

GENE CAFÉ CBR-101 ELECTRIC COFFEE ROASTER – A CLOSER LOOK



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Overview

Genesis Co LTD (Korea) is a relatively new entrant to the Coffee Roasting market and spent many years researching and designing its Gene Café roaster. They are well aware of other products on the market for the home roaster and have designed a product that addresses many perceived negative points of these products. I think it's great that they have taken a totally new approach which appears to have many benefits.

The Gene Café is well packed for delivery and is unlikely to be damaged in transit. It's not a heavy roaster, which makes it easy to move around. Externally the machine has a high tech look about it and a black finish that will look good for a long time. The materials used are all high quality steel, Pyrex, Aluminium and glass reinforced high temperature plastics. I think with a little care this roaster will look good for many years. The build quality feels good and it looks well designed and put together. The machine is pretty quiet in operation although it does take some practice to hear what's going on during the roast. It's about as noisy as a dishwasher or fridge and certainly is not going to cause a noise problem when used in the Kitchen.

Cooling is done within the roasting chamber by forced hot air. The whole chamber is then simply lifted out to empty the beans. Once you have done this, the Gene Café is ready to roast again. Using the quick cool down cycle you can roast a 250–300g batch of green beans every 22–25 minutes, about 700g per hour, enough for even the heaviest coffee drinkers.

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gene cafe cbr-101 closer look v3.doc

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Overview –cont.

It works by using a stream of very hot air, passed through the roasting chamber. The chamber is mounted at an angle and rotates. This imparts a left to right rocking motion coupled with the rotation of the chamber. This gives very good mixing of the beans within the roast chamber and great chaff removal

- Hot air convection roasting
- Extremely good mixing of the beans
- Outstanding chaff removal
- Powerful 1000W heating element

The heating power is pretty substantial and I think it might not suffer as badly as some home roasters from mains voltage fluctuations or low ambient temperatures. You get good roasting performance with an optimum balance of heating element life vs. roasting performance. The heating element has hard life in any coffee roaster (luckily it is inexpensive and easy to replace). It is important not to overload a roaster and to use it on the correct voltage. **Mine was a 240V Rated Gene Café and the roast timings are for this variant.** I have roasted more than 10Kg in it so far, which is at least 6 months normal use and had no problems.

Roasting Performance – How well does it do the job it's designed for

It's best to start with a brief explanation of coffee roasting. Roasting is a big subject and what follows is a simplification of the whole process.

"It has a maximum capacity of 300g, but gives optimal performance at 250g-275g"

Roasters operate at high temperatures, and the beans are roasted for a period of time depending on the degree of roast required. Commercial roasters are either horizontal rotating drums that tumble the green coffee beans as the heat energy is applied; the tumbling prevents burning and gives an even roast; or fluid bed roasters, where hot air is blown through the beans (which tumble in the air alone and roast twice as quickly as in drum roasters). The drum roasted method is slower, but preferred by speciality coffee roasters who believe it gives a better flavour in the final product.

When roasted green coffee beans expand, changing in colour and density. As the bean absorbs heat, the colour shifts to yellow, then to a

light "cinnamon" brown and then a dark and oily colour. The roast will continue to darken until it is removed from the heat source. During roasting (or shortly after) oils can appear on the surface of the bean.

Coffee roasting coaxes flavour from a bland bean; unroasted beans have all of coffee's acids, protein, and caffeine, but none of its taste. It takes heat to spark the chemical reactions that turn carbohydrates and fats into aromatic oils, burn off moisture and carbon dioxide, and alternately break down and build up acids, unlocking the characteristic coffee flavour.

Turning this...



Into this...



Green coffee and roasted coffee.

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Roasting Performance – cont.

The other important indicators of roast development are 1st crack and 2nd crack, put simply:

- 1st crack is the initial expansion of the coffee bean and sounds a bit like breaking twigs or popcorn, this shows normal roast development and typically the end of first crack is associated with a light to medium roast.
- 2nd Crack is the fracturing of the cellular matrix and sounds a little like tinfoil being crumpled. It is also accompanied by increasing caramelization of sugars which gives the characteristic bitter tang to darker roasts. Roasting to the end of second crack and beyond results in the darker roasts and eventually charcoal followed by fire!

