

Coffee Grinder Project  
for **Arzum**

**Bora Sen**

DESIGNUM

*arzum*

Brief

In this project I have designed an electrical coffee grinder for Arzum which is a home appliance company based in Istanbul Turkey. My aim was to design a coffee grinder which costs low, practical, aesthetic, grind as small as Turkish coffee, and its able to grind coffee for various types of coffee brewing techniques.

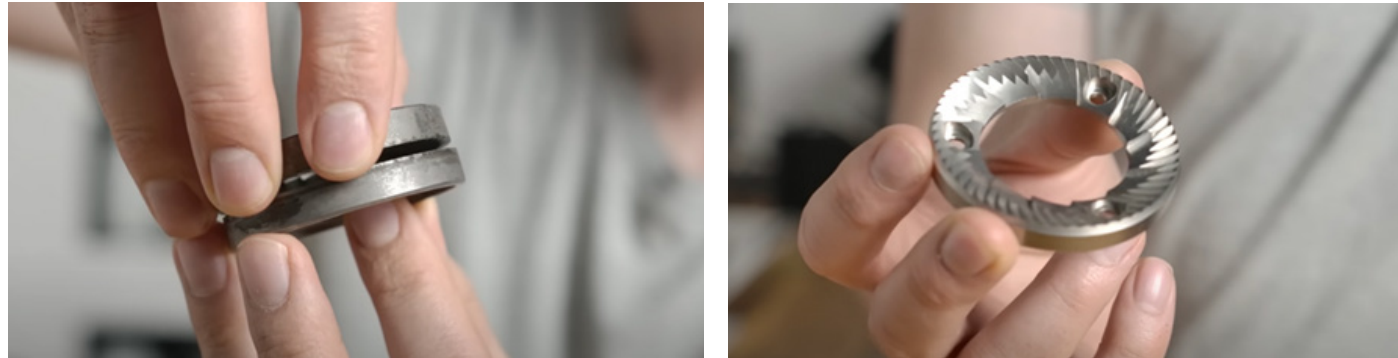
This grinder can grind upto very small granules like Turkish Coffee very easily by the help of powerfull motor and 64mm flat burrs.

I have tried to follow the design aesthetic of Arzum Okka Series products while adding new design elements and using different materials than the previous products.

Research



The grinding process can be in 3 different mechanical ways in coffee grinders: The first one involves two cutting discs one spins against the other. When the user changes the distance between those discs the finer or bigger pieces that they get.



The second grinder is the conical burr grinder which has a conic shaped burr. The conical burr grinders are often desired more because of the larger surface area of the cutting surface thus the amount of time needed for grinding is less.



The last one is the blade smashing. It is essentially spinning dull blades smashing the coffee beans into pieces. With the grinders that use this process the user can not change the grind size thus it is not ideal for grinding coffee beans for different coffee types.



### 3 types of coffee grinders exist:

The first one is the manual coffee grinders which requires physical work by the user and the output is relatively worse than the other electrical coffee grinders. The output of the manual coffee grinders generally has a bad grind uniformity. The uniformity of the coffee is the consistency of the size of the output coffee from a grinder and it is a very important aspect of grinding coffee beans.

Second type of coffee grinder is the electric blade coffee grinder which has the disadvantages of blade smashing technique. On the advantages side, the grinder is electrical thus it does not involve physical contribution by the user, and it is quicker comparing to manual grinders.

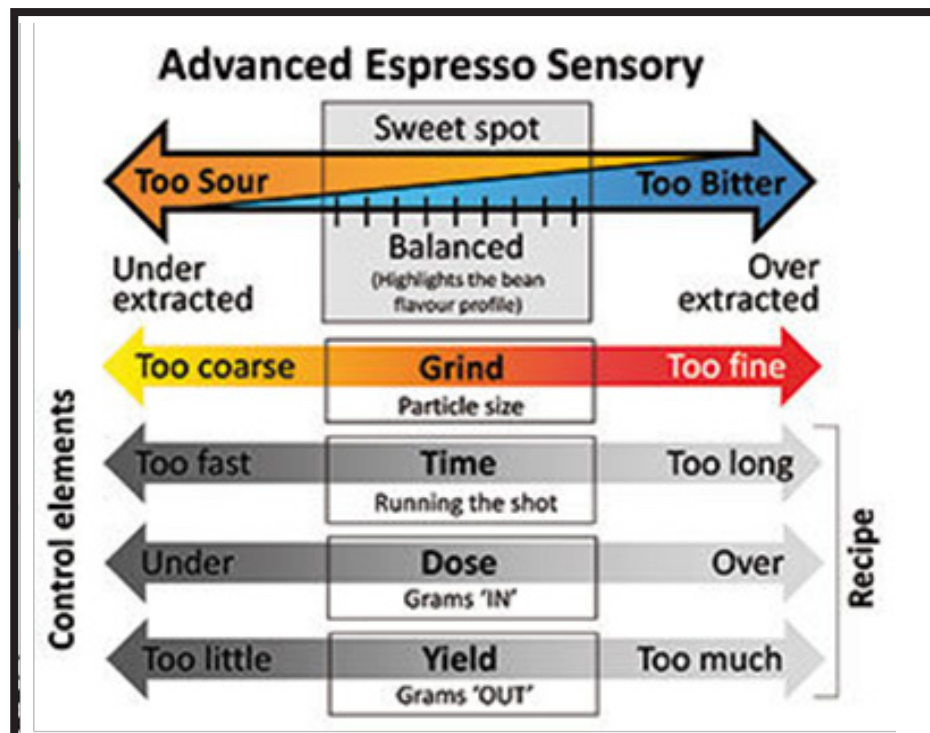
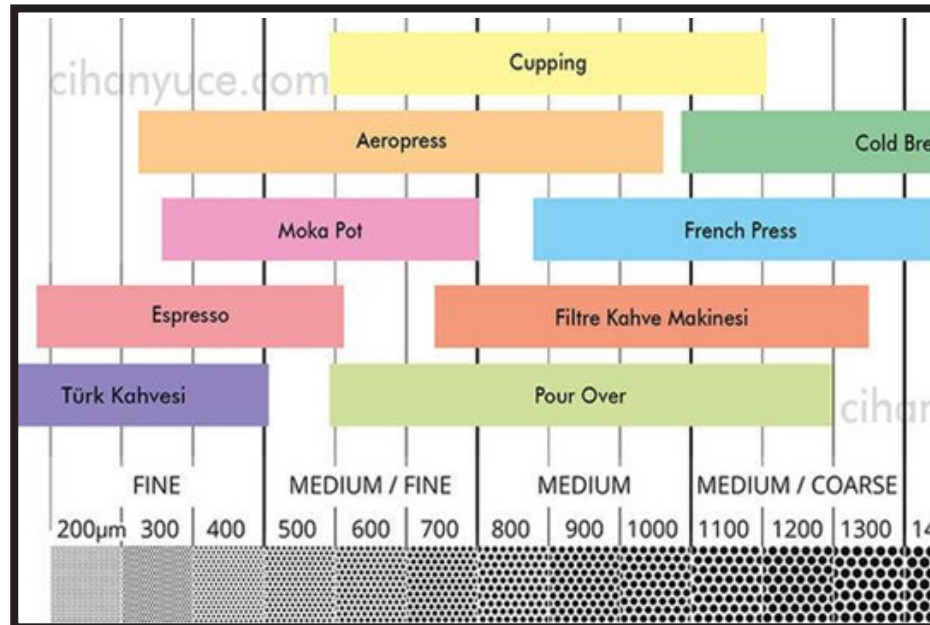
The last coffee grinder type is the electric burr coffee grinder which can be using the conical burr grinder or the two cutting discs for the grinding process. This grinder type is the best for achieving better uniformity, much easier to use and faster than the manual grinders. Also, the user can change the sizing of the coffee grinding.



Retention of the coffee grounds is very important aspect of coffee grinding. The electrical burr coffee grinders have some left over grounds inside the mechanism which needs to be retained because when the user wants to grind the coffee beans for a different type of coffee the past coffee grounds inside mixes with the new and freshly grinded coffee thus resulting in unbalanced sizing and flavour on the output.



### Grind size for different coffee types:



75/150 microns – Turkish Coffee  
300/450 microns - Espresso  
900/1100 microns – French Press  
Totally, min 75 – max 1100 microns

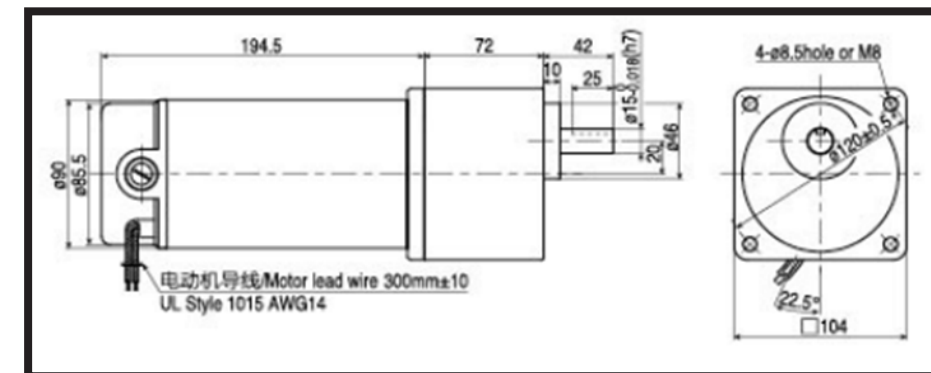
Single dose Turkish Coffee: 7 grams  
Single dose Espresso: 7-8 grams  
French Press: 1:12 coffee-to-water ratio. Ex: 350 grams of water, 30 grams of coffee

**Motor:**

Turin DF64 / Mazzer Mini:

RPM:1400 250Watts 100~120V or 220~240V

The motor is also quite powerful at 250 watts. I have tested it with SSP Multipurpose burrs (more about those later in the post) and it had no problem running the burrs, even at Turkish level settings.



250W 90mm DC Motor									
Model	Voltage	Power	No-load Parameters		Load Parameters			Brush Life	Motor Weight
			Speed	Current	Speed	Torque	Current		
		V	W	r/min	A	r/min	mN.m	A	H
<a href="#">L55D250-24</a>	24	250	3400	3.0Max	3000	796	16.0	2000	3.2
<a href="#">L55D250-90</a>	90	250	3300	1.2Max	3000	796	4.2	2000	3.2
<a href="#">L55D250-220</a>	220	250	3300	0.9Max	3000	796	2.2	2000	3.2

### Other Motor Option:

110~120V 60Hz 150W RPM: 330

## Conclusion:

64mm Flat Burr – Company: ITALMILL

RPM:1 400

250Watts

100~120V or 220~240V

Maximum coffee bean funnel capacity: 50grams





# Market Research



DF64 Coffee Grinder V4



Baratza Sette 270



ARCO 2-in-1 Coffee Grinder



Eureka Oro Mignon





Niche Zero



Fellow Ode Brew Grinder

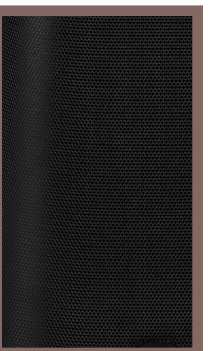


Eureka Mignon Specialita



# Arzum Design Idenity and Products







# Mood Board







User Persona

Kenan Demircan



About

Kenan is an architecture who lives at Istanbul. He wakes up at 6.30 AM every morning and drink his first coffee at 7.10AM. He goes to the office every weekday. He likes to spend his free time at the coffee shop with his friends and family. He drinks 2 to 3 cups of coffee every day.



