

# Silon ZR7

1-7 kg / 2.2-15.4 lb  
Shop Coffee Roaster



## The Silon ZR7 was created, from start to finish, using our long-standing experience in designing **state-of- the-art** roasting machines

The Silon ZR7 was originally researched and designed as a tool for baristas who craft their own beans, batch by batch, to be served with great professional pride. We envisioned our Silon ZR7 for those who deserve the best tool out there. We present you with a roasting machine built to the highest standard in every possible respect: quality of design, all around quality of build and quality of coffee produced. We crafted The Silon ZR7 to be the crown jewel of your coffee-roasting practice, right at the center of your atelier.

The Silon ZR7 is much more than your everyday shop roaster. Loyal to our endless pursuit of excellence, the Silon ZR7 was created, from start to finish, using our long-standing experience in designing state-of-the-art roasting machines.

As a tool made for pros we deliver conductive heat, this time, even closer to the beans, more than we ever dared to do with any of our previous commercial coffee roasting machines. We feel certain we can grant all due credit to you, the true artisan we aim at. We count on you, the coffee craftsman, so we removed all built-in limitations that are sometimes deemed necessary when considering a commercial-scale machine.

We believe we understand your goals: You work hard to keep your business reputation at the top of the scale. You strive to understand the effect each parameter has on the roasting process. You wish to maximize output from each batch of precious beans. When it comes to roasting, just like with driving, you want to go all the way through without antilock brake system. You want to take it right to the edge, very close, but never too far. This means you need to take charge, to stay fully on top of things. We know you will, because the process will further entice you to explore.

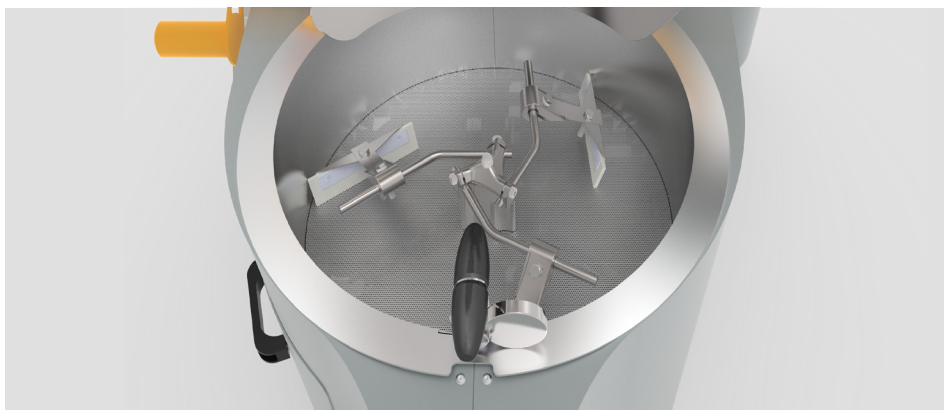
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# The Silon ZR7: these have been our guiding principles in optimizing crucial parameters

- **Advanced Thermodynamic Characterization:** A tightly sealed and controlled ceramic combustion chamber design inspired by our extensive research into conductive and convective heat pathways.
- **Robust and Accurate Drum Housing:** Ensuring perfect alignment of drum spin throughout the product's entire lifecycle. Greased hemispherical bearings, zero-tolerance precision dry-slide bearings, and a micrometric mechanism to adjust drum gap ensure the edge of the drum stays perfectly perpendicular to the front plate of the machine at minimal tolerance.
- **Drum Proportion:** Optimizing ratio of bean mass to metal contact area for a superb conductive thermal dialog.
- **In-drum Variable Agitation:** Designed for perfect bean stirring, greater heat conduction between metal and beans, effective chaff separation, and immediate evacuation of beans from the drum into the cooling group.
- **Monitoring and Control:** Monitoring of both drum-air and bean temperature. Digital control of drum revolution speed, drum blower speed, drum aspiration rate, and the fully modulated pre-mix turbo gas burner.
- **Software (optional):** State-of-the-art Israeli roasting management software.
- **Perfect Heat Dispersion:** A sophisticated heat dispersion scheme involves thermal flow emanating from the heat source located at the bottom towards the top of the structure using secondary airflow propelled by well-calculated jets of air. Specifically designed perforation at the top front end of the combustion chamber allows air to flow in in precise ratio.
- **Fully Modulated Pre-Mix Turbo Gas Burner:** Burner is fully controllable from low power to overkill with high frequency of infrared reflection towards the drum. Ultra low NOx specs in infrared flame screen achieve the cleanest, most efficient energy production. No soot accumulation in the drum or harmful CO emission.