To preserve the characteristics of the coffee most roasts are within the area of first crack and the end of second crack. Much darker than this and the roast takes over, much lighter and the roast is not properly developed. Master roasters assess roast development in a number of ways, including sight, sound and smoke quality. The Gene Café allows you to do all of these, although admittedly there seems to be less smoke than other home roasters. The view of the roasting beans is unparalleled; there would be few roasters able to give such a clear view of the roasting beans

I have found the Gene Café to give a **very**, even roast, with roasting times that are very good. Some electric roasters are underpowered, this is not a problem with the gene Café (as will be seen from the figures provided). It has a maximum capacity of 300g, but gives optimal performance at 250g–275g (and for chaffy coffees about 230g). I tested this using Brazilian, Nicaraguan and Ethiopian coffees, including hard and soft beans. Unlike typical fluid bed roasters, the batch size can be varied, without ruining the roast. However, varying batch sizes beyond certain limits (those recommended) can result in “unexpected” results on roast times!



Hot air enters the roasting chamber from here and passes through the roasting chamber as shown above



A word about the temperature control, it measures the exit air temperature from the roasting chamber, so of course this will not show bean temperature. As with most other roasters (home and commercial), it's important to not think of it as an absolute temperature, but rather an indicator of thermal energy that's being applied to the roasting beans.

- The main method of heating the coffee in the Gene Café is convection
- A small amount of heating will come from conduction via the metal and Pyrex of the roasting chamber

The first method is largely why the temperature measurement is not a great indicator of what's going on in the coffee, but a better indicator of the energy being supplied to the coffee during the roasting process. However, unlike many roasters, the temperature of the roasting process within the Gene Café roasting chamber can be varied **extremely** quickly (especially reductions in temperature). I stress this point because it is unusual to be able to do this and it can give a skilled user a great degree of control over the roast (should they want to make the effort).

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Roasting Performance – cont.

So to some figures:

- *Ambient temperature 11C*
- *Coffee: Brazilian Santos (COE)*
- *Weight of Green Coffee 250g*
- *Roast type – Medium Dark roast*
- *Roaster temp setting at start – 250C (lowered later in the roast)*
- *1st crack 13m 50s*
- *2nd Crack 16m 05s*
- *Total roast time 16m 10s*
- *Finish weight of roasted coffee 205g (total losses 18%, coffee loses weight when roasted in any roaster)*

The above is just an example of a single roast, where I wanted to see what the machine could do. I have done many roasts with different batch sizes from 230g to 300g, all roasted well, evenly and with good roast times. These varied from approx 15 min for a light roast through to 18.5 min for a dark roast.

“The Gene Café gives a high level of control over the roast profile”

A roast from the Gene Cafe



Medium Dark roasted Santos, my 1st roast

The pictures were taken under artificial light, using a flash, so colour reproduction and general lighting were less than ideal.

The instructions within the user guide for the Gene Café are excellent for general operation, but for the actual roasting itself, better information can be found on the internet as a result of hundreds of hours of owner experimentation.

It's hard to generalise on what's the best way to roast in the Gene Café because process of roasting coffee in any roaster is affected by so many variables

- *Ambient Temperature (and possibly voltage)*
- *Humidity (mainly of the bean)*
- *Type of bean and processing (soft, hard, dry process, wet process, decaff etc.)*
- *Roast level and profile desired*
- *Weight of coffee being roasted*

A reasonable newcomers “profile” might be to ramp up the temperature fairly rapidly by setting the temperature to 240C–250C (depending on the coffee). At 1st crack, allow 30 seconds to a minute or so, then lower the temperature to 230–235. This allows the coffee to continue 1st crack without stalling, and then gives a short period (2 –4 minutes) before second crack. In the time between 1st crack ending and 2nd crack beginning is when you will want to stop most of your roasts.

