

DRATEC

ADVANCED FOUNDRY SOLUTIONS:

CORE SHOOTING & DIE CASTING MACHINERY

PRECISION, EFFICIENCY,
INNOVATION.



Contents

1. Fully Automatic Shell Core Shooting Machine.....	P 1-2
2. Cold Box Horizontal Parting Core Shooting Machine.....	P 3
3. Cold Box Vertical Parting Core Shooting Machine.....	P 4
4. Core Shooting Machine for Warm Box Process.....	P 5
5. Core Shooting Machine for CO ₂ /Sodium Silicate Process.....	P 6
6. Hot Box Horizontal Parting Core Shooting Machine.....	P 7
7. Hot Box Vertical Parting Core Shooting Machine.....	P 8
8. Gravity Die Casting Machine.....	P 9
9. Triethylamine Gas Generator.....	P 10
10. Drum Type Sand Mixer.....	P 11
11. Automatic Resin Dosing and Injection System.....	P 12
12. Molds.....	P 13

1. Fully Automatic Shell Core Shooting Machine



Specification

Model No.	Z955SG-15D	Z956SG-20D	Z957SG-30D	Z958SG-40D	Z987SG-60D	Z1099SG-80D	Z1099SG-80D (Single station)
Maximum core box size (mm)	500x400x420	600x500x420	700x500x450	800x600x450	800x700x450	1000x800x500	1000x800x500
Mold closing distance (mm)	300-800	400-900	450-950	450-950	450-950	500-1000	500-1000
Shooting tank capacity (L)	15	30	50	50	80	100	100
Single station cycle times (sec)	25	28	30	35	38	45	45
Drive mode	Hydraulic						
Core retrieval method	Conveyor belt removal						
Flip method	Motor + reducer						

Additional Benefits

Clean Operation

No smoke or dust emission, good for workers and adaptable work rest, which is honed to address your specific application challenges

Application

DRATEC Fully Automatic Shell Core Shooting Machine is suitable for vertical parting molds. It produces shell cores and shell molds by heating resin coated sand. It has high production efficiency, saves sand, and has less sand core gassing, widely used in foundries and metal workshops

Features

Fully automatic removal is suitable for vertical parting molds. It produces shell cores and shell molds by heating phenolic resin coated sand. It has high production efficiency.



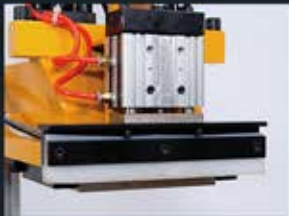
Control & Operation

PLC program control, touch screen parameter setting, workflow display, fault diagnosis, manual/automatic/jog control, automatic digital display temperature control.



Medium and high frequency quenched guide rails

Featuring high wear resistance and long service life. Motor and deceleration drive ensures smooth operation without impacts or vibrations. The pipelines are connected by rotating slip rings to prevent entanglement.



Multiple program settings

It can produce shell cores and shell molds separately. It has an automatic function to scrape off the excess sand after sand shooting, which can reduce the waste of excess sand and lower the labor intensity.



Uniform sand core wall thickness

After sand shooting and shell formation, the template rotates 180° vertically to pour out the sand, and then swings $\pm 35^\circ$ for inclined vibration or air-blowing to pour out the sand, resulting in a uniform wall thickness of the sand core and no waste of excess sand.



Double-station model

The double-station model can complete the production of two molds simultaneously or alternately. Two sets of programs can be freely set without interference. The double-station model can complete the production of two molds at the same time.

2. Cold Box Horizontal Parting Core Shooting Machine



Specification

Model No.	ZH660L-20A	ZH860L-30A	ZH1080L-40A	ZH1210L-50A	ZH1412L-60A	ZH1814L-80A	ZH2215L-150A	ZH2510L-100A
Maximum core box size (mm)	600x600	800x600	1000x800	1200x1000	1400x1200	1800x1400	2200x1500	2500x1000
Mold closing distance (mm)	300-600	350-850	350-850	400-900	450-950	500-1000	500-1000	450-950
Shooting tank capacity (L)	20	30	40	50	70 (Customizable)	100 (Customizable)	150 (Customizable)	150 (Customizable)
Single station cycle times (sec)	14	20 / 30	25 / 30	30	35	40	40	45
Number of molds	2-5 molds							
Drive mode	Pneumatic/ Hydraulics		Servo Hydraulics		Servo Hydraulics / Frequency conversion motor			
Core retrieval method	Workbench removal							



Features



This system produces high-quality cores and molds with high efficiency, low cost, and minimal emissions.