Control panel



Large pyrex lens for easy monitoring, coolin group

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## A New Generation of Roasting Drums

An extensive, in-depth research and development process has resulted in three distinctive tailor-made drum models for the Silon ZR7 line:

### The Next- Gen Vortex TO4 Roasting Drum

In the Silon ZR7, an airstream blasts in a spiral motion into the drum and through the coffee beans, requiring smaller amount of air to enter the roaster for a full effect. The longer the spiral path across the drum and through the coffee bed is unlike the olden traditional roaster mechanisms, which had a perforated back plate allowing huge amounts of air into the drum in a short, straight path.

With our roaster, the beans are not stripped away from their coffee goodness, while the energy is also used to maintain the heat right next to the exhaust without working on the coffee itself. This innovative approach ensures a unique added-value offering for cost-effectiveness, energy optimization, and enhanced flavor.

Lab tests have already shown a huge improvement in the coffee's solids content and density, with amazing improvements in gas consumption, roasting time and fume emission.

## The Silon ZR7: perfect heat dispersion

As a result of extensive research, the ceramic combustion chamber is optimally located in relation to the drum. Heat spreads evenly from the machine core throughout the drum. Our design challenges the more common setup you typically find in an open drum housing that involves secondary air poorly mixed with a heat source. In our innovative configuration, the heat source is located at the bottom. Secondary airflow is propelled by well-calculated jets. Heat is collected at the upper end of the structure using the natural tendency of hot air to rise. Flow and ratio are precisely controlled through jets of air that pass through specially designed holes at the top front end of the sealed and isolated roasting chamber. Here you will find no silly vents, shutters or louvers to keep the flame alive - not with our pre-mix turbo gas burner technology.

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## Fully Modulated Pre-Mix Turbo Gas Burner Technology

An infrared flame screen is the cleanest, most efficient way to produce energy out of any type of fuel. Ultra low NOx specs fulfill the strictest pollution standards. It may not mean much at this point, but it is all about your health as the operator: operator, your surroundings, and your coffee. No soot accumulation in the drum to coat your coffee, none of the harmful CO produced during operation, no irritated red eyes at the end of the day. Our Pre-Mix Turbo Gas Burner runs the full gamut, at any stage, from low power to overkill, controlled by your choice of either a potentiometer or software, with high frequency of infrared reflection towards your choice of either a solid or a perforated drum.

## Fast and Effective Cooling

At the end of the roasting cycle, the entire roasted batch is transferred to the cooling group in a matter of seconds. This external group is made of 100% stainless steel with special food-grade material agitation blades, which efficiently shuffle the beans over the cooling mesh. Aided by a high capacity blower, an entire batch is cooled in less than 3 minutes.

## Clean, Efficient and Safe Heating System

Coffee-Tech Engineering's entire Silon ZR7 line features a highly effective pre-mix turbo gas burner. This clean heat source provides maximum gas burning efficiency with minimum levels of carbon monoxide emission. Safe, economical and stable, it features many unique parameters for control and calibration.

## Unique Roasting Software

The Silon ZR7 features unique roasting software developed by Coffee-Tech Engineering, enabling the user to predefine

and program personal roasting profiles. Each parameter can be mapped out and appropriately adjusted by recording the desired heat curves and controlling the variable drum speed profile as well as the speed of the drum venting blower. This can be done at any stage of the roasting process. Numerous roasting profiles can be applied, again and again, with the greatest accuracy.

