to the customer's products, production volume and production system.

Automatic Line for FDNX series

Suitable molding machines : **FDNX**

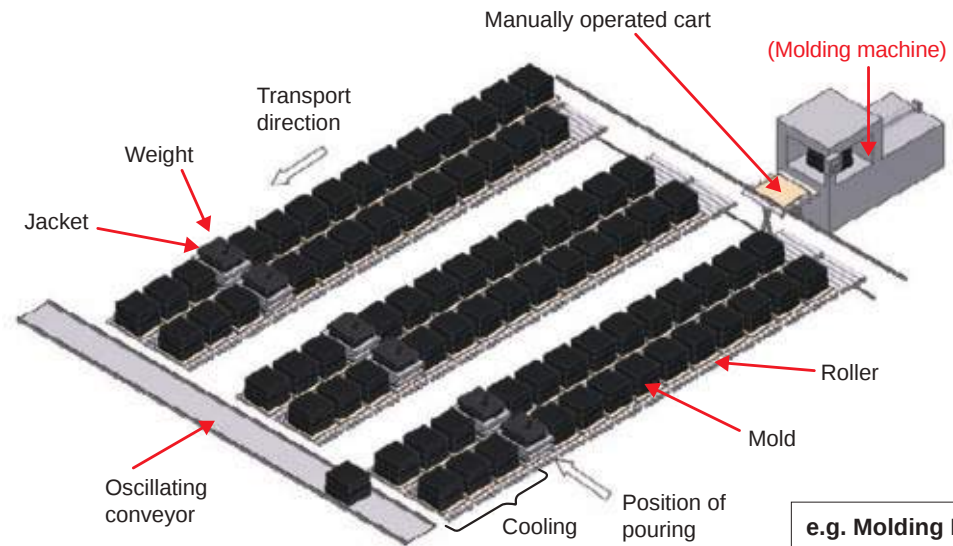


e.g. Molding Machine: FDNX-0
Molding Rate: 100 molds/hr. (36 sec/mold)
 Mold size(mm): 450x350
 Mold height(mm): 150
 Mold car size(mm): 600x550
 Primary cooling time: Approx. 18-30 min(30-50 molds)
 Secondary cooling time: 13.8 min(23 molds) *Option
 Required volume of sand: Approx. 7.1 tons/hr.
 Production capacity: Approx. 192 ton/month(Assumption)



Manual Line (with Roller)

Suitable molding machines : **FDNX**



Manual line for FDNX-0

e.g. Molding Machine FDNX-0
Max. Molding Rate: 100 molds/hr. (36 sec/mold)
 Mold size(mm): 450x350
 Mold height(mm): 150-150
 Required volume of sand: Approx. 8 tons/hr. approx.
 (450 x 350 x 150/150(mm). In case the line is running at maximum capacity)