A top ejector keeps cores in the lower mold, which moves out for extraction—no core-catching cart needed. Durable chrome-plated guide rails with auto-lubrication and cleaning extend service life.



PLC-controlled with an intuitive LCD interface, it supports manual/ automatic/jog modes. Patented vibration-assisted sand shooting ensures precise, strong cores with smooth surfaces, zero scrap, and minimal waste.



Precision-guided movement of the sand cylinder and amine plate enables accurate positioning. The process automates sand shooting, amine blowing, curing, and cleaning.



A movable worktable simplifies mold setup and core removal. Fully sealed doors and screens ensure a clean workspace. The integrated DR-series TEA generator minimizes amine use without secondary blowing.



Available in horizontal parting models with 2-6 openings and optional side core-pulling. Drive options include variable frequency, pneumatic, servo hydraulic, or hybrid systems. Accessories include molds, quick-change plates, and sand feeders.

Application

DRATEC Cold Box Horizontal Parting Core Shooting Machine, refers to adopting a core box at normal temperature and using amine (TEA, DMEA, etc.) or CO₂ as a catalyst to cure the phenolic resin-coated sand. Both the vertical parting and horizontal parting can be used. This processing represents the mainstream of today's sand core-making technology. It has been widely used in foundry workshops for automobiles, spare parts, engines, valves, and electrical components in these industries.

3. Cold Box Vertical Parting Core Shooting Machine



Specification

Model No.	Z9405L-20A	Z9406L-30A	Z9407L-40A	Z9408L-40A	Z9409L-60A	Z9410L-70A	Z9412L-80A
Maximum core box size (mm)	500x400x400	600x500x400	700x500x450	800x600x450	900x700x500	1000x800x500	1200x900x600
Effective sand shooting area (mm)	400x200	500x200	600x250	700x300	750x350	800x350	900x400
Mould closing/ opening distance (mm)	300–800	300–800	400–900	450–1200	450–1200	500–1200	500–1200
Shooting tank capacity (L)	20	30	50	50	80	80	100
Single station cycle time (sec)	25	30	30	35	35	40	40
Drive mode	Pneumatic/Hydraulics			Servo Hydraulics			
Core retrieval method				Workbench removal	Workbench removal / tooling		

Features



This cold box core shooter is designed for rapid curing of resin sand using TEA or CO₂, ensuring high efficiency, low cost, and low gas emissions



Durable components include hardened chrome-plated guide rails with automatic lubrication and cleaning. A movable table simplifies mold setup, sealed doors and screens enhance the working environment.



The machine offers precise vertical movement, automatic amine blowing, curing, and cleaning. A top-ejection system keeps cores in the lower mold, which moves out for core removal without a catching cart.



It features PLC control with an LCD interface for parameter setting and diagnostics, and supports manual/auto/jog modes. Patented vibration- assisted shooting delivers high-strength, precise cores with smooth surfaces, minimal scrap, and little residual sand.



It comes with a high-efficiency TEA generator that minimizes amine use and eliminates secondary blowing. Available in vertical parting models with 2–6 mold openings and optional side core-pulling. Drive options include variable frequency motor, pneumatic, servo hydraulic, or hybrid systems. Accessories such as molds and quick-change plates are also available.

Application

DRATEC Cold Box Vertical Parting Core Shooting Machine, refers to adopting a core box at normal temperature and using amine(TEA, CO₂, etc.) as a catalyst to cure the phenolic resin-coated sand. Both the vertical parting and horizontal parting can be used. This processing represents the mainstream of today's sand core-making technology. It has been widely used in foundry workshops for automobiles, spare parts, engines, valves, and electrical components in these industries.

4. Core Shooting Machine for Warm Box Process



Features

1. Moderate temperature (the core of "temperature")

- Typical temperature range: 150°C -250°C. It has lower energy consumption than the heat core box.

2. Fast curing speed and high production efficiency

- The curing time usually ranges from tens of seconds to a few minutes. Suitable for large-scale, assembly line production.