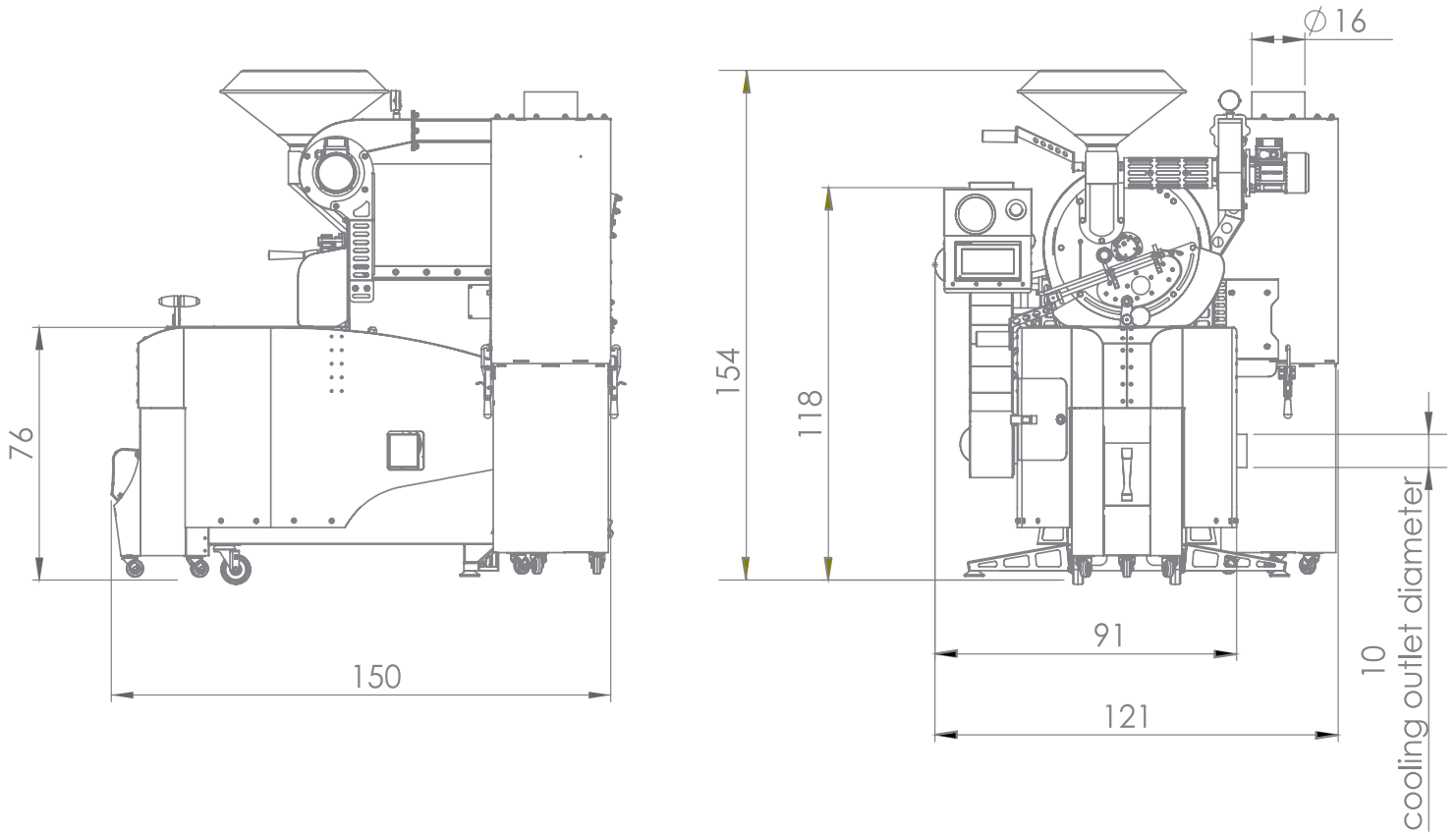
## Comprehensive Set of Features

At Coffee-Tech Engineering, we pay special attention to the less than obvious details: compact, efficient machine structure, batch cooling time, drum evacuation time, size of monitoring control lens and drum-gate. These features are often ignored, however, their impact is substantial on the finished brew. We, at Coffee-Tech Engineering, test every setting and modification in our laboratory to maximize bean potential. Owing to the machine's cutting-edge technology, the roasting process achieves excellent levels of desired coffee properties: rich sugar content and a wide aromatic spectrum. These spectacular values are reached without burning the "woody" substance of the beans or generating other negative side effects known in roasting.