Favorite Brands



Motivations

He wants a better, more fresh and high quality coffee making and consuming experience.



Coffee Type Preference

He enjoys drinking Turkish Coffee but he occasionally drinks filtered coffee too.



Concerns

He is very busy during day time so he do not want to spend so much time or effort on grinding and making the coffee. He gets worried about not being able to grind the coffee at the correct size for the coffee type he is going to make. He wants a grinder that can grind for Turkish Coffee.



Selin Taş



About

Selin is a small coffee shop owner who lives in Izmir. He wakes up at 7 AM every morning and he goes to her coffee shop at 8 AM. She has a recently opened small coffee shop thats why she has to make the coffee for the customers by her self. She prepares dozens of coffee daily. She likes to spend her free time watching tv series and running.



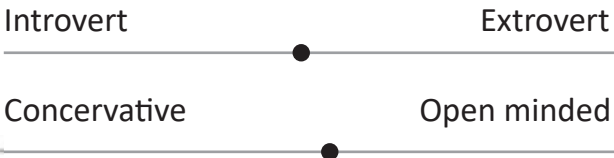
Motivations

Having a practical, fast and easy coffee grinding experience. She wants a grinder which can grind for all types of coffee. She preferes a relatively smaller and minimalist designed grinder.



Coffee Type Preference

She is a consistent french press drinker but sometimes she drinks cold brew too.



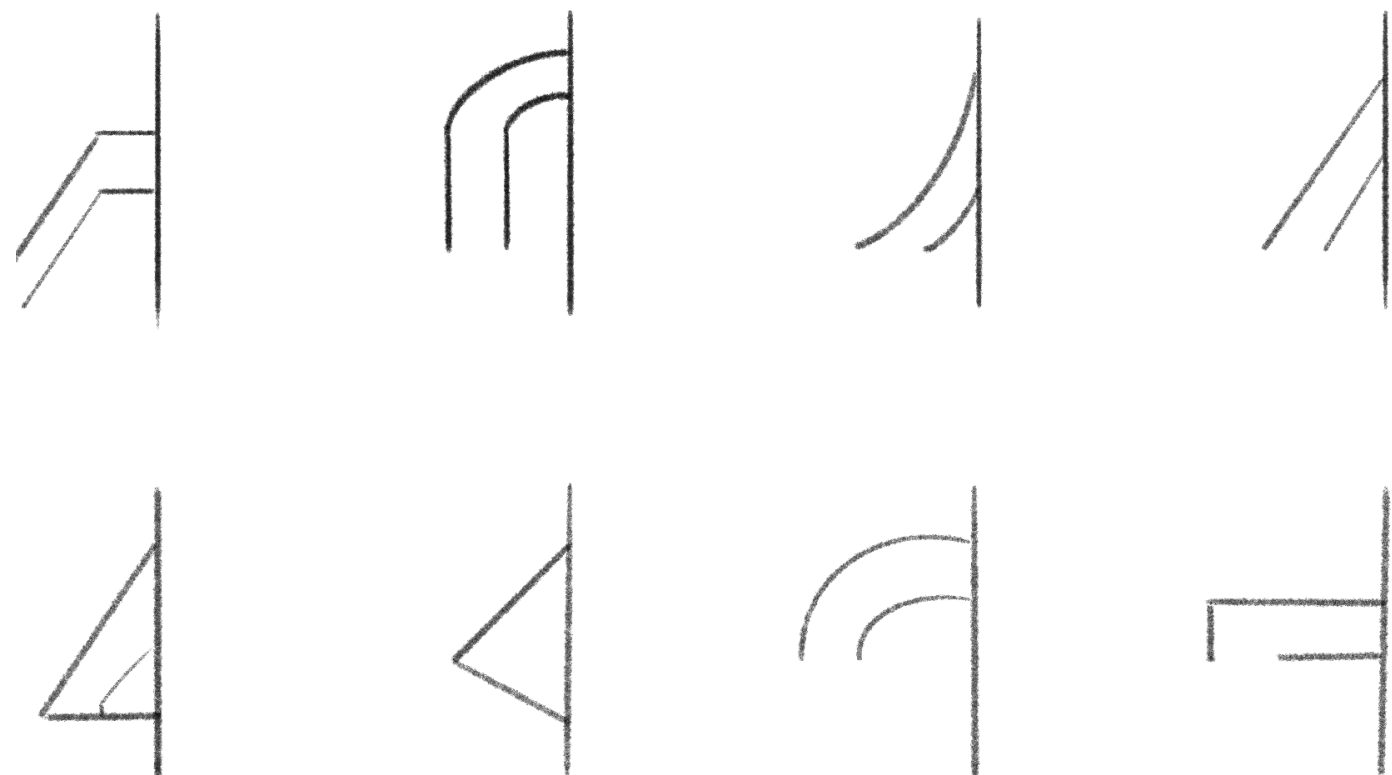
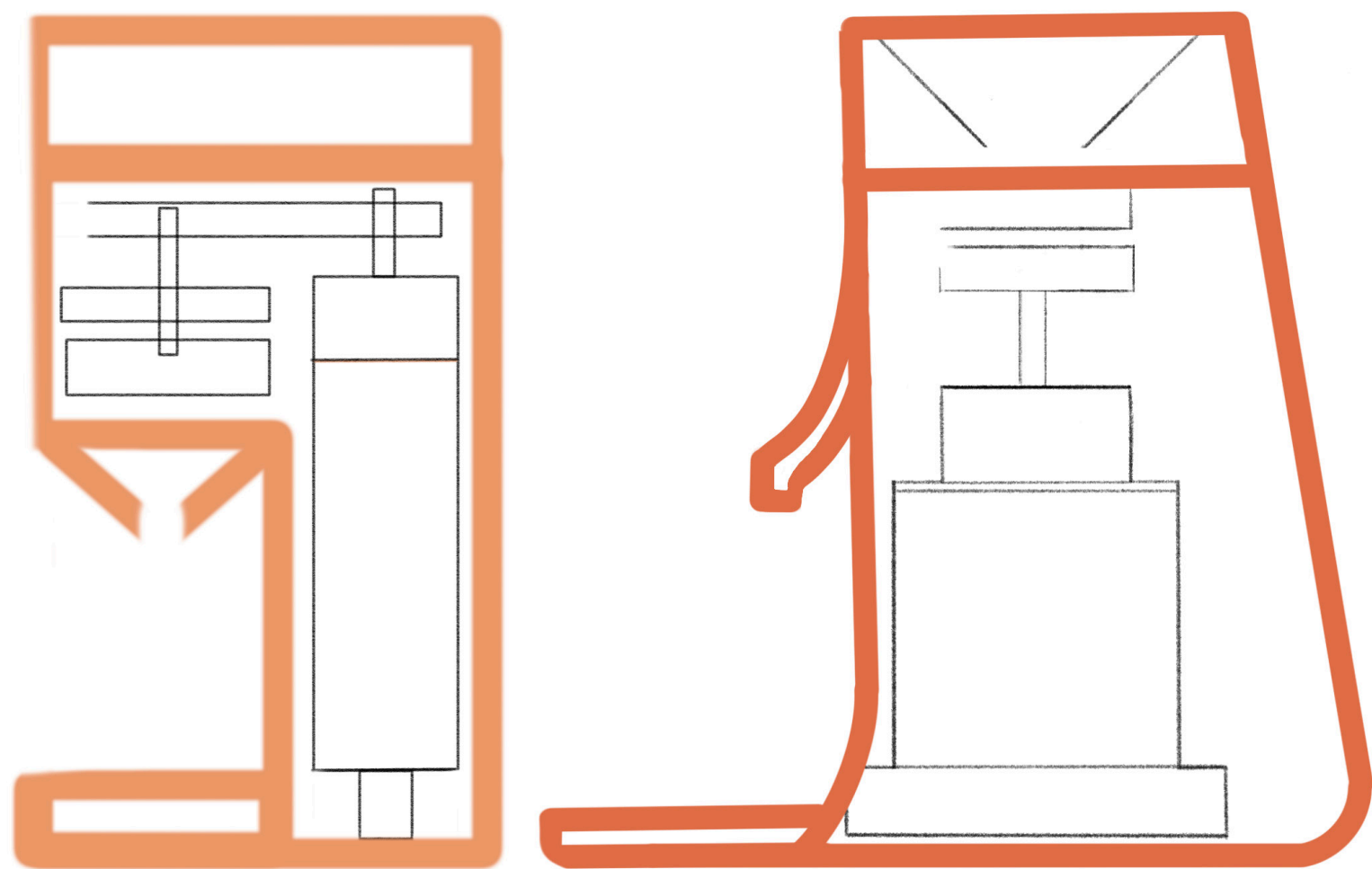
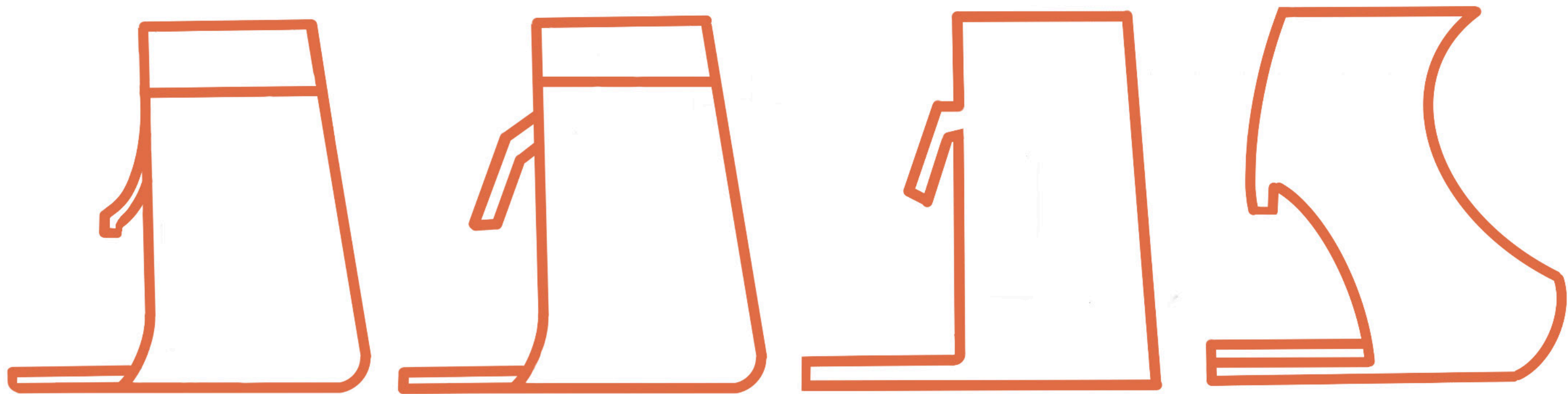
Favorite Brands