3. Excellent quality of sand core

- High strength: When taking the core, it has high strength, which is convenient for subsequent handling and assembly.
- High dimensional accuracy: Due to solidification in a preheated and rigid core box, the deformation of the sand core is small, and very accurate casting cavity dimensions and surface smoothness can be obtained.
- Controllable gas generation: By precisely controlling the amount of resin and curing degree, the gas generation is relatively stable.

4. Environment and operational friendliness

- Low energy consumption: Compared to the hot core box, the heating energy consumption can be reduced by 30% -50%.
- Improvement of working environment: Compared to some cold core box processes with strong odors (such as furan resin), the gas in warm core boxes (especially triethylamine or SO₂ processes) has less irritating odors in the workshop under effective ventilation.

5. Good flexibility

- We can produce medium to large-sized sand cores ranging from hundreds of grams to hundreds of kilograms.

Application

Warm box technology is one of the core technologies in modern, large-scale casting production that pursues the best balance point of "quality, efficiency, and cost". It is particularly suitable for fields such as automotive engines with strict requirements for the quality of the inner cavity of castings. Although the initial investment is relatively high, the high production efficiency, excellent casting quality, and good working environment it brings make it occupy an irreplaceable position in the high-end casting industry. With the increasing environmental requirements and the development of lightweight mold technology, the application prospects of the warm core box process are still broad.

5. Core Shooting Machine for CO₂/Sodium Silicate Process



Features



Unbeatable Process Efficiency

Ideal for CO₂-sodium silicate and cold box processes, achieving rapid curing for maximum output with minimal gas consumption and low operational cost.



Patented Shooting Technology

Vibration-assisted high-pressure shooting ensures cores with excellent strength, precise dimensions, and smooth surfaces—guaranteeing zero waste and minimal sand residue.



Intelligent PLC Control

User-friendly LCD interface allows for easy parameter setup, real-time monitoring, and fault diagnosis. Choose from manual, automatic, or jog modes for flexible operation.



Streamlined Core Handling

The unique top-ejection system keeps cores in the lower mold for easy, out-of-machine removal—no extra core-catching equipment needed.



Built for Precision & Longevity

High-precision guided movement and automatic curing cycles ensure consistent quality. With hardened chrome-plated guide rails and automatic lubrication, the machine is designed for reliable, long-term performance.



Flexible Configurations

Available in vertical or horizontal parting styles with 2 to 6 mold-opening options to meet your specific production needs.



Clean & Safe Operation

Fully sealed doors and enclosures contain the process, providing a cleaner and safer workshop environment.

Application

DRATEC Cold Box Core Shooting Machine (CO₂/Sodium Silicate Process): Our advanced core shooter machine is engineered for high-speed production of sand cores and molds using CO₂ or amine gas curing. It delivers superior performance, unmatched precision, and exceptional operational ease.

6. Hot Box Horizontal Parting Core Shooting Machine

Specification

Model No.	ZH860R-30S	ZH1080R-40S	ZH1210R-50S	ZH1412R-60S	ZH1814R-80S	ZH2215R-150S	ZH3020R-300S
Maximum core box size (mm)	800x600	1000x800	1200x1000	1400x1200	1800x1400	2200x1500	3000x2000
Opening/ closing distance (mm)	350-850	350-850	400-900	450-950	500-1000	500-1000	500-1000
Shooting tank capacity (L)	30	40	50	70 (Customizable)	100 (Customizable)	150 (Customizable)	500 (Customizable)
Single station cycle time (sec)	20 / 30	25 / 30	30	35	40	40	60
Number of molds	2-5 molds						
Drive mode	Servo Hydraulics		Servo Hydraulics		Servo Hydraulics / Frequency conversion motor		
Core retrieval method	Workbench removal			Workbench removal / tooling			

Features

Double station horizontal open type sand blasting on both sides, high production efficiency, accurate size, smooth appearance, better sand core strength and hardness, and the ability to produce castings with complicated internal cavities.