Alternatively, bring the coffee up to 200C, hold it there for a few minutes, then increase to 235–240C until 1st crack, hold for a couple of minutes and knock down to 230–235C until the end of the roast.

You can't generalise easily though because the exact temperatures and times depend on variables mentioned earlier. Clearly though, the Gene Café gives a high level of control over the roast profile.

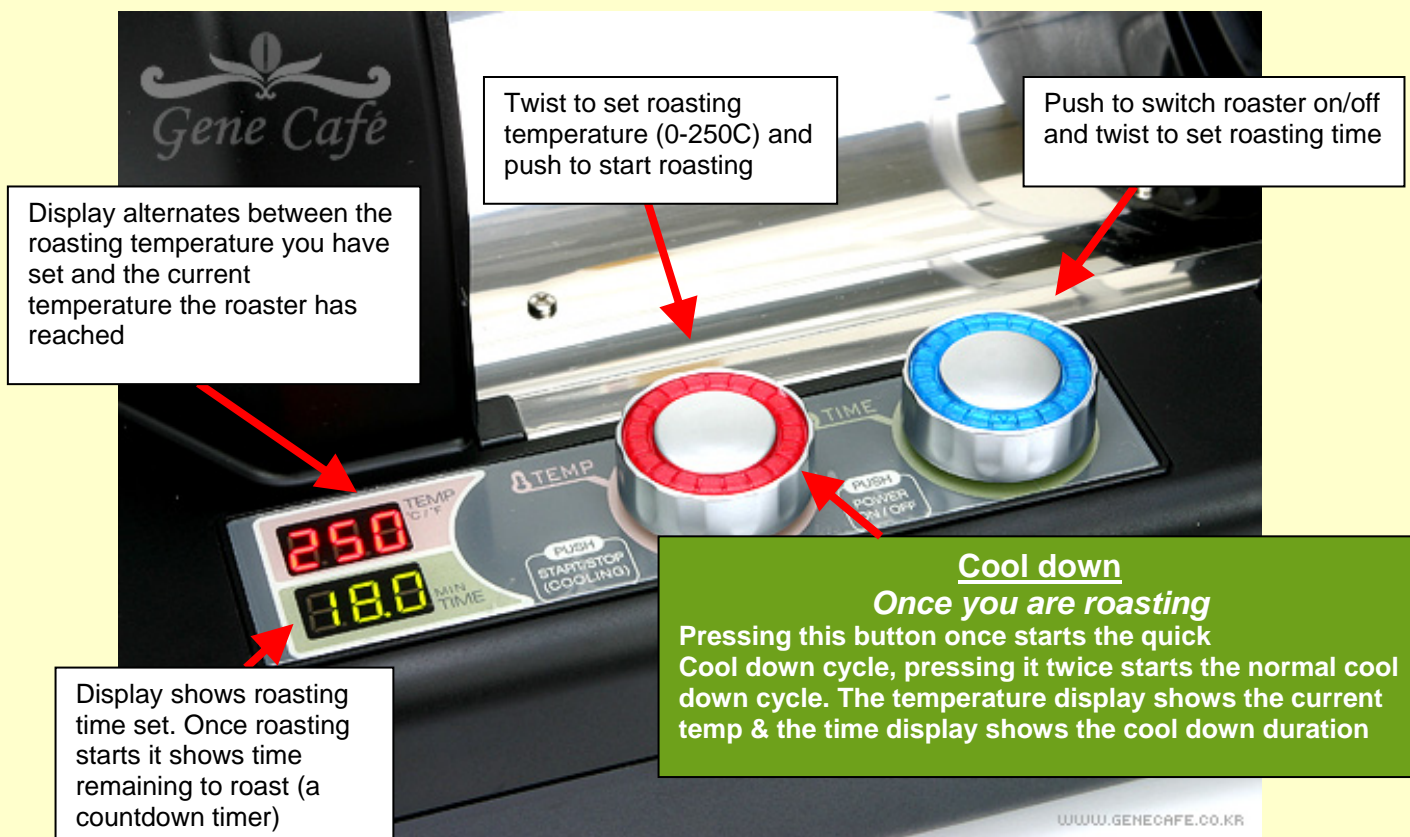
Roasting although easy to get 80% of flavour from a coffee, it's an “art” to get the very best from any coffee. This “art” can be learned and that's half the fun of the home roasting journey.

