

# INMIXX

An Integrated Mixer Grinder  
Graduation Project  
6 weeks | 2022

Designed By  
Sumeet Singh





## INTRODUCTION

INMIXX, designed as a graduation project, is an integrated MG that redefines how a mixer grinder sits in a modern kitchen.

Created to break away from the traditional style of MG, designed to emphasise its function.

## HOW WAS INMIXX BORN?

Created from the idea of stripping a design down to its essentials and taking inspiration from other integrated kitchen appliances, INMIXX was born.

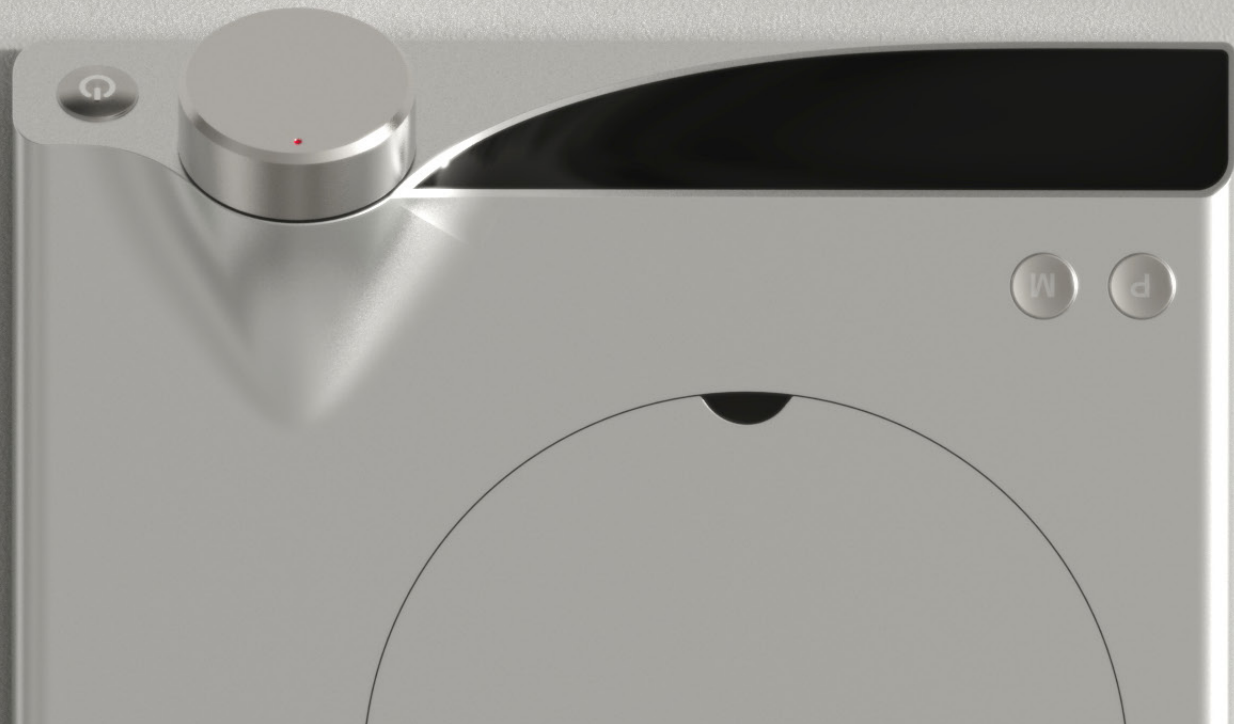
## HOW IS IT DIFFERENT?

INMIXX fits beneath your counter-top and provides a neat, flush finish to your existing decor.

Functional components are mounted on the lower casing inside the cupboard, giving the front panel a flush, sleek, futuristic aesthetic.

## IT TAKES ADVANTAGE OF

1. An MG integrated with the kitchen counter has an advantage in space utilization.
2. Its integrated HMI and mounting take up little space on the counter-top, eliminating the step of reaching and picking up MG.
3. The main body sits below the counter-top to eliminate noise and provide sound damping.