Application

DRATEC Hot Box Core Shooting Machine, is a molding equipment widely used in the foundry casting industry. It is ideal for casting enterprises to improve product quality and production efficiency. Both the vertical parting and horizontal parting can be used

7. Hot Box Vertical Parting Core Shooting Machine



Specification

Model No.	Z9405R-15S	Z9406R-20S	Z9407R-30S	Z9408R-40S	Z9409R-60S	Z9410R-80S
Maximum core box size (mm)	500x400x420	600x500x420	700x500x450	800x600x450	900x650x450	1000x800x500
Mold closing distance (mm)	300-800	400-900	450-950	450-950	450-950	500-1000
Shooting tank capacity (L)	15	30	50	50	80	100
Single station cycle times (sec)	25	25	30	30	35	35
Drive mode	Hydraulic					
Core retrieval method	Conveyor belt removal					

Features



Automated Production: Ideal for vertical parting molds, it produces shell cores and molds with high efficiency, reduced gas emissions, and optimal sand usage.



Intelligent Control: Equipped with PLC program control and a touchscreen interface for parameter setting, real-time monitoring, and fault diagnosis. Supports manual, automatic, and jog operations with digital temperature control.



Durable & Smooth Operation: Features mid-to-high frequency hardened guide rails for enhanced wear resistance, and a hydraulic drive system for stable, vibration-free movement. Rotating slip-ring pipelines prevent hose tangling.



Precision & Efficiency: Offers multiple program settings to flexibly produce shell cores or molds. Automatic sand scraping after shooting minimizes waste and lowers labor requirements.



Consistent Quality: Produces sand cores with uniform wall thickness and virtually zero excess sand waste.



Multi-Station Flexibility: The dual-station model allows simultaneous or alternating production of two molds, further boosting production capacity. Independent program settings ensure non-interference between stations.

Application

The DRATEC Hot Box Core Shooting Machine is a molding equipment widely used in the foundry and casting industry. It features high production efficiency, accurate dimensions, smooth surface finish, and high sand core strength and hardness. It is an ideal solution for foundry enterprises to improve product quality and production efficiency.

8. Gravity Die Casting Machine



Features



Advanced Control System

Features PLC-based control with an intuitive LCD interface for parameter setting, real-time process monitoring, and automated fault diagnosis.



Gravity Pouring Mechanism

The mold can be rotated automatically or manually using the equipment's turning mechanism, leveraging molten metal's self-weight for filling—no external pressure required. This ensures smooth mold filling, minimizes defects like porosity and slag inclusions, and facilitates easy demolding and cleaning, thereby enhancing production efficiency.



High-Quality Castings

Gravity pouring minimizes turbulence, resulting in castings with dense internal structure, superior surface finish, and high dimensional accuracy. Suitable for a variety of metals including aluminum, aluminum alloys, and copper alloys casting.



Durable & Low-Maintenance Design

Equipped with high-frequency hardened, chrome-plated guide rails and an automatic lubrication system for all moving parts, reducing manual upkeep and extending equipment service life.



User-Friendly Operation

Simple structural design enables easy operation and maintenance, making it ideal for small to medium-sized casting applications.

High Adaptability & Efficiency

Pouring parameters and molds can be customized to meet diverse casting requirements. The system offers broad process adaptability, low energy consumption, and high metal utilization, effectively reducing material waste.



Flexible Mold & Core Handling

Primarily designed with a four-pillar through-type or open-type mold parting structure. Optional functions include multi-directional side core-pulling and upper/lower core ejection.

Application

DRATEC offers gravity die casting machine and tilting gravity die casting machines, both are the solution for complicated automobile components. Gravity die casting Technology is ideal for diverse, complex aluminium castings and is used in the production of automotive parts such as brake callipers, knuckles, engine cylinder heads, suspension components, engine blocks, and pistons.

9. Triethylamine Gas Generator



Specification

Model Name	Hi-end Configuration Generator	Conventional Style Gegerator
Model No.	DR-30H	DR-30C
Hourly Power Consumption	2.5-3 kWh	8-10 kWh
Working Theory	Heating based on aerodynamic principles, the compressed air blown out maintains a constant temperature of 80°C (the optimal evaporation temperature for amine water is 80°C), with low amine usage and short fixed line time.	The temperature inside the compressed air tank blown out by the heating rod can reach up to 80°C, while the temperature of the newly replenished air cannot reach 80°C, which will affect the volatilization effect of amine water, resulting in a large amount of amine used and a long curing time for the sand core.
Operation Method	Independent PLC control, touch screen process parameter setting, workflow display, and independent fault diagnosis display.	When two functions are shared with a device, parameter setting and switching can easily lead to misoperation