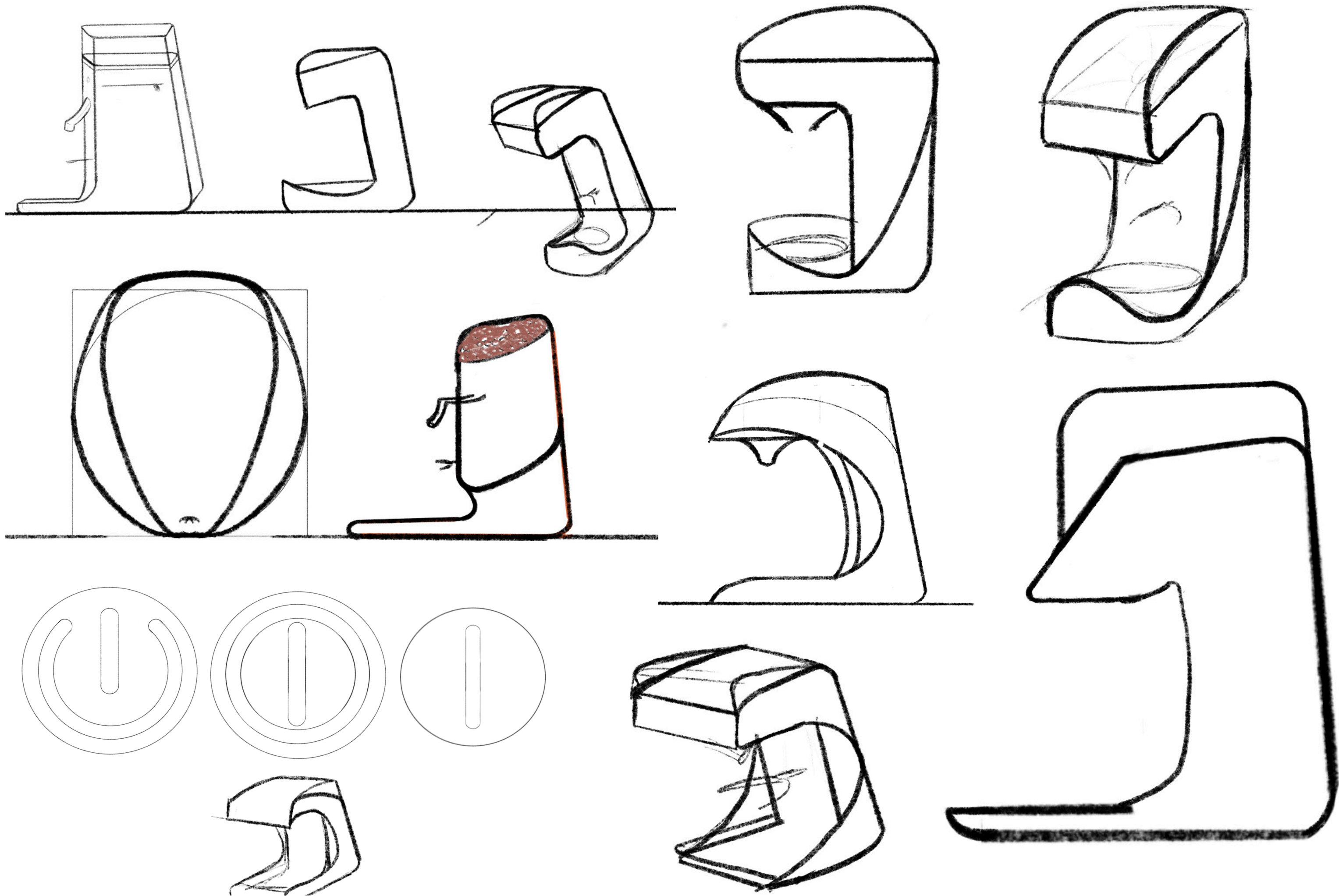
Concerns

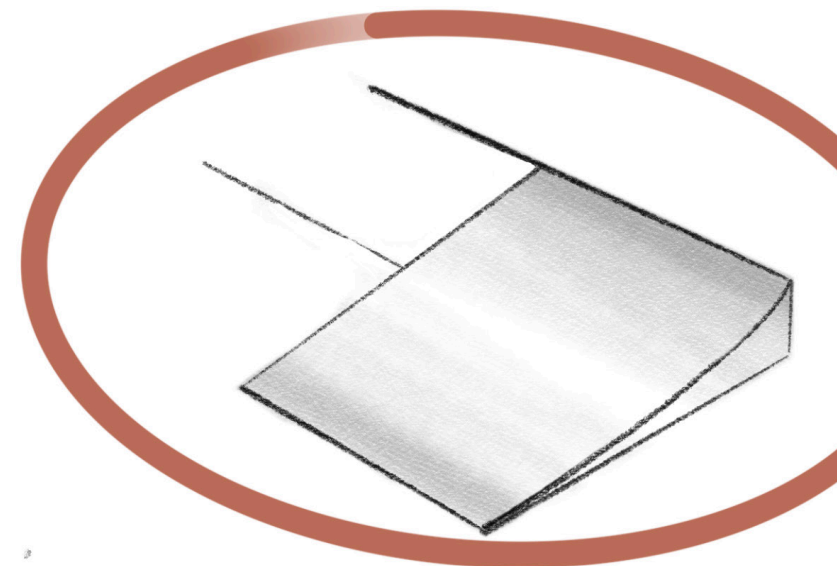
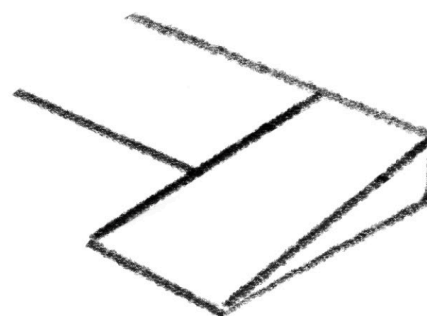
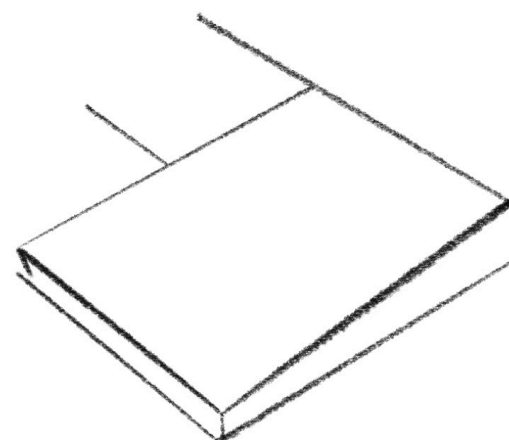
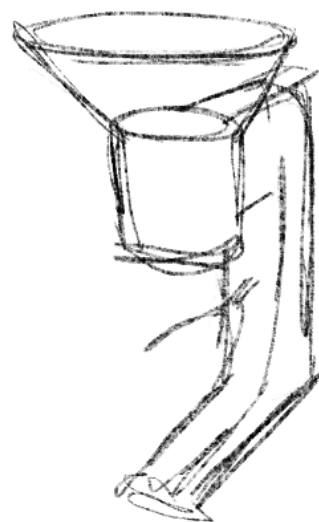
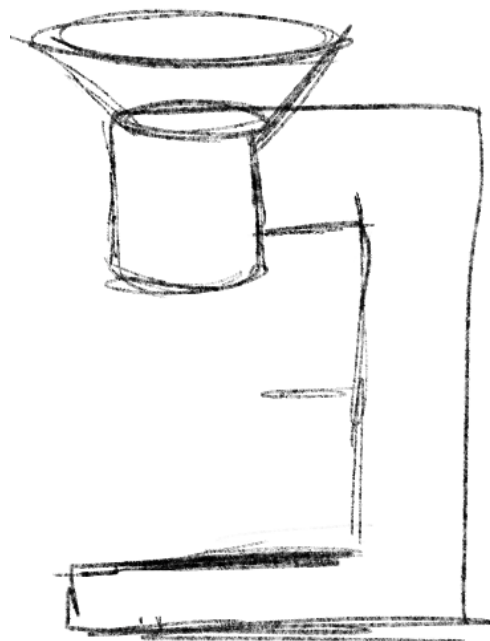
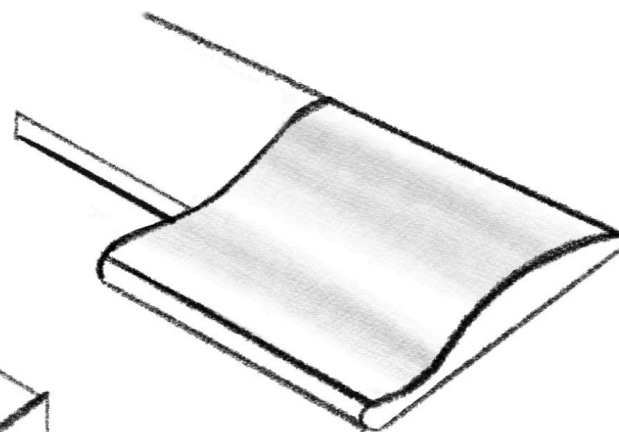
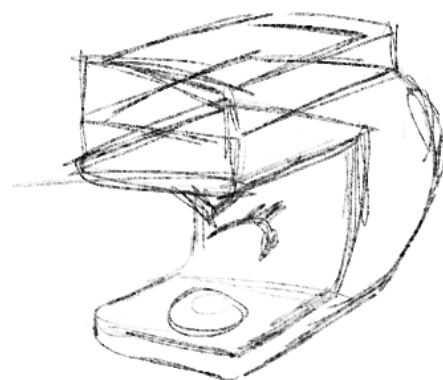