**INTENDED USE/  
APPLICATION**



01  
Dosas Batter



02  
Blending



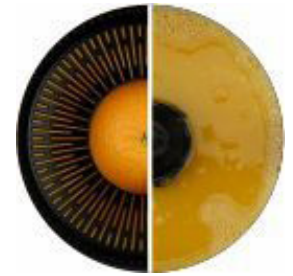
03  
Juicing With Water



04  
Chopping



05  
Churning



06  
Citrus Press



07  
Coconut Milk



08  
Dicing



09  
Dry Masala



10  
Grating



11  
Chutney



12  
Kneading



13  
Pure Juice



14  
Slicing



15  
CAKE BATTER



## BENCHMARKING INNOVATORS



### 01 HAVELLS SILENCIO 4 JAR

#### **DUAL INTERLOCKING SAFETY:**

Secure jar and lid interlock ensure user safety during food preparation in stainless steel jars.

#### **DOUBLE LAYER INSULATED JAR:**

Noise reduction, cool outer surface.



### 02 KUVINGS VACUUM BLENDER

#### **THE MAGIC OF A VACUUM:**

Optimal Vacuum Blending prevent ingredients from oxidizing, preserving color, flavor & nutrients as close to nature for better taste & maximum nutrition.

#### **QUIET LOW-NOISE BLENDING:**

Blending is now quiet with the Noise Reduction Cover.



### 03 MILLO SMART PORTABLE BLENDER

#### **CORDLESS AND PORTABLE:**

Magnetic Air Drive Blending powers the blade for rechargeable, cordless & noiseless operation anywhere.

#### **SMART LID:**

Smart Lid syncs with the app and remembers your blending patterns.

#### **TRAVEL CUP:**

Make a smoothie to go or share one millo with family or co-workers.



## COMMON PRODUCT FAILURE



01  
QUALITY OF MATERIAL



02  
QUALITY OF KNOB



03  
QUALITY OF LID AND HANDLE



04  
HIGH NOISE LEVEL



05  
ACCESSORIES



06  
LOCKING FEATURE

## USER PERSONA



### **SUPRIYA JOSHI**

Housewife

32 years  
Married  
Pune, Maharashtra  
Higher middle class  
Ambivert

### **BACKGROUND**

- Supriya is a mother of two kids.
- Married to a software engineer.
- Loves to do household chores, look after family and the house.
- Loves to keep home clean and aesthetically good.

### **PAIN POINTS**

- Finds a lot of functions and attachments on the machine unnecessary .
- Does not let her kids use the mixer grinder.
- Gets irritated when needs to change the blades.
- Find it frustrating to wash the jars.
- Jars takes a lot of space in the cupboard.
- Repetitive nature of bring out the mixer out the cupboard when needed and keeping it inside.



### **ROHAN KAPOOR**

Professional Chef

45 years  
Married  
Delhi, India  
Higher Middle class  
Extrovert

### **BACKGROUND**

- Nitin Sharma is a family man
- Has two children
- Has been opened his own small restaurant for 2 years in Delhi.
- He has done his post-grad in Hotel management from IIM, Bangalore.
- He has worked in multiple Hotels and hospitality industry throughout India for the last decade in