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The control panel – Looks simple...it is simple and so easy to use!



The main control panel of the Gene Café

The controls for the roaster are very simple and easy to use. There is apparently a digital model due soon, but unless this brings some useful new features, I think the analogue controls are much nicer to use. Definitely a case when less is more, these might be retro, but they have a great tactile feel, and it's very quick and easy to adjust settings.

The time display is a little quirky as it displays minutes and seconds in the format 14.3 for 14 minutes and 18 seconds, or 14.7 for 14 minutes and 42 seconds etc. The minutes are shown normally but the seconds shown as 0.1 to 0.9 (effectively 6 second increments. Once you are used to it, it feels quite normal.

"I found this roaster gives similar performance and taste to the larger commercial drum roasters I have used, but is really easy to use"

Servicing & Maintenance – very little to do

There actually isn't a lot to maintain on a regular basis:

- Clean the roasting chamber after each roasting session. I use a large bottle brush to do this and ordinary detergent
- Vacuum out the chaff chamber after each roasting session again. I use a large bottle brush to do this and ordinary detergent
- There is a reflective mirror finished steel plate under the roasting chamber. I believe this is a reflector to reflect infrared heat energy back to the roasting drum. Although not mentioned in the user guide, I would keep this clean and polished by gently wiping with a micro fibre cloth occasionally.
- Wipe the machine down with a damp (not wet) cloth now and again

That's about it!

Vital Statistics – Some facts and figures

The vital statistics for the Gene Café are shown below:

Mixing type	Vortex twisting	
Cooling type	Ambient temp. forced ventilation (approx. 10min)	
Heating type	Indirect hot wind (0~23min)	
Heating temp. range	190~250°C	
Temp. control	0~250°C by an electronic thermostat	
Heater cap.	1000Watt	
Power supply	220, 230 or 240V variants VAC/60Hz	
Chamber	Material	Heat-resisting tempered glass tube(PYREX)
	Cap.	300g (max. 350g)
Power consumption	1000 Watt	
Noise	65db (Similar to fridge's noise)	
Dimensions	383 X 243 X 229 (mm)	
Weight	5.5kg	
Colour	Black	
Optional accessories	Chaff collector, smoke eliminating filter, cooler	

- Small Footprint for countertop placement
- 100% electric uses normal electric wall outlet.
- Light weight
- Maximum batch capacity 300g capable of roasting approx 700–800g per hour depending on roast level.
- Excellent view of roasting beans through glass roasting chamber
- Extremely good chaff removal
- Forced air cooling in quick mode can reduce bean temperature to 100C in 3 minutes. Roasting chamber can then be removed

Preparing the machine for use

The roaster comes fully assembled; just a few packing protectors to remove, a quick wash of the drum and you're ready to roast.

Gene Café vs. other roasters – a comparison you will make

In the high end home roaster bracket, without moving to professional machines, **the Gene Café at least holds its own and in many areas exceeds the performance of comparable home roasters costing significantly more.** Anyone considering a home roaster will check forums, read internet articles and make a decision based on these.

I have a fair knowledge and experience of comparable home roasters and some professional machines. It is not appropriate to make direct comparisons, between specific machines and I feel the Gene Café is well able to, and should, be sold on its strengths.