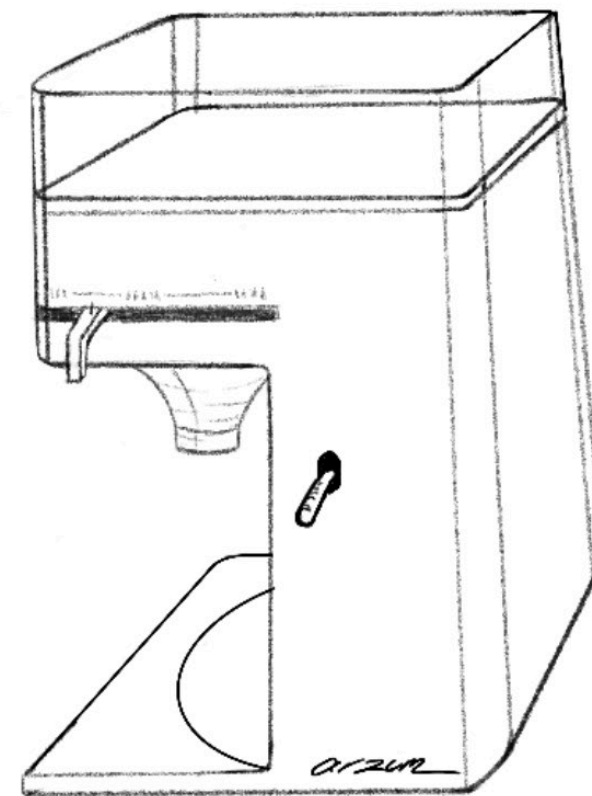
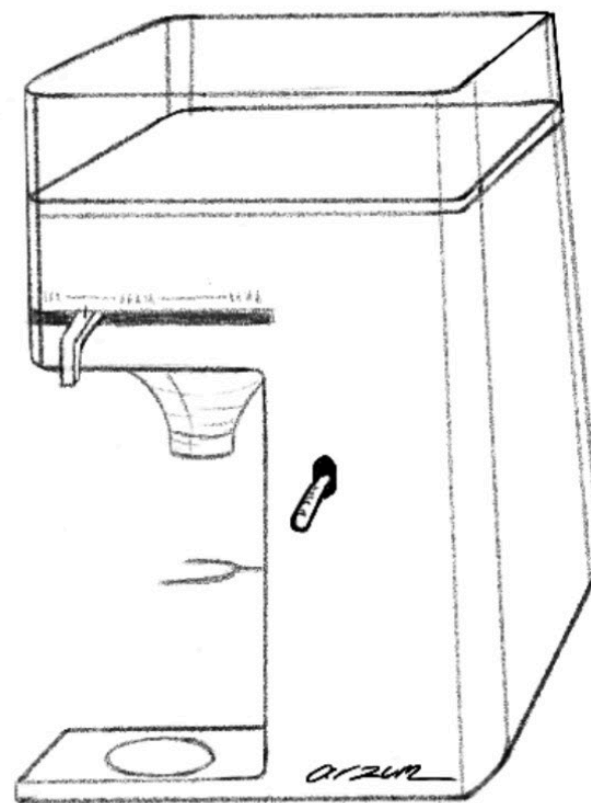
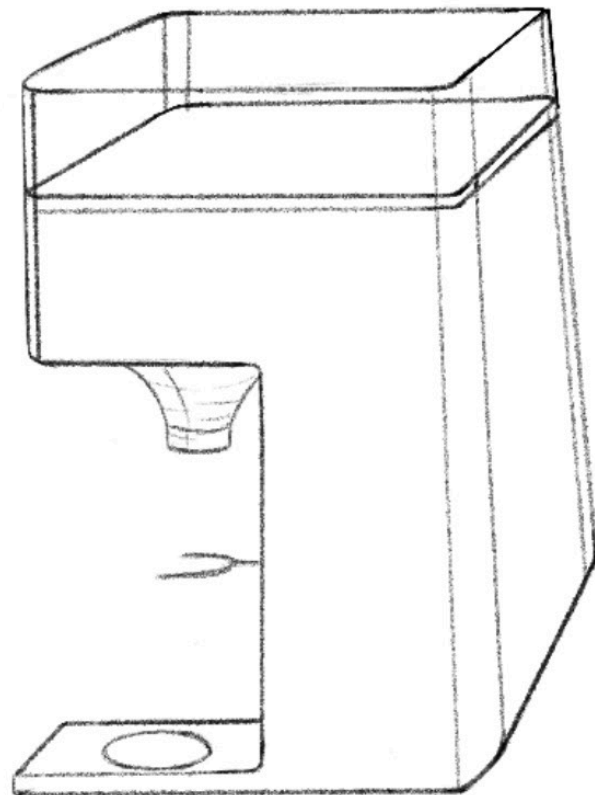
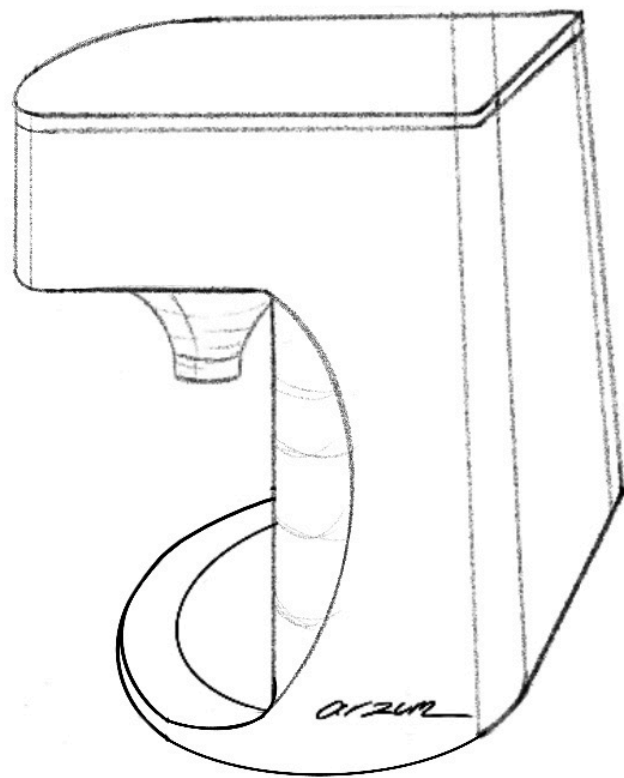
She is worrying about the built quailty and the user experience aspect of the grinder. Also, she wants a powerfull grinder thats why she has a fear on buying a rele-tavily smaller coffee grinder.