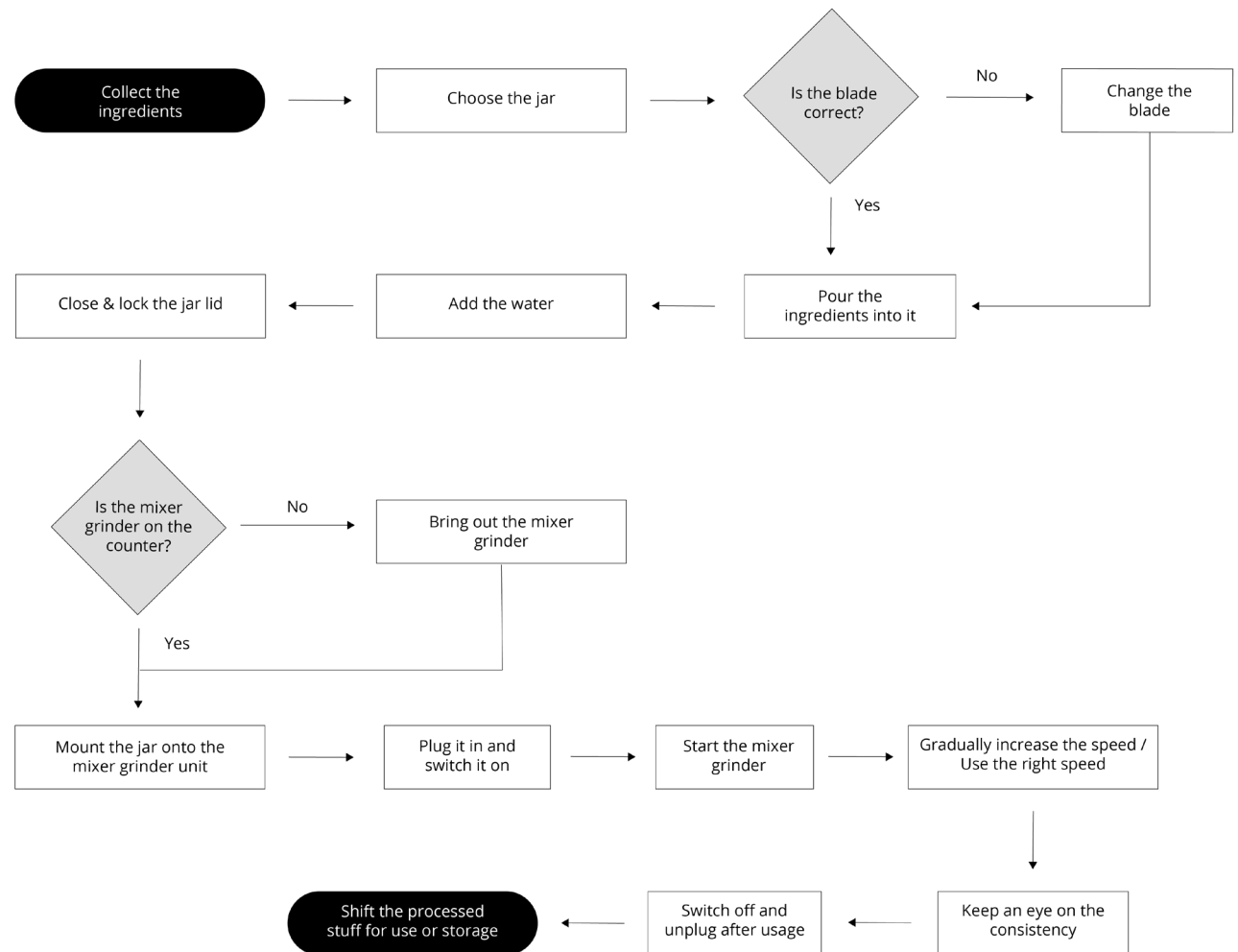
### **PAIN POINTS**

- Can not use the product for continuous and longer period of duration.
- Needs to attend and hold the jar.
- Gets irritated with noise and vibration created.
- Find it frustrating to align the jar every single time.
- Finds offered functions and attachments on the machine not enough.



## TASK FLOWS

### OPERATING MIXER GRINDER



## INSIGHTS

1. Need to bring out the mixer grinder from cupboard.
2. Cannot know if the jar is securely mounted and locked.
3. Need to hold the lid at high speed.
4. Cannot determine when to stop grinding.
5. Required to transfer the produce to different vessel to store or serve.
6. Cannot determine the health of the motor or kind of error.