Criteria	Gene Café	Comment
Cost	Currently around £259	Other home roasters of comparable capacity generally cost more than the Gene Café, which represents excellent value for money.
Noise	Fairly quiet, can be harder to hear the 1 st and 2 nd cracks for inexperienced users	Some home roasters are much noisier and a few are very quiet, allowing the cracks to be clearly heard. The Gene Café although not the quietest, is not in any way too “noisy”
View of roasting beans	Extremely good, very easy to see and gauge roast level, especially when between 1 st and 2 nd crack	Much better than other home roasters
Evenness of roast	Very good	Nothing on the market roasts any more evenly than the Gene Café (it's up there with the best of them); even my commercial roaster is not as even!
Chaff removal	Excellent	Chaff removal is pretty much total, more than can be said for many home roasters
Bean cool down	Slow, but adequate	Some roasters are slower, some are faster.
Filters to purchase on regular basis	None	Some roasters can cost you over £250 just for filters over a 3 year period
Sensitivity to voltage fluctuations	Not tested, but thought to be less sensitive	Many home roasters, even quite expensive ones are quite sensitive to voltage fluctuations. The word “Variac” is often associated with home roasting machines. The Gene does not seem overly sensitive to even very high current drain appliances operating on the same circuit.
Build Quality	Very Good	In similar and more expensive price points, the roasters all have very good build quality
Overall Size	Reasonably compact	Similar to other comparable roasters
Ability to control roast	Easy to alter time & temperature any time during the roast, reacts quickly to temperature changes, especially reductions	Most home roasters don't give you anywhere near this level of control.
Built in roast profiles	None, but full manual control is available and feasible	With roasters at comparable price points, the profiles are largely “illusory”; there are some very expensive home roasters on the market, which do have programmable profiles.
Batch Size	Max 300g, realistic 230-275g, very chaffy coffees 230g.	Comparable roasters can roast batches of 250g but usually with very long roasting times (undesirable in flavour terms), 150 or 200g is more realistic with many comparable roasters.
Sensitivity to ambient temperature	Not very sensitive	Comparable roasters seem a lot more sensitive
Roast times	At reduced batch sizes of 230-275 15-18 minutes depending on roast level	Some roasters at similar batch sizes have very long roast times, 19-23 minutes for medium to dark roasts is not unusual (especially in low ambient temps). These extended roasts are not good for flavour
Back to back roasting	1 250g medium dark batch every 22-25 minutes in the Gene	Not generally recommended to do too many on any home roaster, but realistically the Gene totally outperforms comparable and more expensive roasters in this respect.
Ease of clean up	Very easy and quick. Chaff collector does not have to be emptied after each roast.	Most are fiddlier and take longer than the Gene Café.

Gene Café vs. other roasters – cont.

The table above gives a number of areas where the Gene Café can be compared with other comparable and some far more expensive roasters. The more difficult areas are the design and looks. Clearly the Gene Café looks more modern and is a new design. It is not a fluid bed roaster, but rather a hybrid that uses hot air (convection) as the main heating method, whilst tumbling the beans. Design is a personal thing, but for me it looks good and doesn't look at all "dated".

So which produces better tasting coffee?

I have seen it written about some roasters that they produce superior roasts to any other home roasters on the market. For many reasons I am sceptical of this claim. I think that some roasters definitely do produce inferior tasting coffee, but the Gene Café is **not** one of them. Some roasters when loaded to their stated capacity actually produce fairly muted, characterless roasts due to overly long roasting times. This can however be corrected with **significant reductions in batch size**. I found that in some roasters these batch sizes had to be as 150g in very cold weather and 175g possibly up to 200g in warmer weather. **The Gene Café can achieve good roasting times with almost 60% larger batch sizes**

The Gene Café can produce a coffee that tastes as good as far more expensive home roasters, but often at significantly larger batch sizes. Taste comparisons performed on the Gene Café and another popular home roaster showed no significant differences in taste (when appropriate batch sizes are used).

The Gene Café certainly has the potential to do more "profiling" during the roast than most other roasters and the heating power to "deliver". So there is the **possibility** of extracting even better flavours from a wider variety of beans than comparable roasters.