Sketches

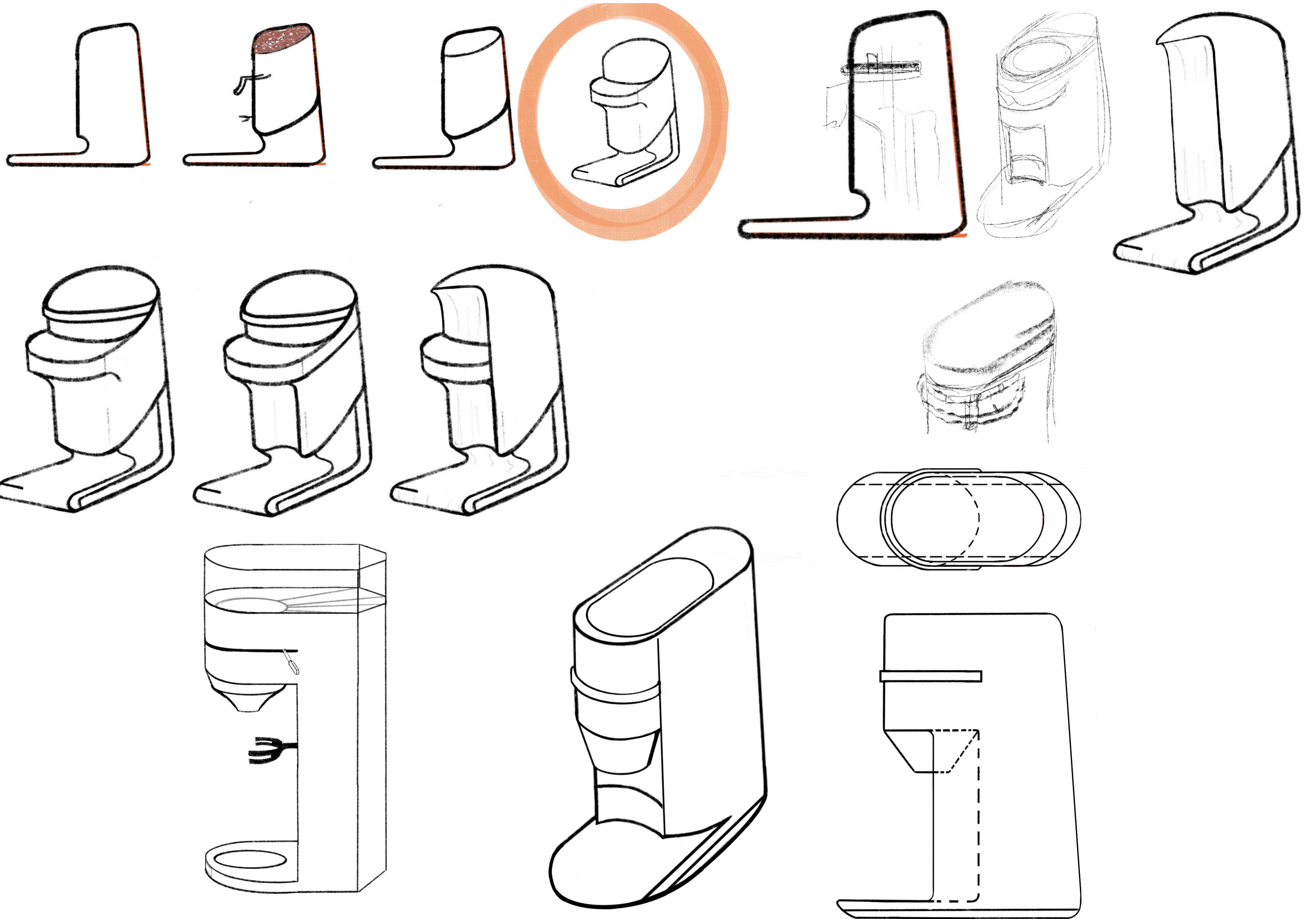










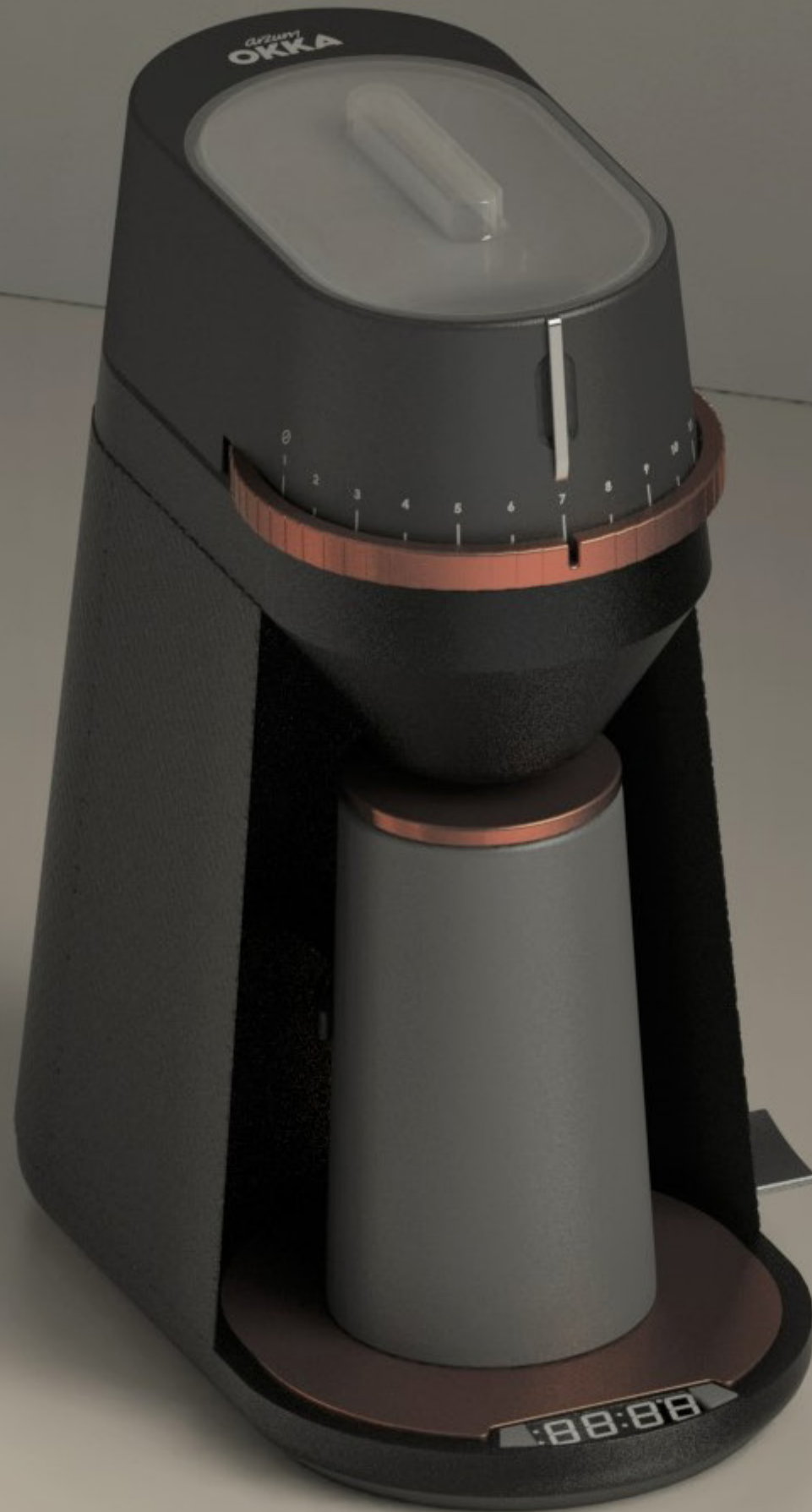




Hero Shot

*Arzum*

Arzum OKKA OGUT











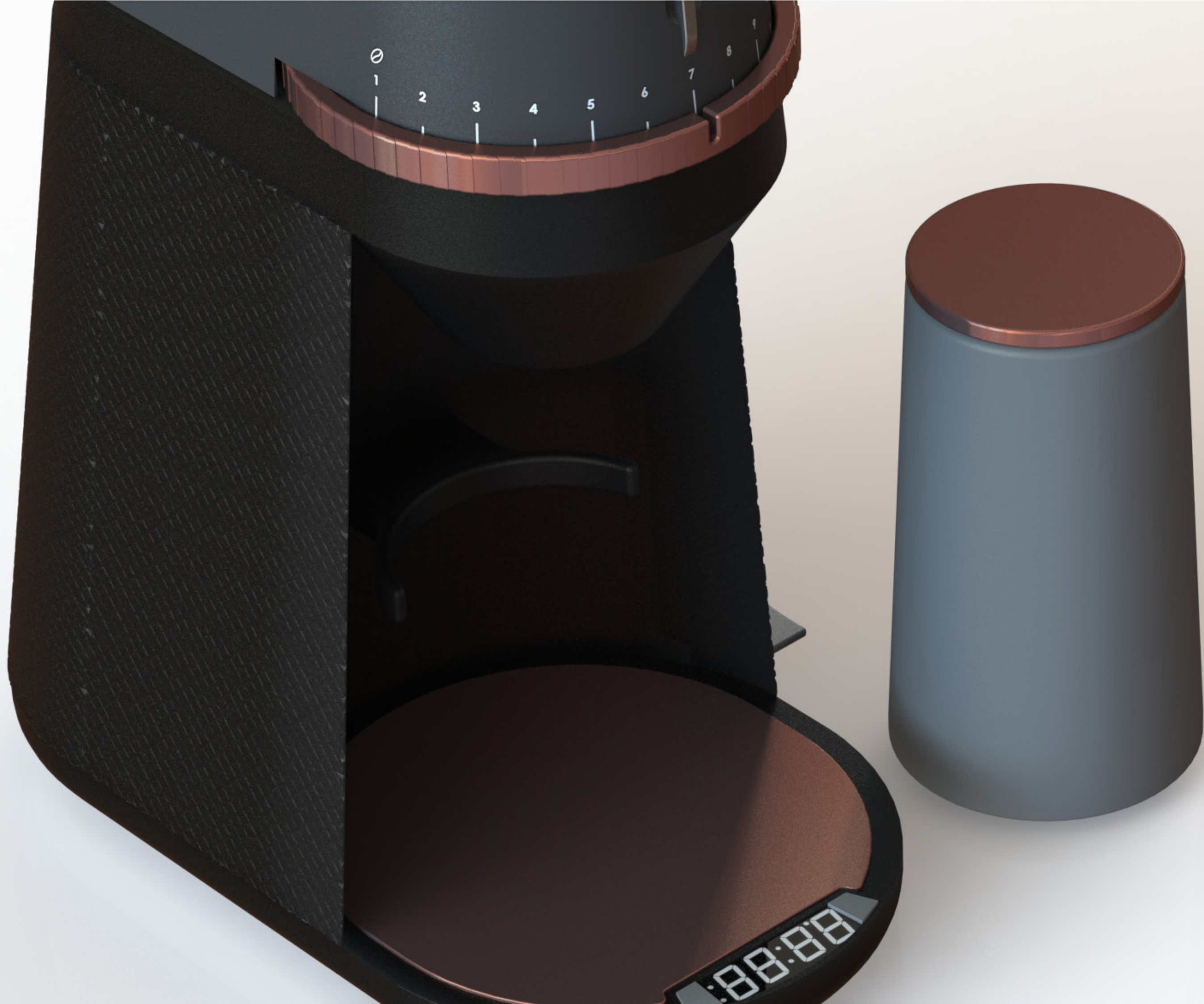


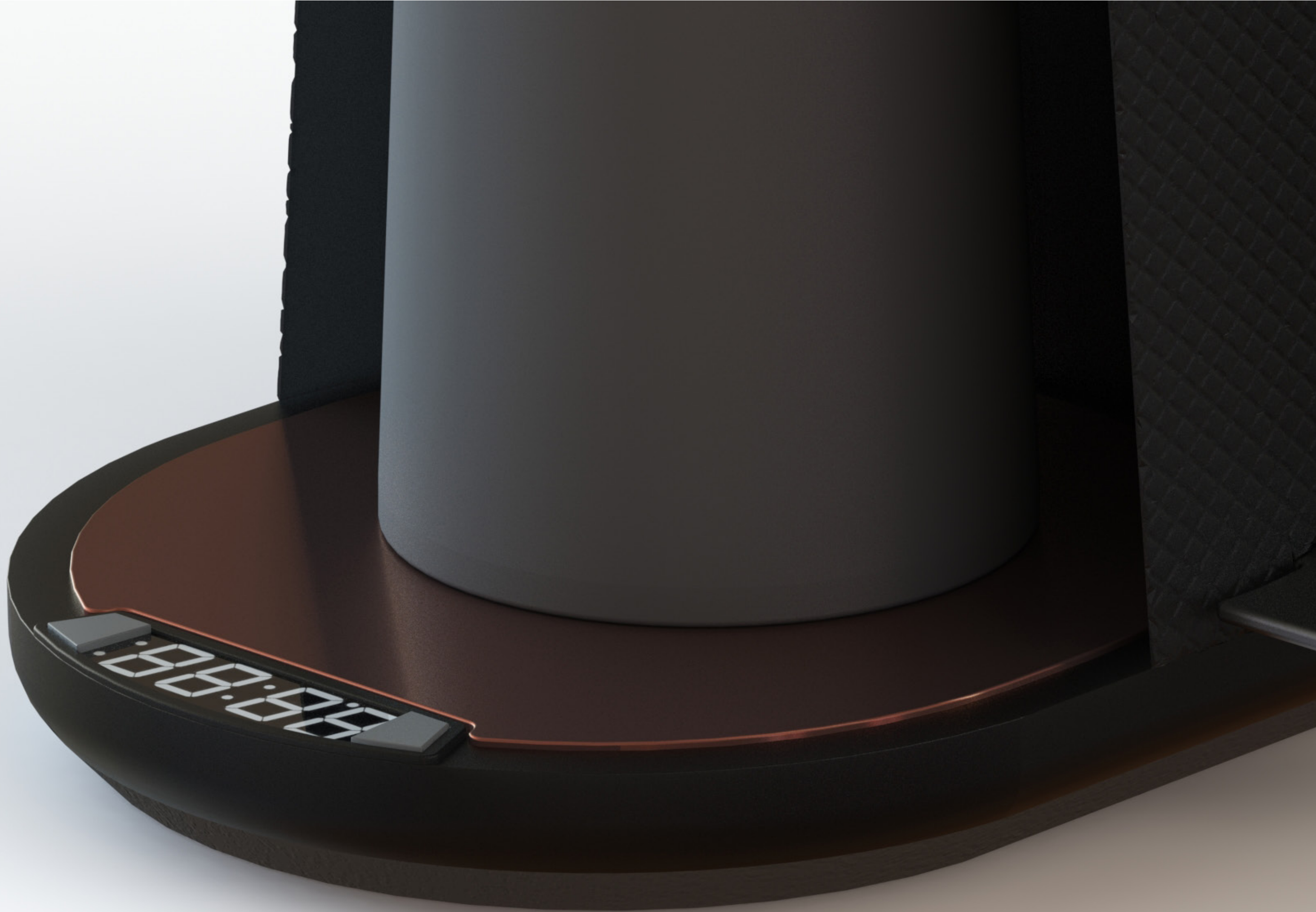








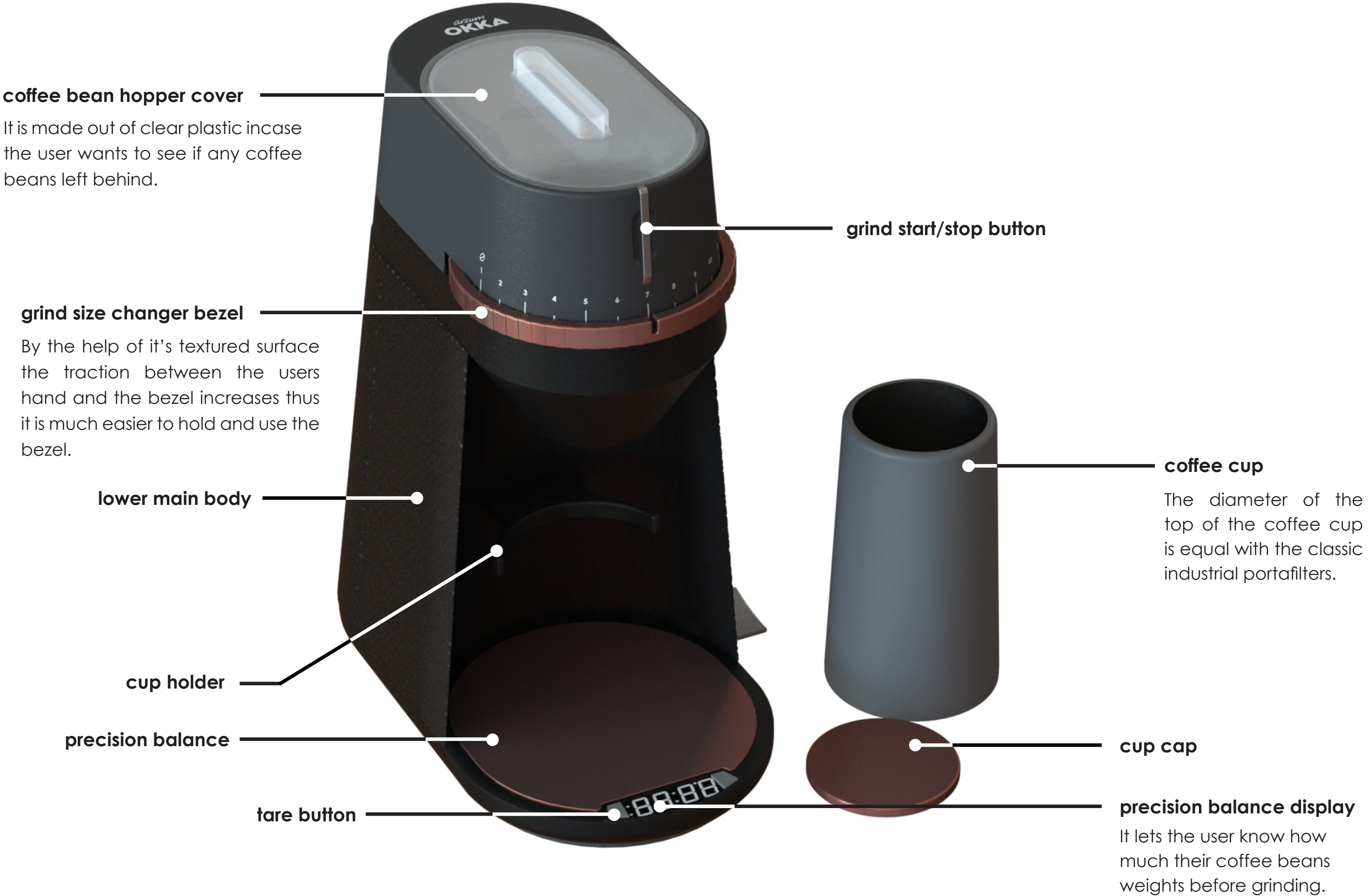


