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FOUNDRY TECHNOLOGY

Aeration & SEIATSU

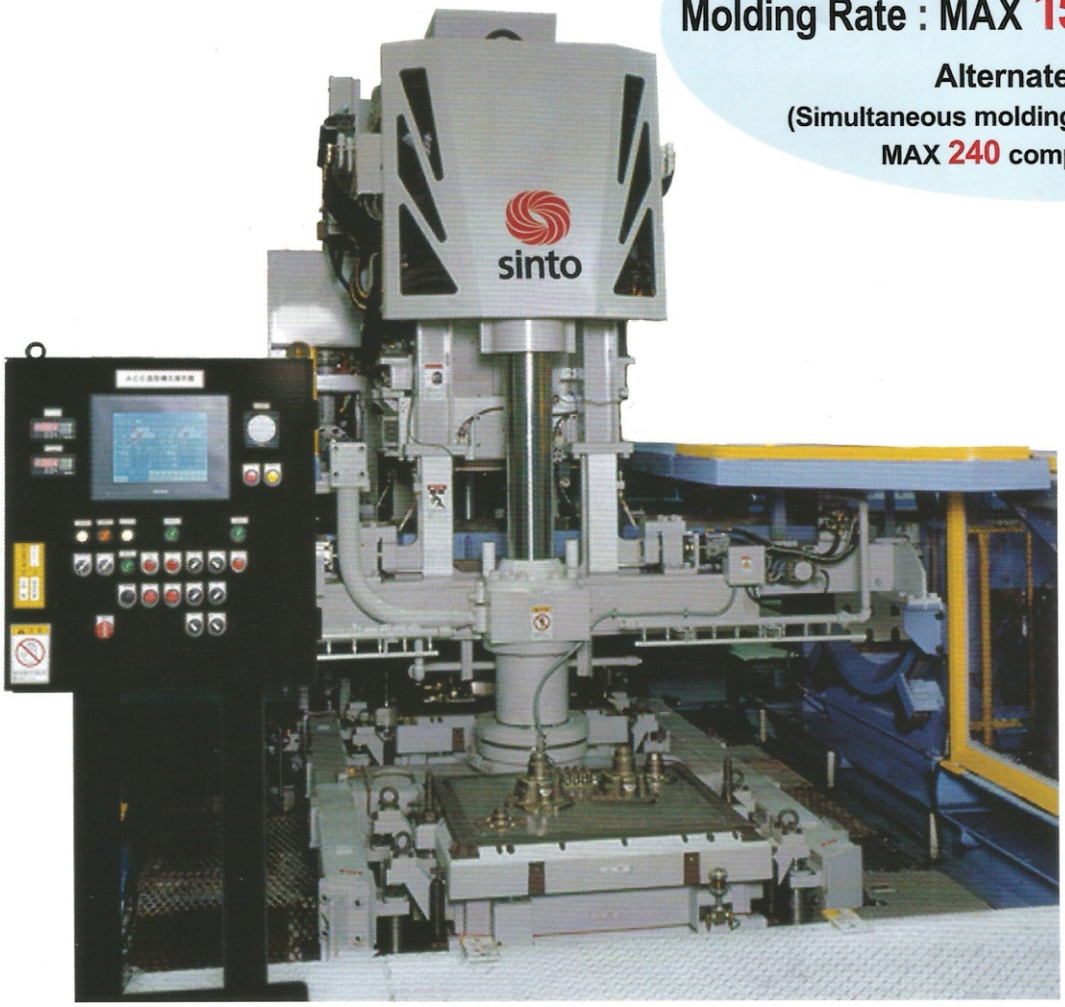
Tight Flask Molding Machines

ACE series

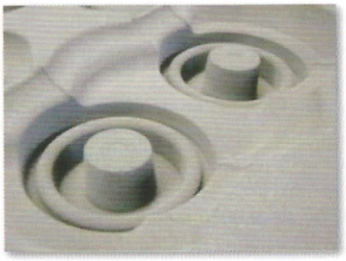
Simple & Energy Saving

Molding Rate : MAX 150 complete molds/hr.

Alternate molding
(Simultaneous molding by twin machine type MAX 240 complete molds/hr.)