## The Perfect Roasting System

Determining a high level of conductive heat has proved to be the best method for producing a rich cup, and this is where we differ from other manufacturers. Since heat conduction is complicated and presents several unresolved issues, many have abandoned it in favor of convective heat that is much more forgivable in terms of the end result: range of coffee properties and shelf life. At Coffee-Tech Engineering, we chose to invest in extensive research in order to solve these issues. In doing so, we are proud to offer a machine that truly reflects our beliefs and understanding of coffee roasting. The Silon ZR7 roasts continuously, while cooling takes place outside the drum, making it possible to roast up to 28 kg of green beans per hour. The Silon ZR7 features a beautifully streamlined design. It is user friendly, ergonomic, quiet, compact and safe to use. Each function has an individual motor and heat protection. We take great pride in Silon ZR7 high-end craftsmanship. It is the result of our long-

standing expertise in high-end product design and CAD design. We are sticklers for high-quality materials and components and use manufacturing tools assembled by Coffee-Tech Engineering's passionate experts. The Silon ZR7 is available to order with various heating methods, from natural gas and LPG to traditional wood, pellet, coffee processing waste, and charcoal heating. As a high-end roasting machine, the Silon ZR7 will ensure reliable operation as well as consistent superb results for many years to come. Its added value lies in that, by owning it, you truly possess a piece of art, a fruit of passion. We can only wish for more chances in life to take on such an endeavor. We do not take it for granted. We are proud of what we accomplished and feel lucky to have made it. We stand by our achievement.



### Heating Technology



Conduction



Convection

### Safety



In Drum Extinguish



Safety Manual Crank



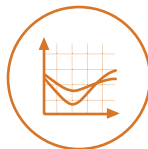
Pollution Free Ambient

### Roasting Method



Drum Roasting

### Control Features



RDL



Drum Speed Control



Blower Speed Control



Multi Point Temp.



Touch Screen

### Built-in Features



Vortex TO4



Full Modulation



Ceramic Chamber



Sub-Atmospheric Combustion Chamber

### Sustainability



Low Energy Consumption



Low NOx

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# Technical Specifications

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## Batch Capacity:

1-7 kg (2.2-15.5 lb) of green coffee

## Roasting Cycle:

11-17 minutes  $\pm$  4 batches per hour

## Electrical Specifications:

50/60 Hz, 1250W, 230V/380V

## Quality and Safety

### Compliance:

CE , RoHS, EMC

### Body:

Full precision metal work, top quality materials and hardware

### Drum Operation:

Individual, heavy-duty gear motor.  
Digital variable drum speed control comes standard

### Heating Method:

Gas: L.P.G. / Natural Gas (7-20 kw)  
fully modulated burner

### Drum Housing:

Sub atmospheric combustion chamber

### Gas Consumption:

0.5-0.75 kg (1.1-1.65 lb) per hour of roasting

### Cooling Agitation:

Individual, heavy-duty gear motor

### Cooling Blower:

High capacity cooling blower,  
cooling time is  $\pm$ 3 minutes

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## Safety:

Safety drum discharger, in drum extinguisher, emergency stop button

## Weight:

255 kg (562 lb)

## Chaff Evacuation:

Full size, high capacity cyclone chaff collector

## Bearings:

Heavy duty, precision bearings.  
Long intervals between required maintenance

## Dimensions:

121 (w) X 150 (d) X 153 (h) cm  
(48" (w) X 59" (d) X 60" (h) Inch  
With cyclone

## Process Quality Control:

Large pyrex lens for easy monitoring of roasting progress. Digital, double temperature controller for heat control allows determining temperature range for roasting

## Also Available:

- Wood/charcoal heating conversion
- Pneumatic doors
- Automated software