## USABILITY MAPPING

### PRE-USE



01  
Bring out the mixer grinder



02  
Collect the ingredients



03  
Choose the jar



04  
Ensures to use the correct blade



**USABILITY MAPPING**  
IN-USE



05  
Pour the ingredients into the jar and add water



06  
Close & lock the jar lid



07  
Mount the jar onto the mixer grinder unit



08  
Plug it in and switch it on

## USABILITY MAPPING

### IN-USE



09  
Start the mixer grinder



10  
Gradually increase the speed / Use the right speed



11  
Hold the lid and jar while operating



12  
Keep an eye on the consistency



## USABILITY MAPPING

### POST-USE



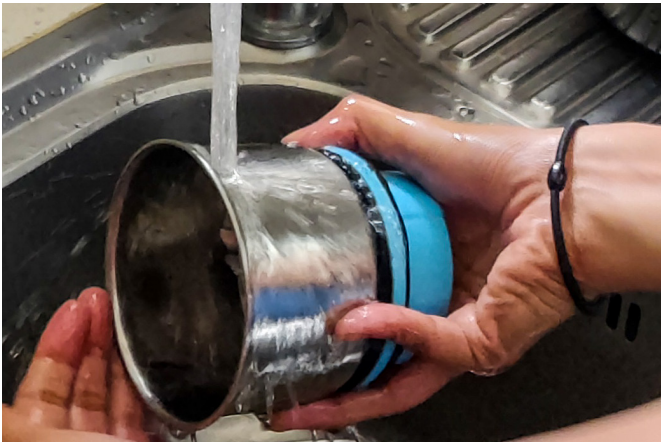
13  
Switch off and unplug after usage



14  
Shift the processed stuff for use or storage



15  
Use the damp cloth to clean the cord and mixer grinder



16  
Hold the jar under running water for a minute after each use to remove the residue



17  
Remove the jars after each use and wash in soapy water. Then rinse with clean water



18  
Always keep/store the jars upside down

## INTERFACE ANALYSIS

### IN-INPUT AND OUTPUT FEEDBACK

NO	TASK	INPUT	OUTPUT	FEEDBACK	REMARK
1	Start power supply	Switched plugged in the socket	Power supply ON	No feedback	
2A	Placing the jar and blade assembly	Placing the jar and blade assembly properly	The ingredients start blending when the knob is turned	No feedback (the jar mount doesn't make any sound)	
2B	Placing the jar and blade assembly	Placing the jar and blade assembly securely	The ingredients do not start blending when the knob is turned	No feedback	
3	Rotary switch knob	Turning the rotary switch knob	Depending on if the jar is correctly placed, the ingredients will start blending	Blade starts rotating	
4	Removing the jar from the Mixer Grinder base	Rotational Motion	Jar dismounts	Jar snaps out	



## HOW MIGHT WE STATEMENTS

01.  
How might we  
reduce the required amount of user  
attention while operating?

02.  
How might we  
improve wire management for  
better everyday usability?

03.  
How might we  
eliminate the step of reaching  
and picking up MG to use?

04.  
How might we  
reduce ambiguity and anticipate for  
right texture and consistency?

05.  
How might we  
facilitate noiseless operation?

06.  
How might we  
eliminate need to transfer into a  
different vessel?

07.  
How might we  
improve product durability?

08.  
How might we  
take the burden of cleaning from  
the user?

09.  
How might we  
address jar stacking for efficient  
storage?

10.  
How might we  
design the feedback from MG for  
locking?

11.  
How might we  
take the burden user about  
choosing the blade for different  
grinding styles?

12.  
How might we  
remove the guesstimate involved  
while ending the operation?

13.  
How might we  
improve user interaction?

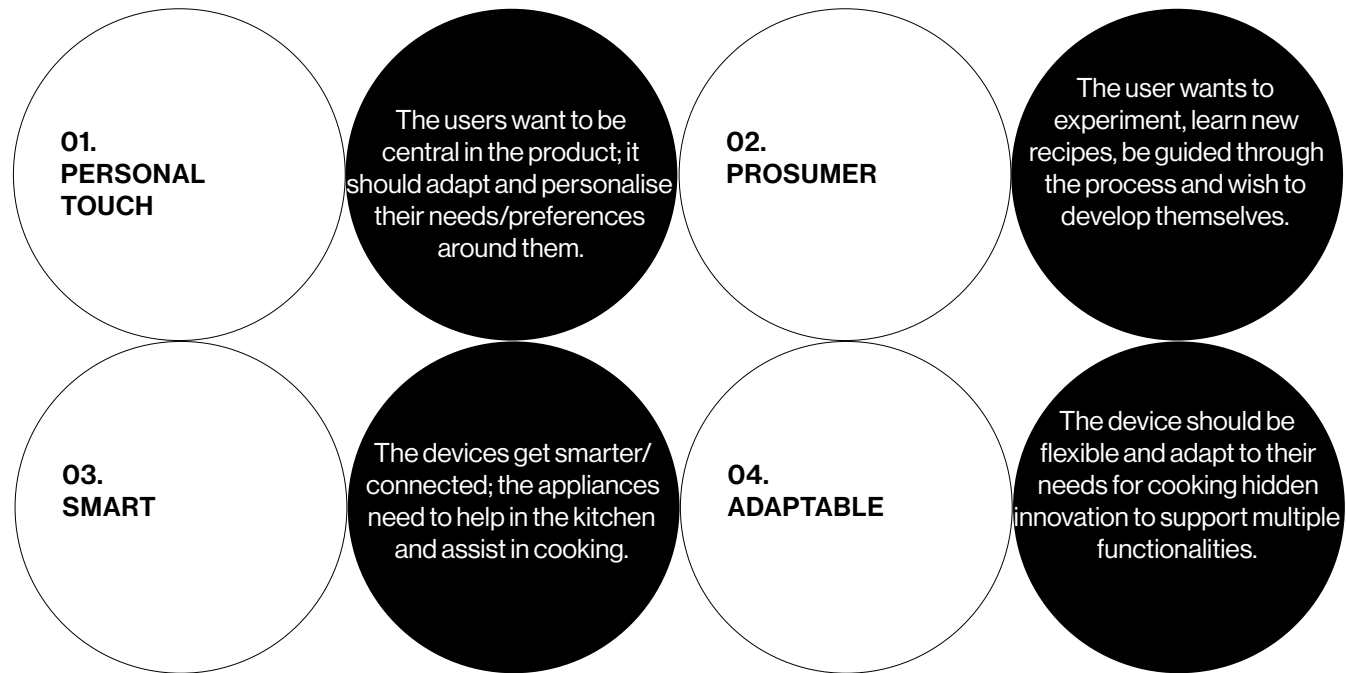
14.  
How might we  
prevent spillage?