Aeration

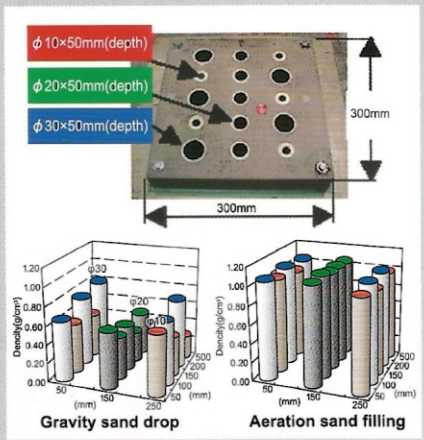


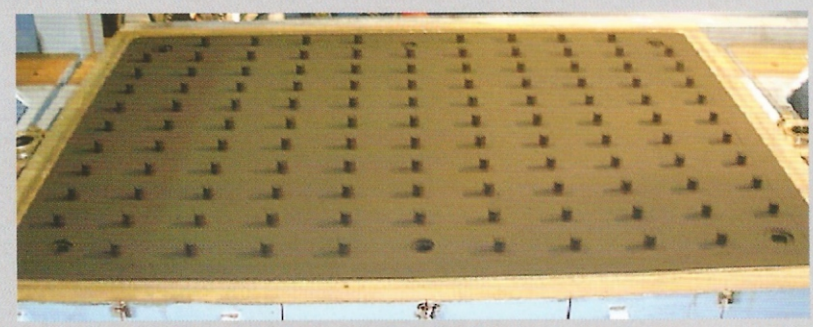
Features

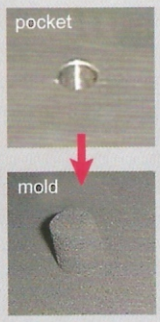
- "Aeration sand filling" technology achieves uniform and highly strong mold.
- Draft angle is minimized.
- Spill sand is eliminated, cut-off sand is minimized.
- Achieves operator-friendly environment and energy reduction.
- Installation space is reduced by compact design.
- Molding condition can visually be monitored.
- Simple machine structure realizes easy maintenance.

"Aeration Sand Filling" Makes Mold Difference

Compared to gravity sand drop system, by aeration sand filling technology, sand is not only uniformly filled to the overall area of the pattern board, but also achieves good and stable filling density in the complex shape of pattern, thus realizes the state-of-art mold.



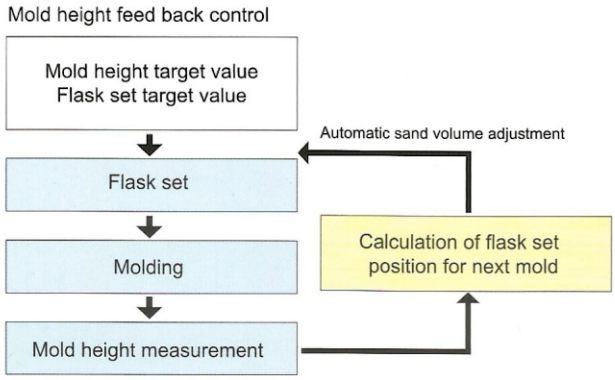




Molding test by test pattern
Mold size (Width x Length): 900×700 (mm) Total 115 pockets (φ12×H15 (mm)) on the pattern

No spill sand, Minimized cut-off sand

Since sand is filled in the confined space by aeration sand filling, no spill sand is generated. Cut-off sand is minimized as well as required sand volume, by mold height feed back control.

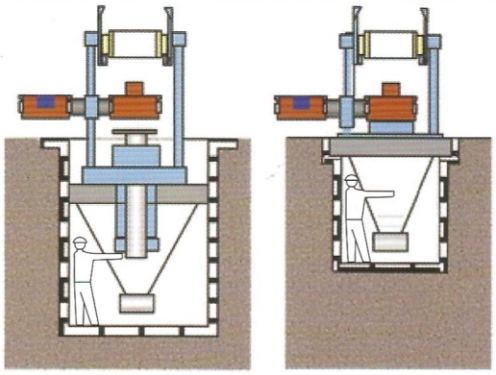


Spill sand + Cut-off sand = Sand in mold × 5%

Reduced installation space

Space-saving ACE is less restricted by installation space. Replacing existing molding machine is easier and minimizing pit size is also possible.

Sinto's conventional machine ACE

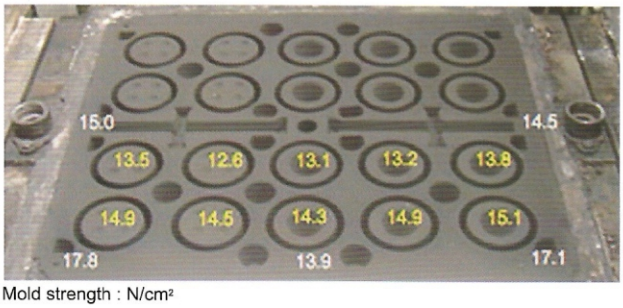


Sinto's conventional machine ACE

More dimensionally precise castings achieved by aeration technology

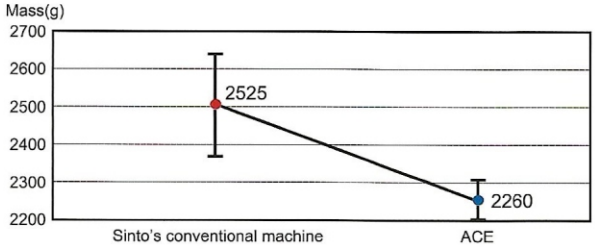
Minimized draft angle

Example: Mold of cylinder liners (Draft angle 0.5 degrees)