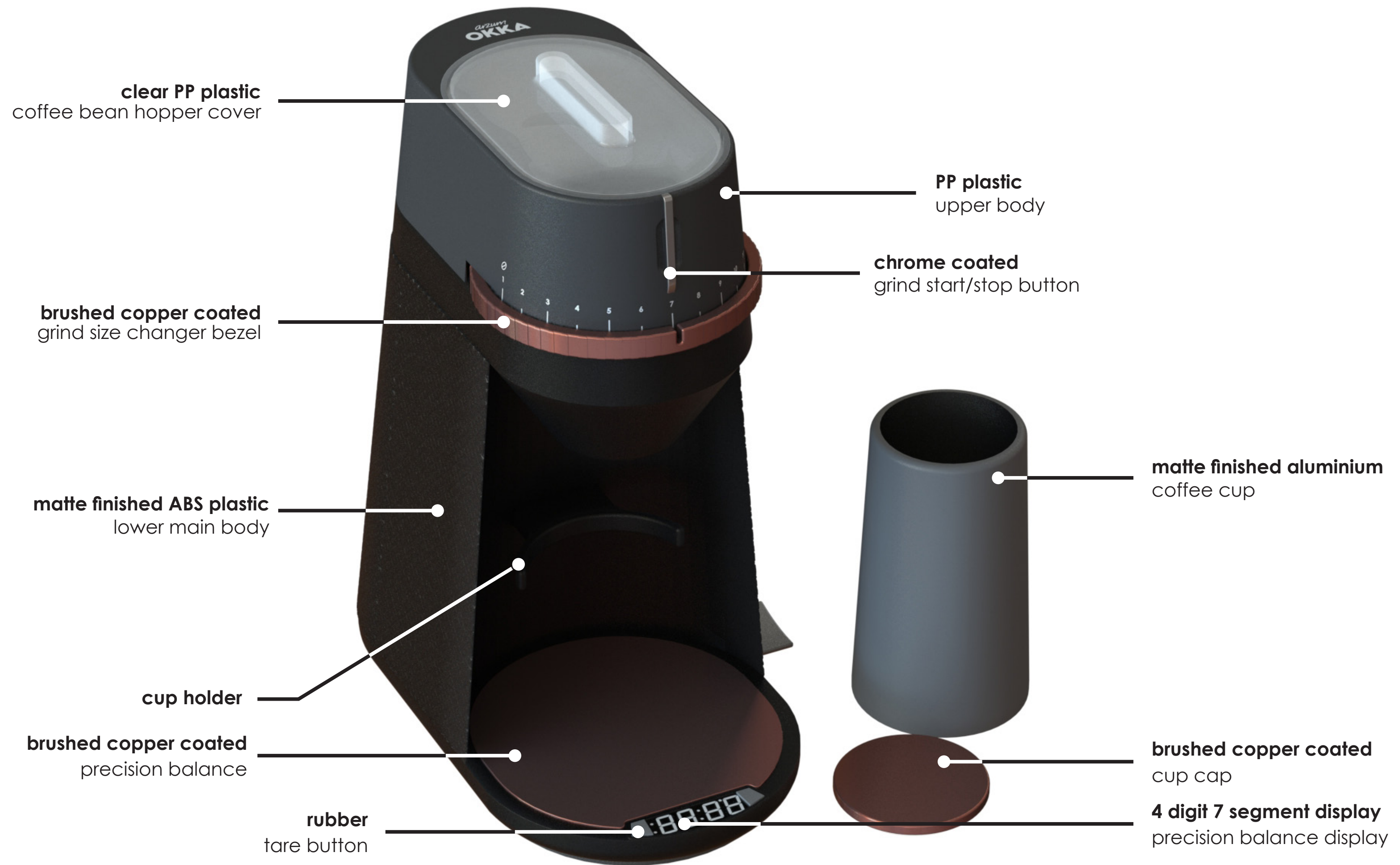






Properties







### coffee grind setting sign

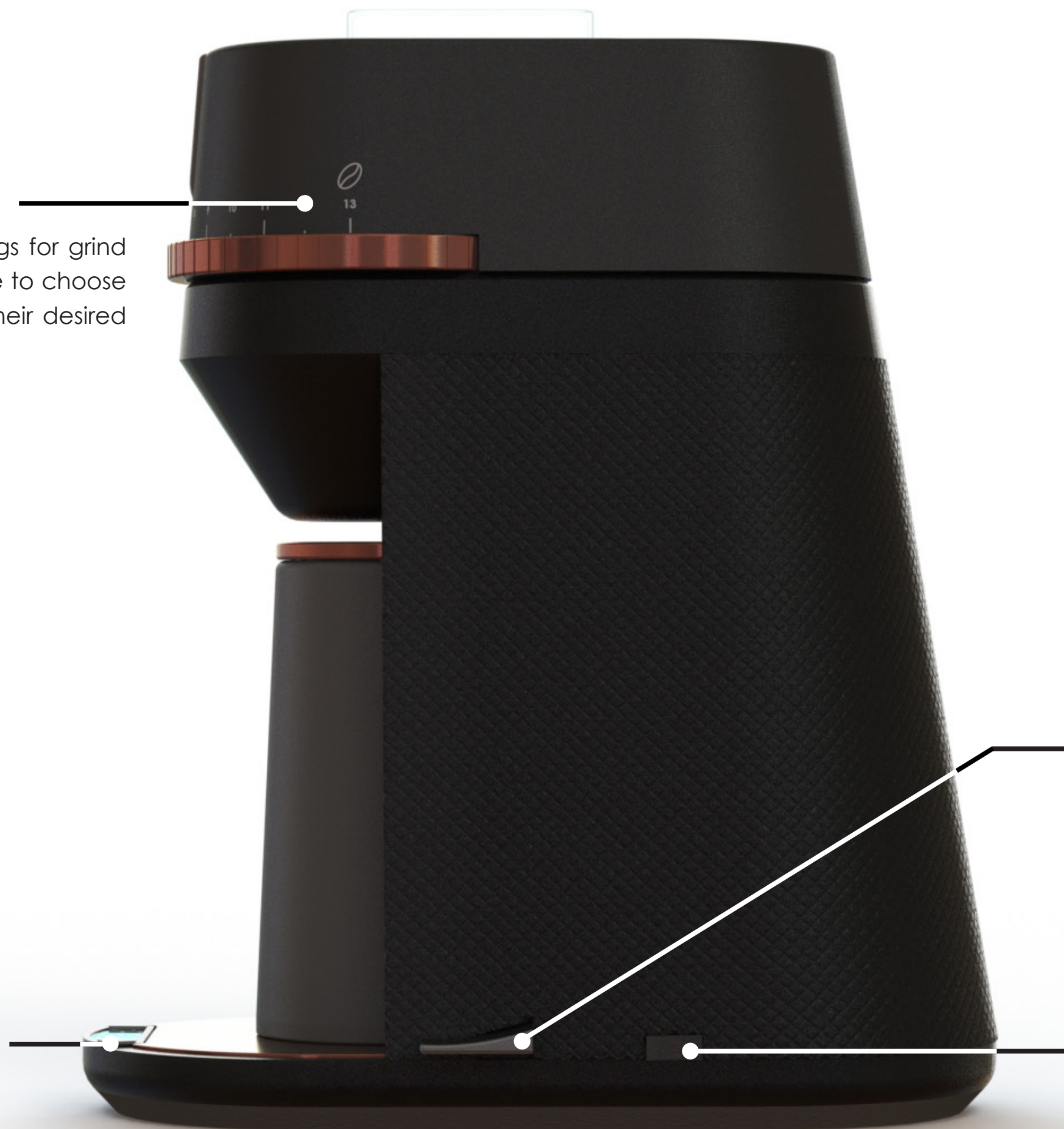
There are 13 different settings for grind size selection. The user is free to choose any of them regarding to their desired coffee brewing type.