So where does this leave the potential newcomer to home roasting, who will undoubtedly have questions like:

The reviews on the web say something different?

Well everyone reviews from their own frame of reference, most only have access to one roaster

Everyone says the Gene Café is not as good as some other roasters?

Taste tests amongst a number of people have not confirmed this to be true

It doesn't look like a roaster!

So what, it's how it works, not how it looks

The Gene Café is a relative newcomer?

So is this years model of car, doesn't make it worse!

Sure this review is for a reseller of the Gene Café they would say this?

I tried to be impartial, and invited a number of people initially sceptical of the Gene Café, to see it roasting side by side with another comparable roaster (2 of them even owned the roaster we compared the Gene café against). No one thought the Gene Café was inferior, in fact quite the opposite in most areas, including taste.

Fluid bed roasting isn't as good, the Gene is just a fluid bed roaster isn't it

No not really, its prime method of heat is convection, but it's not a true fluid bed roaster

The Gene Café roasts at least as well as other more expensive roasters, but:

- *No filters to buy regularly, can be a significant saving*
- *More potential to control the roast "profile"*
- *Much easier to get the roast level you want when between 1st and 2nd crack, because you can see the beans*
- *Chaff removal is almost 100%*
- *Lot less fussy to use & easy clean up*
- *Taste of coffee roasted in the Gene Café does not seem inferior in any way*

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Why buy a Gene Café?

The benefits of an electric Roaster

The gene Café is very easy to use and you don't have to experiment with different "profiles" if you don't want to. If you are prepared to experiment though, your roasted coffee will taste even better.

A temperature controller means you don't constantly have to watch and control the temperature and at the end of the roasting time you set, the Gene Café will automatically enter its cool down cycle and then switch itself off. However, with ANY home roaster, you should never leave them unattended.

Its performance is not far short of larger and more expensive commercial roasters. In fact current mass production of roasted coffee often emphasises quantity over quality.

"As a nation we have forgotten what really good coffee tastes like, I hope like me, you discover for yourself how good it tastes"

I have no doubt that this could be used in some restaurants or mobile or mobile catering trailers, if you wanted to offer your customers something special in small quantities (although not intended as a commercial roaster). The roaster also looks impressive when operating, because of the clear view of roasting coffee, together with the distinctive smell.

Bella Barista – an authorised Gene Café distributor in the UK & Ireland

You have the security of dealing with a UK company and enjoy all the protections and safeguards that this offers. Bella Barista and its parent company Time Leisure have over 20 years experience in dealing with commercial catering equipment. This experience will be invaluable in ensuring your Gene Café continues to perform impeccably throughout its service life and is well supported from within the UK.

Why buy from Bella Barista?

They are small enough to care, big enough to do things properly and able to offer additional benefits at no extra cost to you. Please see the web site for latest offers and benefits from buying your Gene Café through Bella Barista

Why bother home roasting?

There are a lot of reasons to go to the relatively small amount of trouble to roast your own coffee. It may seem unusual to do this, but it was actually quite common in the past, to be able to get freshly roasted coffee on the high street and many stores had coffee roasters. It's not much harder than grilling a beef-burger, but the rewards are so much higher.

Coffee should ideally be drunk from 2-10 days after roasting, in practice it is impossible to obtain fresh coffee on the high street and the costs of postage can make ordering on a regular basis relatively expensive. It is also possible to enjoy a much wider variety of coffees than you may have realised existed, from, Sumatrans, Ethiopians, Brazilians, Indonesians, or special blends you create yourself.

And the taste of "fresh" and I mean really fresh coffee, cannot, absolutely cannot be surpassed. Once you start home roasting it is unlikely you will ever buy coffee from a shop again and probably won't enjoy visits to popular high street coffee shops any more.

As a nation we have forgotten what really good coffee tastes like, I hope like me, you discover for yourself how good it tastes.

Oh....and I'm keeping this Gene Café, I have a Toper commercial roaster, but I was impressed with the Gene Café and for my own personal roasts, it's simply more convenient!

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