Features

- The latest generator technology is controlled by a PLC program.
- Process parameters can be set on the touch screen, and the workflow display and fault diagnosis display are available, enabling fully-automatic operation and control of imported electric proportional valves for pressure control.
- The intake air uses eddy - current technology for physical heating. The atomization ratio reaches 98%, and the outlet air temperature remains constant at 80°C, allowing the chemical components to fully volatilize. The heat- preservation performance inside the atomization tube is improved by 400%.
- It can achieve different pressure increasing curves according to various process requirements.
- It features dual-temperature-controlled explosion-proof heating and gasification, with good safety performance.
- It is equipped with an internal thermal energy storage device, offering high heating efficiency, good gasification effects, and low amine consumption. It is not affected by environmental temperature differences, ensuring stable production efficiency.
- The DR series one-to-two triethylamine gas generators are patented products of our company. They can supply two cold-box core shooters to produce sand cores of different specifications simultaneously or alternately without mutual interference. The parameters of the two sets can be independently set and modified.

Application

The combination of a "triethylamine gas generator and a core shooting machine" serves as the standard configuration in modern foundry workshops for achieving high-efficiency, high-precision, and automated core production. It is widely used in the manufacturing of complex castings such as automotive engine blocks and cylinder heads.

10. Drum Type Sand Mixer



Features

- The vertical drum sand mixer is driven and controlled by a vertical variable-frequency motor and a reducer, with its efficiency increased by 100%. It has excellent sand-mixing effects. Compared with the traditional horizontal bowl-type sand mixer, it reduces the resin addition by approximately 15%. The weight range of each sand-mixing operation can be controlled according to the electronic weighing method or the time-flow method, and the error can be controlled within 0.2-0.5 kg. It is also in real-time linkage with the resin dosing and injection system by adjusting the numerical parameters of the control system. The contact area inside the sand mixer is coated with anti-sticking paint for easy cleaning of the sand-mixing chamber.
- During each sand-mixing operation of the sand-mixing mechanism, the pre-measured raw sand is added to the sand-mixing drum by the raw sand dosing system. Under the uniform agitation of the sand-mixing blades, the resin dosing and injection system injects the resin (two components) according to the required parameters. When the sand-mixing is completed, the sand discharge door of the sand-mixing drum opens, and the mixed core sand is added to the hopper of the cold-box core machine below the sand mixer under the action of gravity or is sent to the hopper of the cold-box core machine in need by the equipped core-sand transfer vehicle.
- The sand-mixing mechanism is mainly composed of a sand-mixing drum, sand-mixing blades, wear-resistant plates, a drive motor, and a reducer.
- The sand dosing hopper is located at the upper part of the sand mixer. It is connected to the sand silo through a butterfly valve upwards and communicates with the sand-mixing drum through a butterfly valve downwards. The raw sand in the sand dosing hopper is heated by the hot-air circulation system (sand heating is carried out when the external temperature is low), and the heating temperature can be adjusted on the temperature control system.
- The control system automatically controls the sand mixer through a PLC, AC contactors, command switches, etc.

Application

DRATEC sand mixers have strong adaptability and comprehensive application and is widely used to mix molding sand in foundry workshops. It can mix single sand and dry molding sand, self-hardening sand, surface sand, and core sand. It's also suitable for mixing various powder and granular materials in glass, ceramics, and refractory materials.

11. Automatic Resin Dosing and Injection System



Features

Firstly, it can significantly improve production efficiency. The automated filling process reduces the time and cost of manual operation. Secondly, precise control of the resin filling amount helps to improve product quality and production consistency. In addition, the resin quantitative filling system is also easy to maintain and upgrade, and can adapt to changes in different production requirements.

Key Components of the Resin Quantitative Filling System

- **Storage Device**

It is equipped with two sets for storing the resin materials to be filled. The device is designed with sufficient capacity to ensure the resin supply during the continuous production process. It is equipped with two resin constant-temperature radiation insulation boxes and an automatic temperature control device, which can effectively ensure that the resin in the storage box is heated at a constant temperature when the ambient temperature is too low, avoiding the error in resin quantification or injection amount caused by the decrease in the fluidity of the resin material due to low temperature.