15.  
How might we  
reduce the number of steps to  
snap the lid?



## TRENDS IN KITCHEN

PEOPLE WANT A PERSONAL KITCHEN  
SUITED TO THEIR SITUATION



NEW TARGET  
CUSTOMER



• Potential User

RIDHI JOSHI

Housewife

ABOUT

35 years  
Married,  
Lives in a joint family  
Middle Class  
Introvert

CONTEXT

Who are we designing for?	Individual involved in cooking or preparation of food
Pool of audience	Family members
Fragmentation of target user	1. On the counter-top 2. Semi-integrated in the countertop
Environment Setting	Urban Residential
The target audience lives in an urban area and is a part of a nuclear family that has the purchasing capacity to buy a mixer grinder for her modular kitchen. She wants an integrated mixing and grinding solution which space saving.	



## 5WH QUESTIONS

Why	To improve everyday usability, reduce burden and save space
Who	To improve everyday usability, reduce burden and save space
What	Domestic market mixer grinder
Where	In a smart modular kitchen with Semi integrated or fully-integrated appliances
When	While preparation of food
How	Integrated MG, designed to be installed into kitchen counter-top, with only the controls left visible.



## PROBLEM

The repeated task of reaching out and picking up the mixer grinder to use.

For users to use the Mixer Grinder more ergonomically, how a mixer grinder sits in a modern kitchen needs to be redefined.

Based on these problems, the design was made.



## BACKGROUND

Considering the current lifestyle of young professionals, finding time to make delicacies at home with limited space in the kitchen to keep appliances is a challenge.

People with small kitchens with limited counter space can find the mixer grinder a real hindrance in the kitchen.

Users of domestic countertop MG have difficulty in the repeated task of reaching out and picking up the mixer grinder.

**The shifting and picking up method creates two problems**

**1. Consumes the already acute space over the kitchen countertop**

**2. Additional movement of the user to pull out from the kitchen cabinet.**



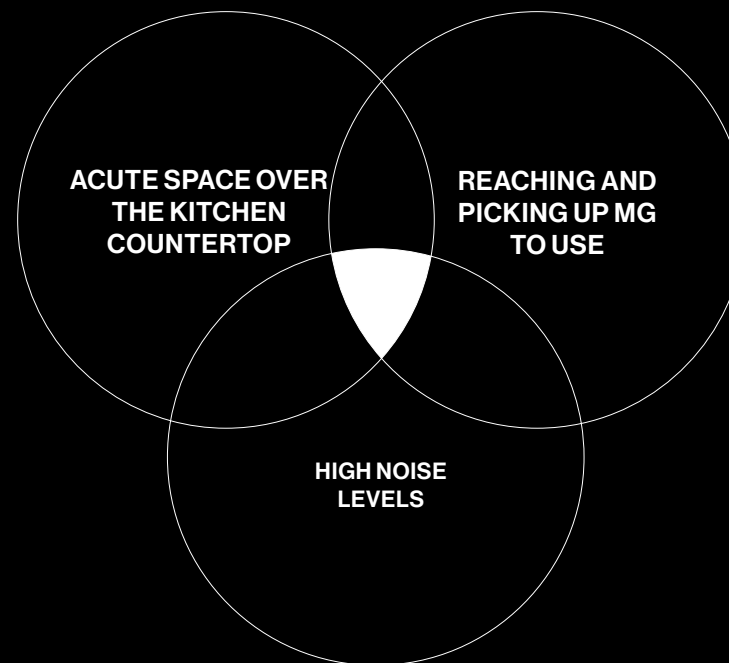
## SOLUTION

A built-in combination Mixer grinder is ideal for such challenges, making cooking less time consuming and stress-free.

