

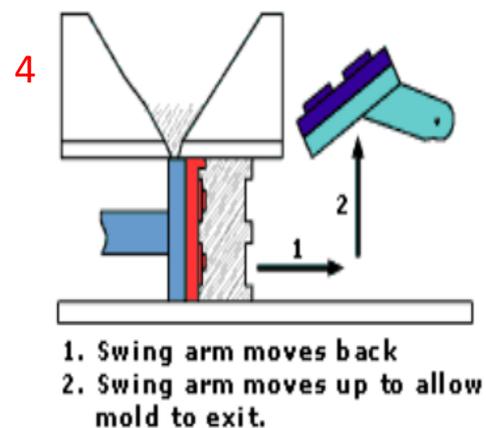
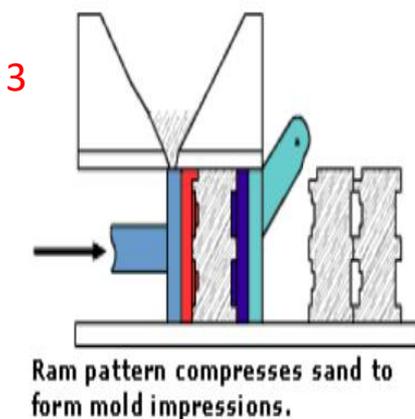
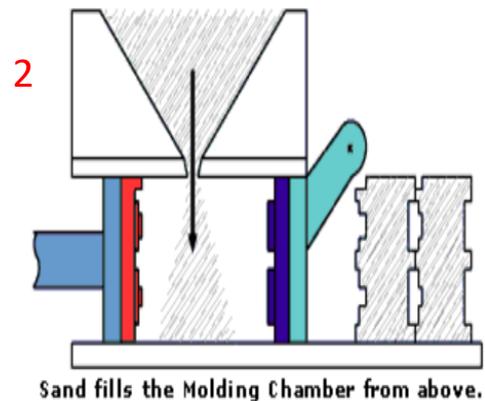
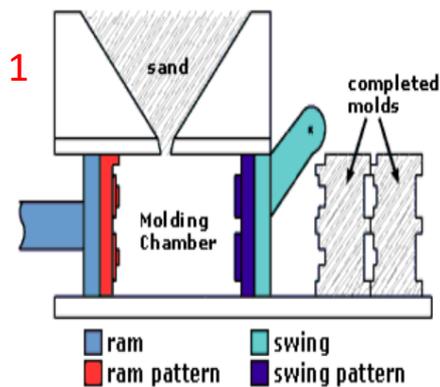
## Auto vertical parting flaskless molding machine

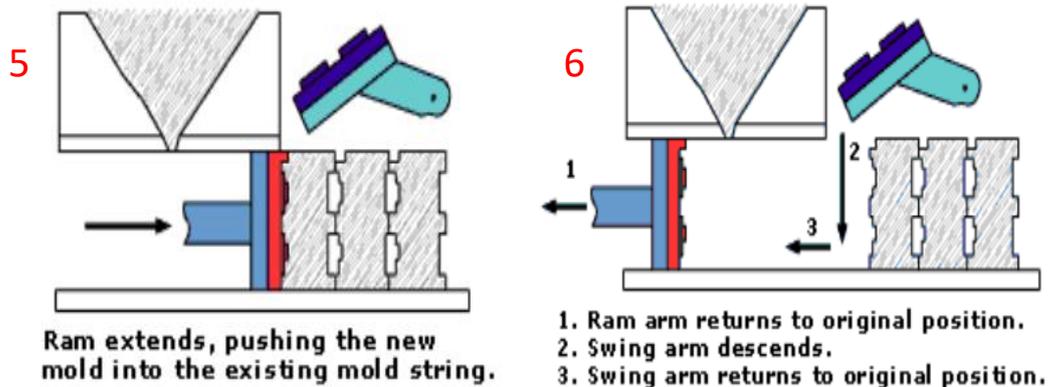
As a kind of clay sand molding equipment, vertical parting flaskless molding line has the advantages of fast speed, high automation, precise casting dimensions and low investment, and they are widely used for high quality production of small and medium castings in various industry.



### 1. Introduction

The molding machine adopts the principle of shoot sand and compaction to realize forming. The principle can be seen from the following process diagrams.