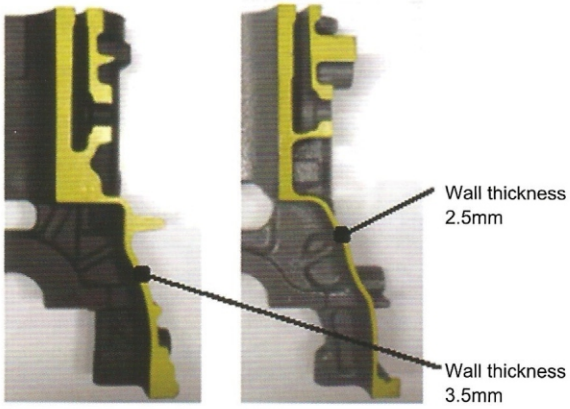
Mold strength : N/cm²

Weight reducion by minimized draft angle



Reduced wall thickness

Example: Cylinder block



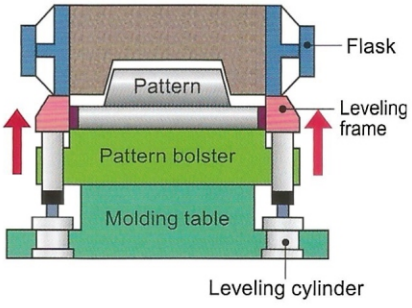
Sinto's conventional machine
Weight: 25kg

ACE
Weight: 21kg

*To realize castings with high dimensional accuracy, overall study on improvement of core dimension, improvement of line equipment alignment, stable sand strength, improvement of gating system, etc, is indispensable.

Excellent pattern draw by leveling frame

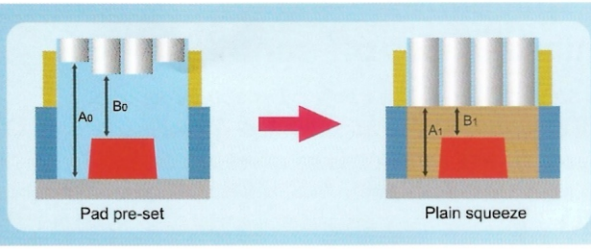
Highly accurate pattern draw is possible by lifting the mold with leveling frame at slow speed, sustaining the parallelism. Since molding and pattern draw are performed on the stationary table, draft angle can be minimized.



Variations of pre-set pad system

Pneumatic pre-set pad type
ACE-3 · 4 · 5 · 6 · 7

Squeeze: Plain squeeze & Leveling squeeze

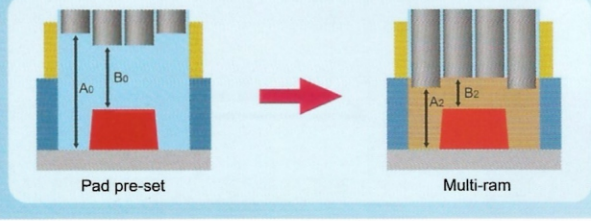


Option

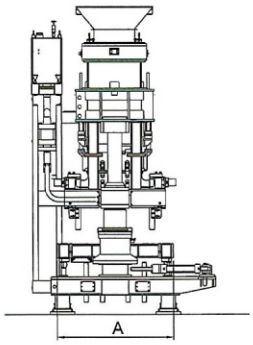
Hydraulic pre-set pad type
ACE-5 · 6 · 7

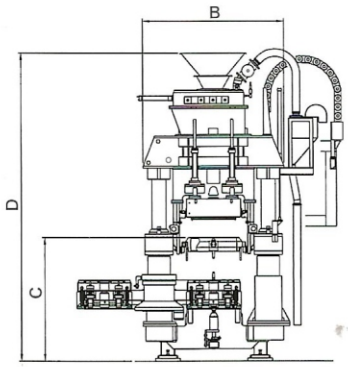
Squeeze: Multi-ram & Leveling squeeze

Pre-set pads can be used as segment foots for multi-ram.