**APPROACH &  
STRATEGIES OF  
PROBLEM-SOLVING**

**INTEGRATED MIXER GRINDER**

1. An MG integrated with the kitchen counter has an advantage in space utilization.
2. Its semi-integrated HMI and mounting take up little space on the countertop, eliminates the step of reaching and picking up MG.
3. It takes advantage of the main body being below the countertop to get rid of noise and provide sound damping.







## DESIGN CHALLENGE

What if we can make a Mixer Grinder which is integrated with the kitchen countertop?



## BRAINSTORM FORMS

Mixer Grinder suitable for both use case scenarios:

1. On the counter-top
2. Integrated in the countertop

**Finding forms according to the use of mixer grinder.**



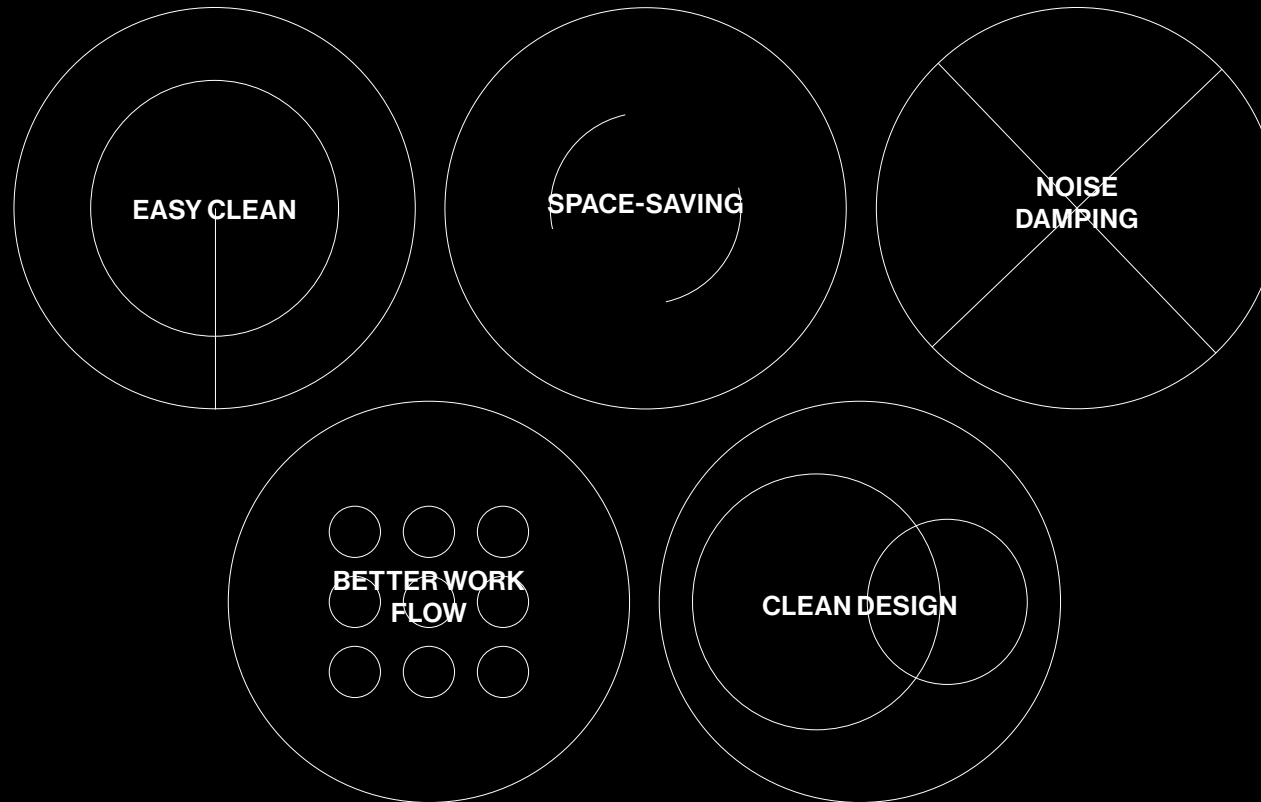
## BRAINSTORM CONCEPT

Study the shape suitable to integrated the countertop. Considering the mixer grinder's environment, the structure is changed to access the MG controls in both use case scenarios.