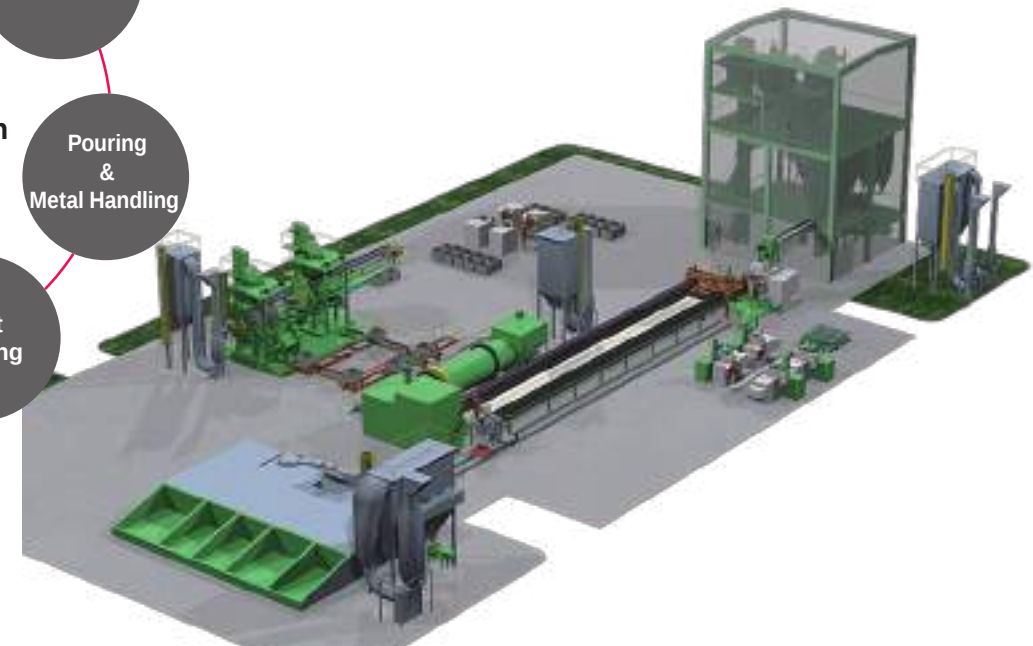
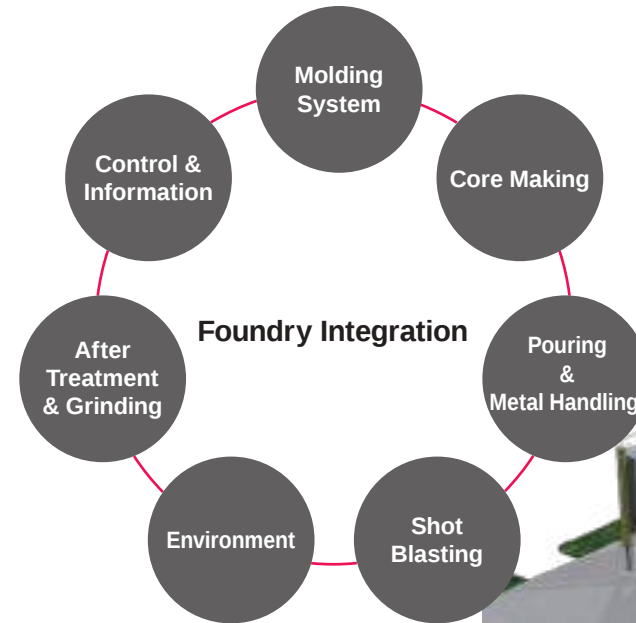
Automatic Line (with Pusher/Cushion Cylinders)

Suitable molding machines : **FCMX FBOX FBO(N)**



Automatic line for FCMX-III

e.g. Molding Machine FCMX-II
Max. Molding Rate: 200 molds/hr. (18 sec/mold)
 Mold size(mm): 550x450, 610x508(24"x20")
 Mold height(mm): 130-200 (changeable)
 Required volume of sand: Approx. 38 tons/hr.
 (610 x 508 x 200/200(mm). In case the line is running at maximum capacity)



Sand conditioning system



Econo-pour & metal handling



Molding machine



Shot blasting



Blasting abrasives



Dust collector



Fume collection hood



In-Inline digital sand tester



Core making machine

For continuous production of high quality castings at lowest cost, and for sustaining customer's production operations...

Sinto supports customer's sustained production by attentive services.

World-wide support from support centers
in Japan and Germany, along with
Sinto Group Companies



This service may not be available depending on your internet access environment.
In such case, availability of this service shall be reviewed respectively.



Maintenance and Monitoring Support

To Keep Equipment at Best Condition

This is a support program to keep operation of equipment at its best condition. There are several functions and services available, such as diagnosis by "mechanical doctors", operation data analysis, and parts replacement timing announcement.



Daily inspection support with hand-held terminals



Equipment diagnosis by "mechanical doctors"

Maintenance Detail Screen	
Inspection of aeration nozzle	
The day to announce	2013/05/31
The number of cycle to announce	30000
Remaining number	29989
Reset	

Consumable parts replacement information

Replacement history screen	
Inspection of aeration nozzle	
2013/ 4/26	14034
2013/ 3/29	14375
2013/ 2/28	13938
0/ 0/ 0	0
0/ 0/ 0	0
0/ 0/ 0	0
0/ 0/ 0	0
0/ 0/ 0	0
0/ 0/ 0	0
0/ 0/ 0	0

Remote Support

Quick Recovery Assistance at Time of Machine Problem

This program includes support from engineers with experienced knowledge of equipment for temporary action and recovery in case of emergent machine troubles during production.



A program which advises more effective operation and proposes improvement is available, by collecting operation information automatically and by analyzing such data.

Quick Parts Supply

Avoid Downtime of Manufacturing

Critical parts and consumables, any defect of which immediately leads to a line stop or failure, shall be kept as spares in stock at the customer and also shall be kept at an overseas site close to the customer to permit immediate delivery.