## 2. Typical specification

Vertical parting molding machine according to mould size and productivity can be divided into the following specification. Various mould sizes can be applied to the production of different sizes, the largest mould size reach to 1100x1050mm. The machine has high production efficiency up to 500 moulds/h.



Code	ZZ416A	ZZ416AC	ZZ416B	ZZ416BC	ZZ416C	ZZ416D	—
Mould dimension (mm)	600x480 x160/330	600x480 x160/330	600x535 x160/330	600x535 x160/330	600x535 x140/380	600x535 x140/380	—
Productivity (Mold/h)	280	350	280	350	400	500	—
Code	ZZ417B	ZZ418A	ZZ418B	ZZ418C	ZZ419B	ZZ4110A	ZZ4111B
Mould dimension (mm)	735x535 x150/350	800x600 X170/400	850x650 X170/400	800x600 X170/400	950x700 X180/460	1000x800 X200/600	1100x1050 X200/270
Productivity (Mold/h)	480	280	300	350	280	260	200

### 3. Characteristics

(1) No flasks, vertical parting, full automation, continuous and fast operation and shooting, pre-compaction and hydraulic squeeze molding. Squeeze from two directions with automatic adjustment function.

(2) Man-machine interface enables adjustment and setting of technical parameters within specified ranges.

(3) PLC, position sensors, pressure sensors and a liquid crystal display screen for fault monitoring, automatic alarming, remote control, and animation monitoring of dynamic inputs and outputs.

(4) It is the most advanced and efficient green sand molding line at present. Its advantages are energy-saving, high productivity simple line formation, precise casting dimension and low investment.



### 4. Typical production line

A complete vertical molding production line is mainly composed of vertical parting flaskless molding machine, pull type mold conveyor and synchronous belt cooling machine.



Vertical molding production line

In addition to molding machines, pull type mold conveyor and synchronous belt cooling machine are also fundamental.

#### (1) Pull type mold conveyor

The machine convey the cast mold synchronize with the main molding machine, and ensure no mismatch between the cast mold which after pouring ,solidification and cooling area, and complete the evacuation conveyor independently. If the mold size is large, pneumatic clamp device is equipped.



Mold conveyor without clamp device  
(2) Synchronous belt cooling machine

Mold conveyor with clamp device

The SBC is an extension of PMC, which is used to prolong the cooling time of the casting and prevent the casting from chilling deformation. It has a rigid connection with the PMC and realizes the synchronous motion of the PMC and the molding machine.



## 5. Typical productions

### (1) Automotive parts



FLANGE YOKES



SLIP YOKES



CV JOINTS



DISCS

(2) Infrastructure and home



Pan



Manhole cover



Railway Top Plate



Bottom plate



Gas valve



Pump bowl

## 6. Differences between different green sand molding methods

	<b>Jolt squeeze molding machine</b>	<b>Auto Horizontal Flaskless Machine</b>	<b>Auto Vertical Flaskless Machine</b>	<b>Tight-flask molding machine</b>
<b>Labor intensity</b>	high	Low	Low	Low
<b>Investment</b>	Very Low	Low	High	Very High
<b>Molding speed</b>	40-60 mould/h	60-90 mould/h	100-500 mould/ h	60-180 mould/ h
<b>Suitable products</b>	Small and mid-casting;	Small and mid castings; many sand core	Small and mid castings; No or simple sand core	Mid and big castings; complex sand core; thin wall;
<b>Mold cost</b>	Low	Low	Low	High

<b>Comparison between vertical and horizontal parting flaskless machine</b>		
<b>Item</b>	<b>Horizontal</b>	<b>Vertical</b>
<b>Advantage</b>	<ol style="list-style-type: none"> <li>1. Cores and cooling iron are more convenient to place.</li> <li>2. The sprue is perpendicular to the parting surface, and the pattern plate is of high effective utilization.</li> </ol>	<p>High productivity, high dimensional precision, good surface roughness, wide application.</p>
<b>Disadvantage</b>	<ol style="list-style-type: none"> <li>1. The productivity of horizontal molding line is lower than that of vertical line.</li> <li>2. The horizontal molding line shall be equipped with iron pressing equipment.</li> </ol>	<ol style="list-style-type: none"> <li>1. The sprue is on the parting surface and the area utilization of the pattern plate is small.</li> <li>2. If the pattern height is too large, the compaction rate of sand under the pattern shadow is not high.</li> </ol>