# Design Brief Statement

To design a Mixer Grinder, which is integrated with the kitchen countertop.

**WHY CHOOSE INTEGRATED  
MIXER GRINDER?**





DESIGN LANGUAGE  
SYSTEM

TOUCH POINTS

DESIGN ELEMENTS

PRINCIPLES

FORM

PRIMARY  
FORM

MONOLITH  
DESIGN



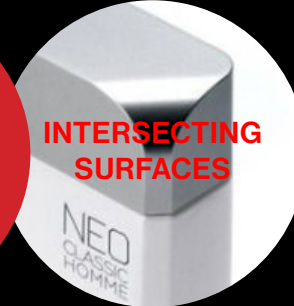
AGILE EFFICIENCY

Compelling Stance  
Structural Flow

DETAIL

SECONDARY  
ELEMENTS

INTERSECTING  
SURFACES



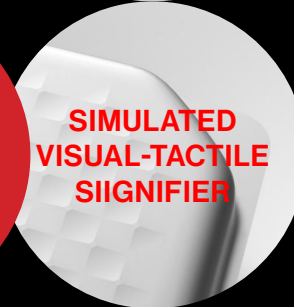
DISCIPLINED MOTION

Directional Fades  
Succinct Detail

CMF

SURFACE  
TREATMENT

SIMULATED  
VISUAL-TACTILE  
SIGNIFIER



OPTIMIZED QUALITY

Heroed Function  
Optimized Quality

INTERACTION