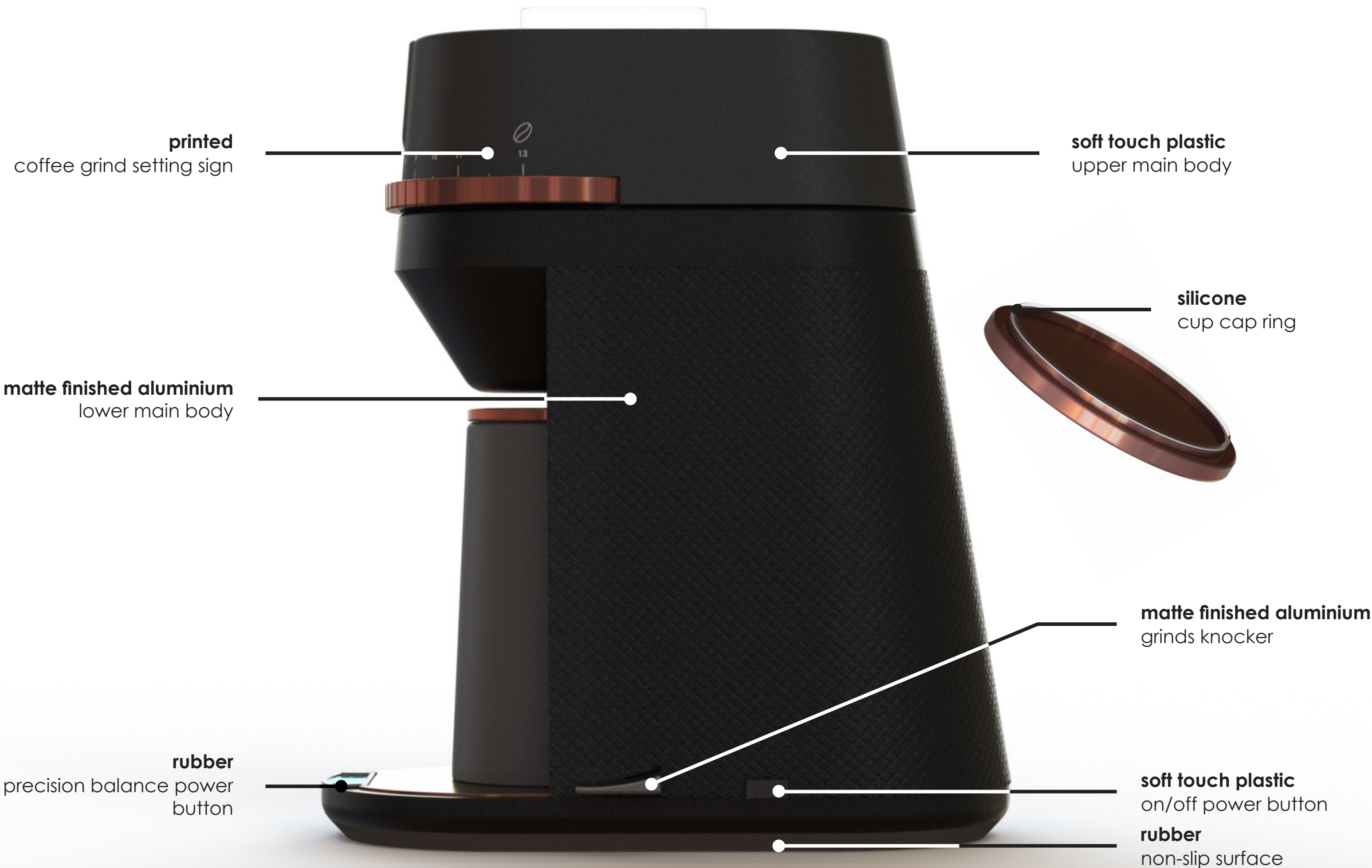
### precision balance power button

### grinds knocker

This knocker is for lowering the retention of the grinder by knocking this knocker which leads to the fall of coffee granules.

### on/off power button





**printed**  
coffee grind setting sign

**soft touch plastic**  
upper main body

**matte finished aluminium**  
lower main body

**silicone**  
cup cap ring

**matte finished aluminium**  
grinds knocker

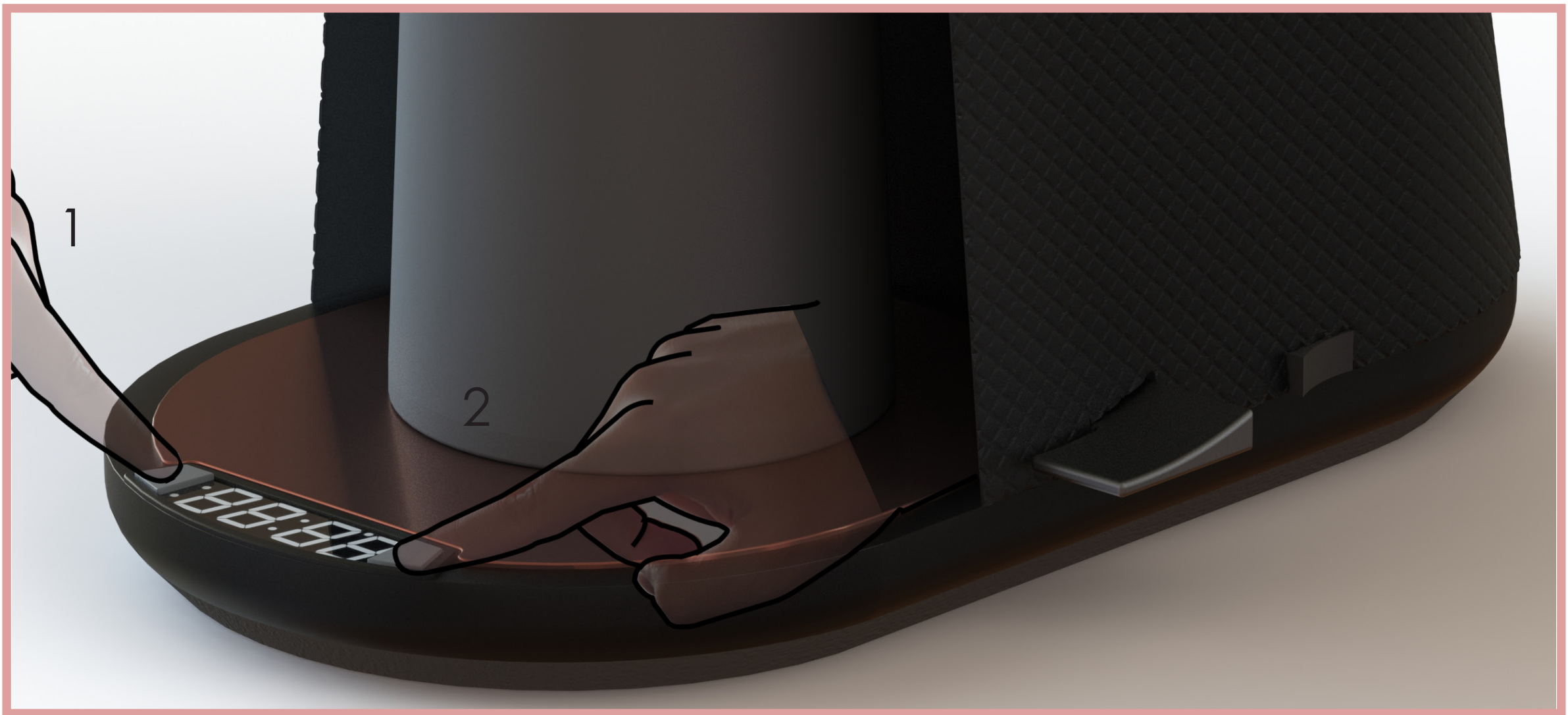
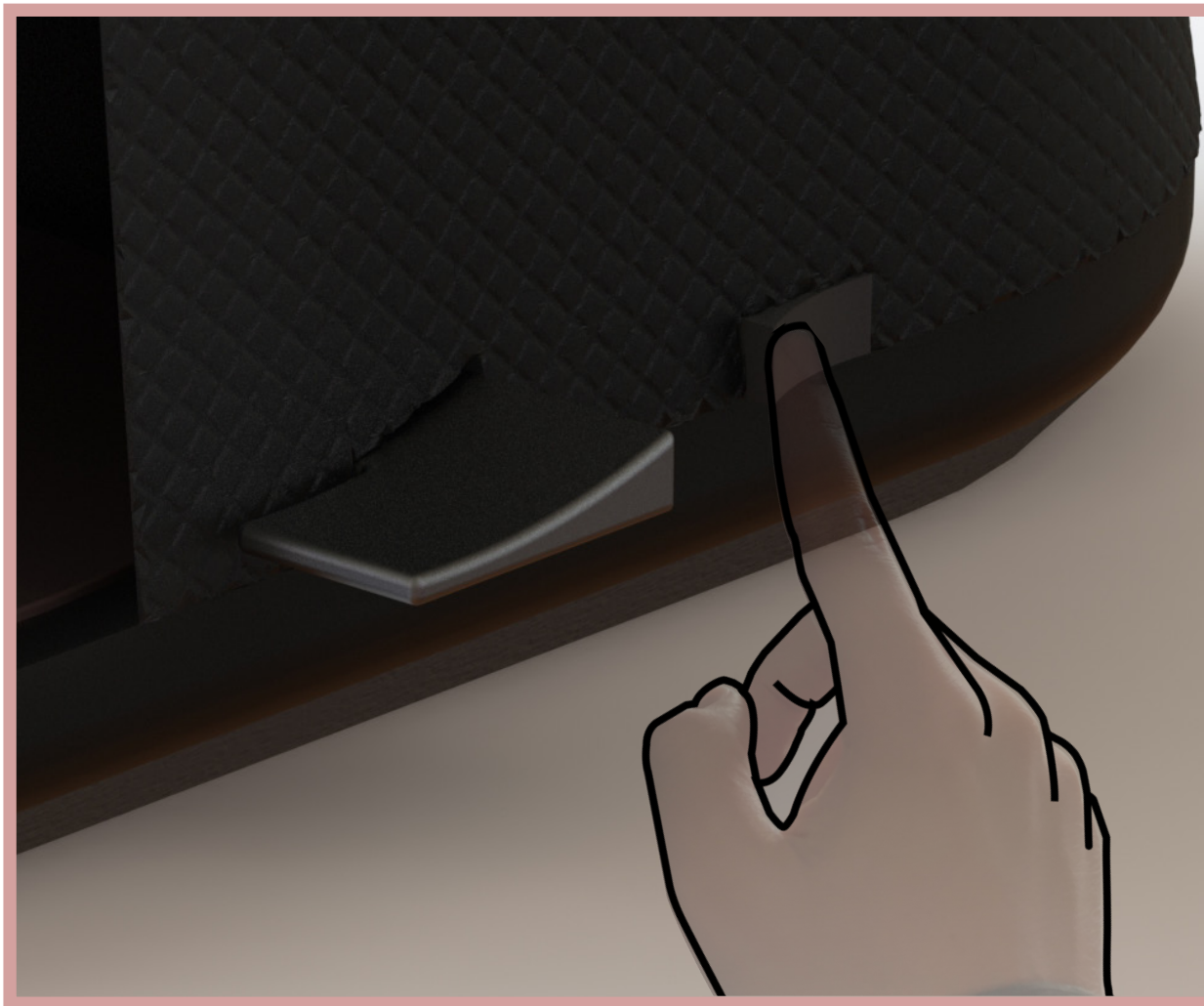
**rubber**  
precision balance power button