- **Quantitative Device**

It consists of two sets of volume - based quantitative methods. Quantification is achieved through a hydraulically - driven piston cylinder. It can automatically adjust the separate quantitative values of the two resins according to the parameters preset in the control system to meet production requirements.

- **Filling Device**

After the two quantified resin materials are respectively quantified by the hydraulically - driven piston cylinders, the separate quantitative filling of the two resins is achieved through components such as pipes and nozzles. The design of this device ensures that the resin can be evenly and stably transported to the designated location.

- **Control System**

The displacement sensor monitors parameters such as the filling amount and flow rate of the resin in real - time. The controller adjusts the working state of the filling device according to these parameters to ensure the precise control of the filling amount. The actuator is responsible for executing the instructions of the controller, such as starting or stopping the operation of the hydraulic pump.

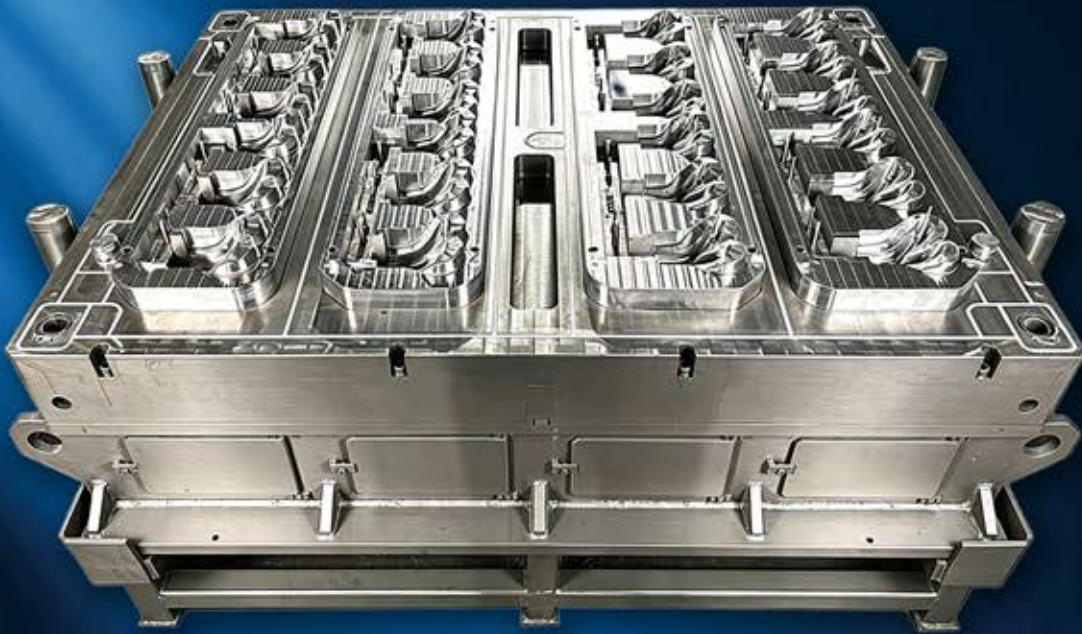
Application

DRATEC resin quantitative filling system is highly efficient and precise industrial equipment. It is a device that can ensure the precise control of the filling amount of resin materials through continuous monitoring and adjustment of the filling process while being linked with the sand mixer, thereby improving production efficiency and product quality. During the production process, the resin materials in the storage device are sent to the quantitative device for accurate measurement. Then, the filling device transports the quantified resin to the target location. The control system continuously monitors and adjusts throughout the process to ensure the accuracy and stability of the filling amount and achieve real-time linkage with the sand mixer.

12. Molds

Casting molds

Material: H13, 45# steel, ductile iron, aluminum alloy, P20, and other special steel alloy material....



Sand Casting Tooling

Hot Box/ Cold Box/ Shell Core Molds



DRATEC

DRATEC ENGINEERING CO., LTD

**Office No. 1712-3, Floor 17, Building E,
No. 9, the Taihu Lake East Road, Xinbei
District, Changzhou City, China**

Tel: 86-0519-83732179

Email: projects@dratecmachines.com

www.dratecmachines.com