Dimensions (mm)





Model No.	A	B	C	D
ACE-3	1,450	1,800	1,600	3,700
ACE-4	1,600	2,000	1,850	4,550
ACE-5	1,900	2,300	2,100	5,000
ACE-6	2,100	3,000	2,600	5,700
ACE-7	2,800	3,700	2,900	7,000

Specifications

Model No.		ACE-3	ACE-4		ACE-5		ACE-6		ACE-7
Mold Size	Width x Length (mm)	700×650	850×650		1,000×800		1,300×900		1,500×1,200
	Height (mm)	150-200	-250	-300	-250	-300	-300	-350	-350
Molding System	Pneumatic Pre-set Pad Type	Aeration Sand Filling + Combination Squeeze (Plain Squeeze & Leveling Squeeze)							
	Hydraulic Pre-set Pad Type				Aeration Sand Filling + Combination Squeeze (Multi-ram & Leveling Squeeze)				
Molding Rate (Max. complete molds/hr.)		150	150	135	144	130	120	108	80-90
Squeeze Surface Pressure (Max.)		1.0 MPa							
Aeration Pressure		0.05-0.18 MPa							
Power System		Pneumatic & Hydraulic							
Air Consumption		1.25 Nm^3/mold	1.5 Nm^3/mold		2.0 Nm^3/mold		3.0 Nm^3/mold		4.0 Nm^3/mold
Operating Air Pressure		0.5-0.6 MPa							
Weight of Mold (Max.)		140 kg	210 kg	250 kg	300 kg	360 kg	530 kg	620 kg	950 kg

*1) Please consult us for different mold sizes and outputs which are not specified in above chart. *2) Specifications are subject to change without notice.
*3) CE version is also available. *4) Customized engineering is available to meet customer's requirements.

Options

- **Wear-resistant leveling seal for pattern bolster**
  High wear-resistant and long-life urethane leveling seal
- **Automatic pattern changer**
  Automatic pattern bolster changing unit for reducing pattern changing time and labor costs
- **Wear-resistant nozzle**
  Aeration nozzle having high wear-resistance and long life
- **Raised cope mold**
  Auxiliary sand mold for higher profile pattern is possible up to cope height +50mm.
- **Clamp type pattern bolster**
  Easy mounting and dismantling of pattern by quick air coupling system, reducing pattern change time
- **Pattern heater**
  Pattern is heated to prevent sand from sticking to the pattern to achieve smooth pattern draw.
- **Cold climate specification**
  Hydraulic unit heater is available for shortening heating time of oil fluid.
- **Hot climate specification**
  Control panel cooler is available to prevent overheating inside the control panel.
- **Hydraulic pre-set pad**
- **Additional pattern bolster**

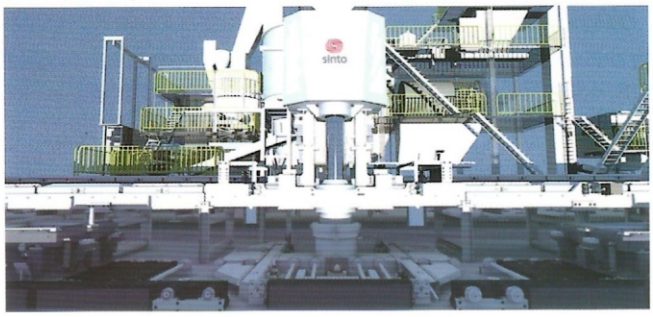
Automatic molding line for ACE series

Suitable molding line for medium volume production

● Standard molding line for ACE

MAX 150 complete molds/hr.

Line system: Alternate molding



Example

Molding machine:	ACE-5
Mold size (mm):	900x800
Mold height (mm):	250/250
Molding rate:	144 complete molds/hr.
Required mixed sand volume:	Approx. 75 ton/hr.
Production capacity:	Approx. 1800 ton/month (Assumption)

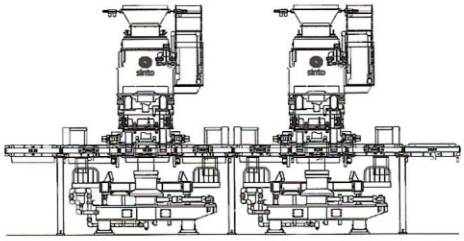
High speed line with 2 ACE units for further high volume production

● High speed molding line with twin type ACE

MAX 240 complete molds/hr.

Twin type ACE (Front: Cope molding, Opposite: Drag molding)

Line system: Simultaneous molding for cope and drag



Example

Molding machine:	ACE-5
Mold size (mm):	900x800
Mold height (mm):	250/250
Molding rate:	240 complete molds/hr.
Required mixed sand volume:	Approx. 135 ton/hr.
Production capacity:	Approx. 3000 ton/month (Assumption)