**soft touch plastic**  
on/off power button

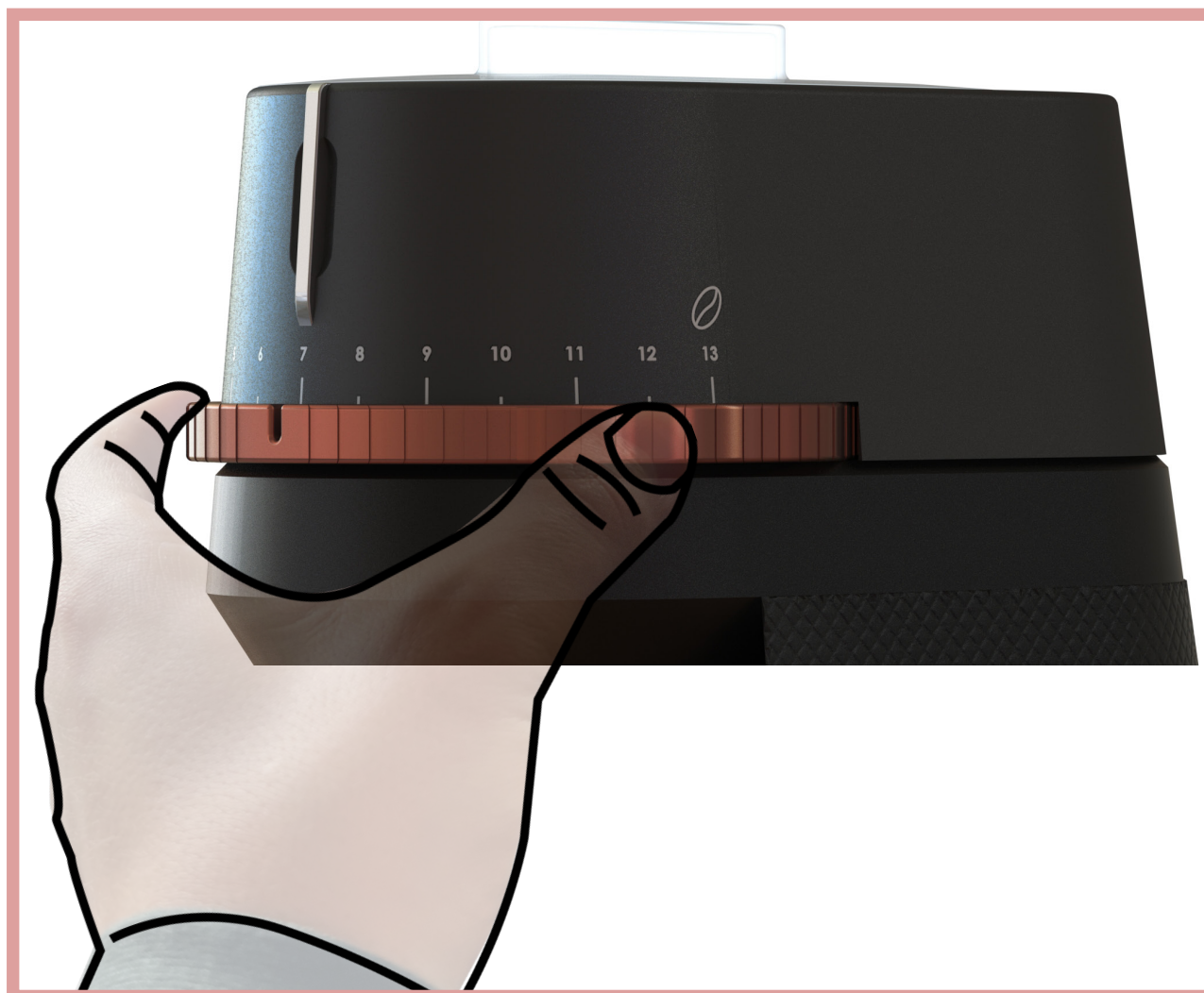
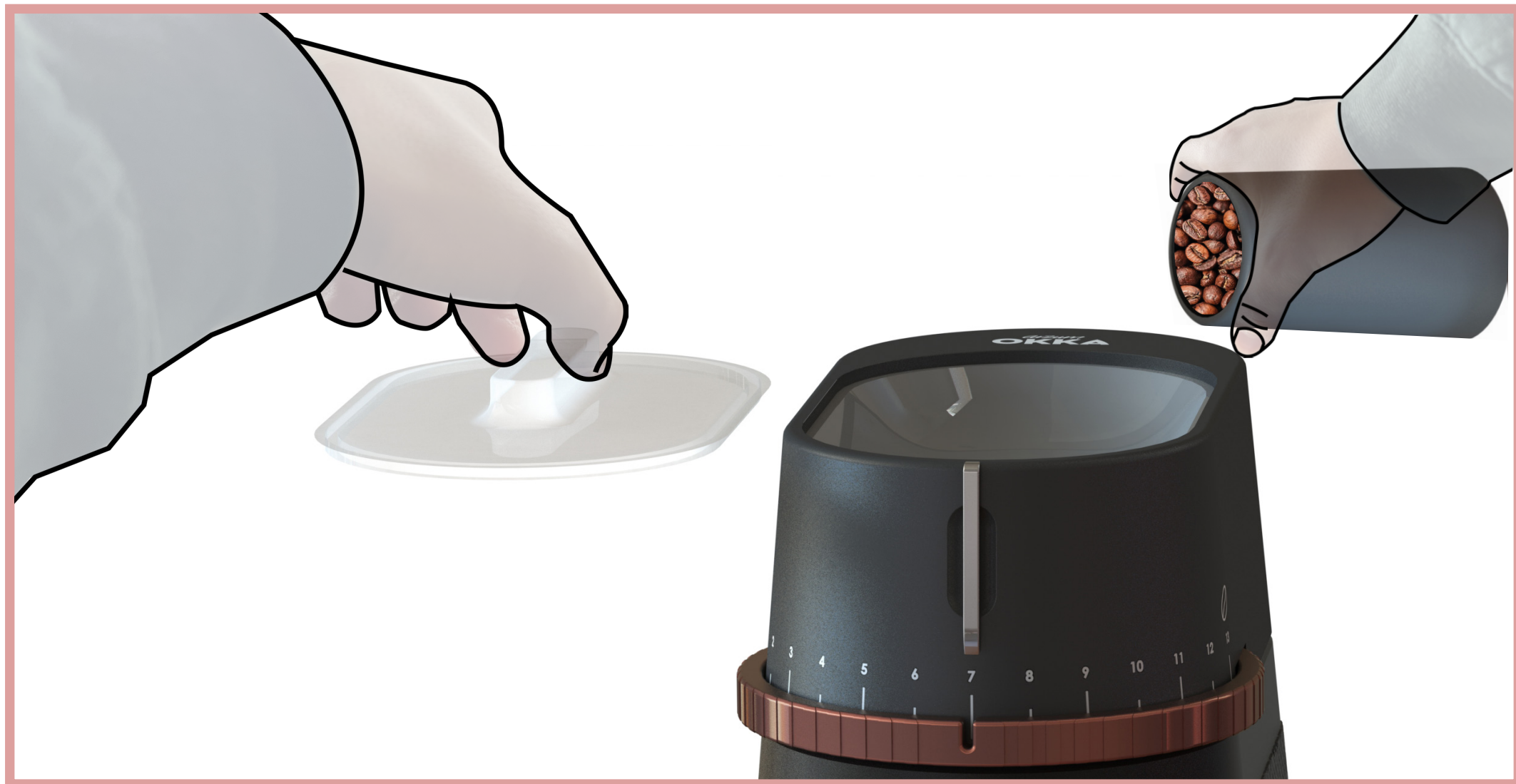
**rubber**  
non-slip surface



User Experience



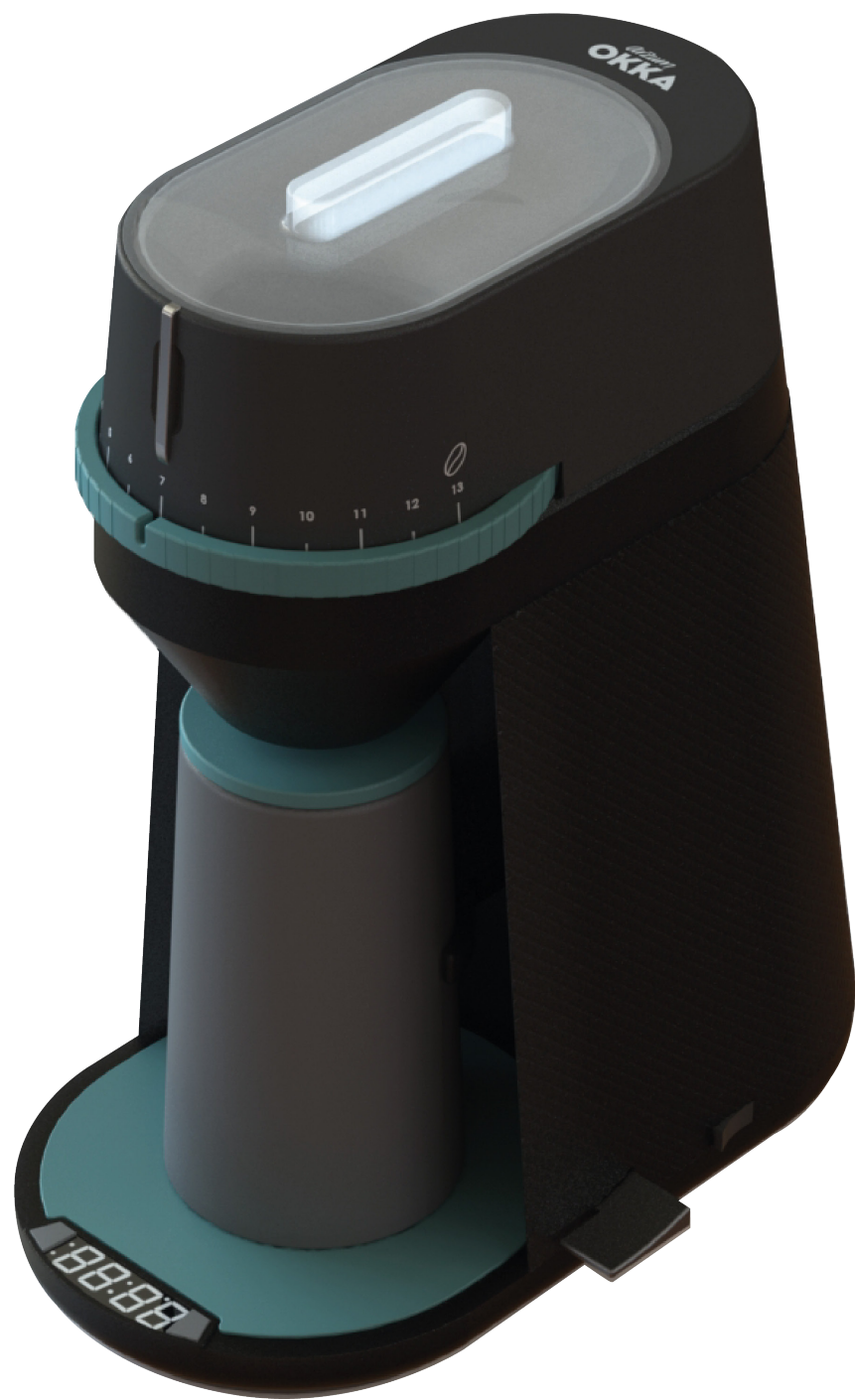






Measurments:











*Arzum*

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