HUMAN MACHINE  
INTERFACE

PUNISHING  
& FORGIVING  
DESIGN



PROGRESSIVE  
DISTINCTION

Encapsulated Interaction  
Intelligent Layering

## MOOD BOARD

## VISUAL NARRATIVES

## SIGNATURE ELEMENTS

## ATTRIBUTES

**01.  
NEO  
ELEGANCE**

CONCISE  
NARRATIVE

Smart  
Approachable  
Clean

**02.  
NATURAL  
ORIGINS**

BIO  
DYNAMISM

Dynamic  
Feminine  
Inviting

**03.  
NOURISHING  
CARE**

EFFECTUAL  
PROTECTIVE

Protective  
Advanced  
Powerful

MOOD BOARD

NEO ELEGANCE



NATURAL ORIGINS

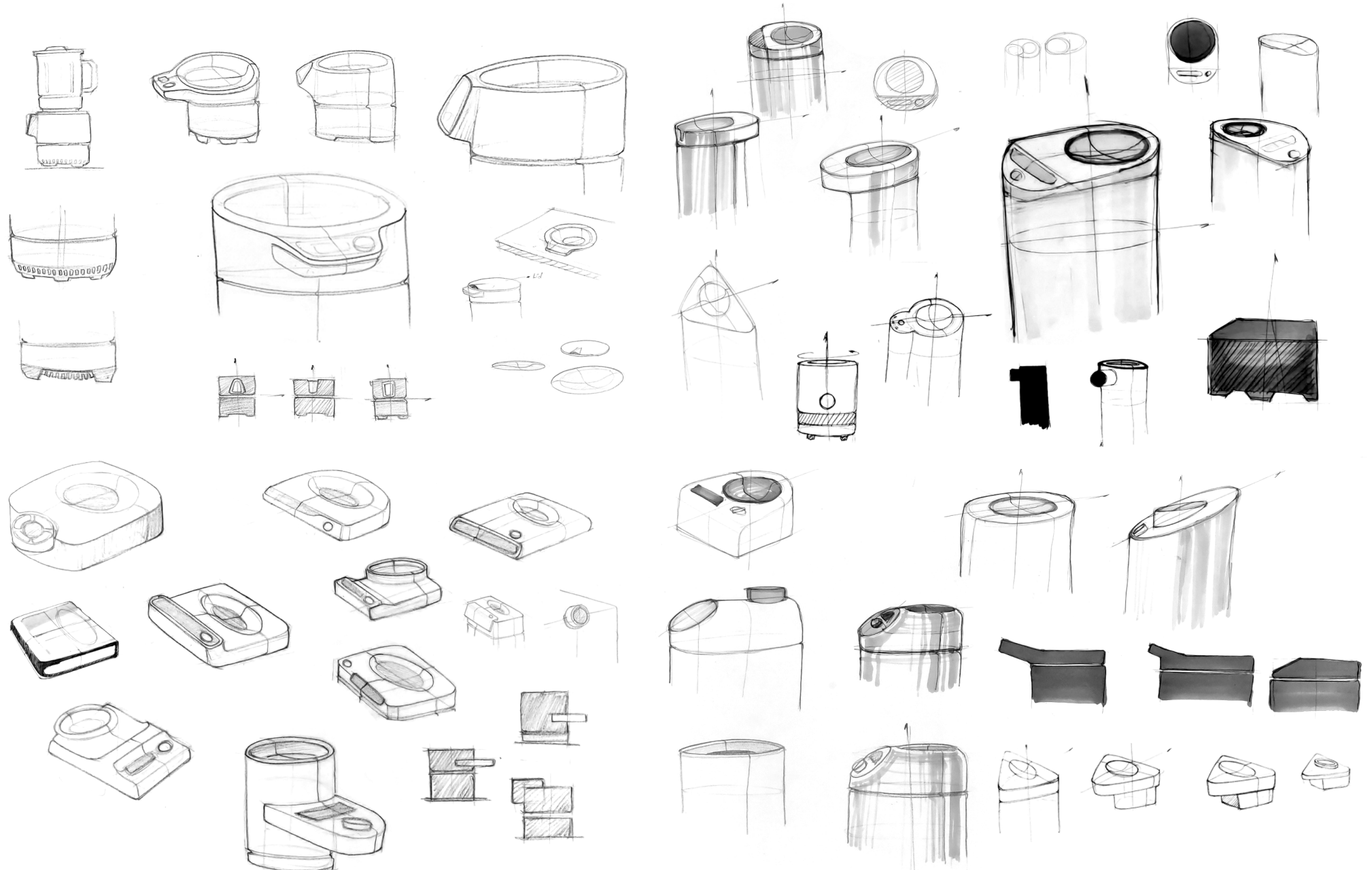


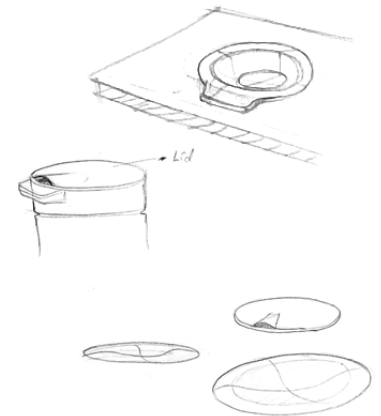
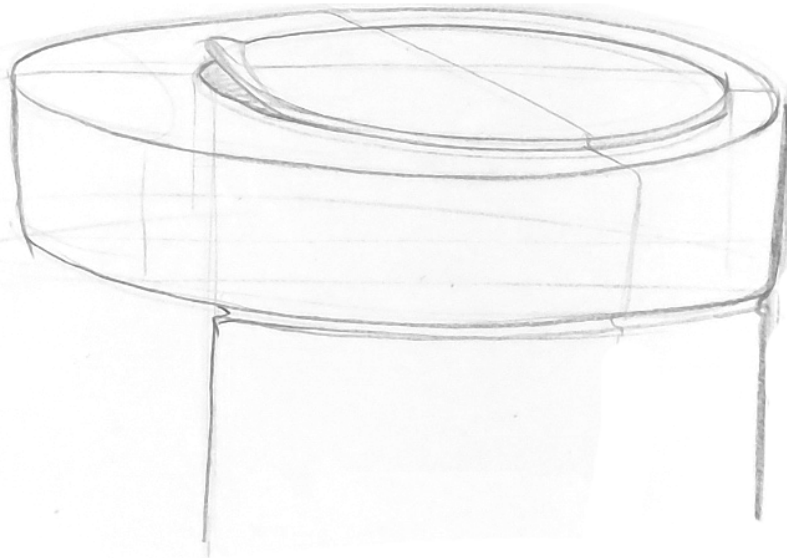
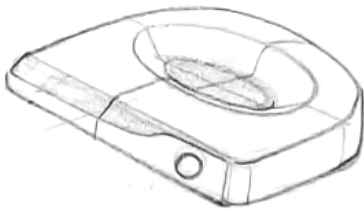
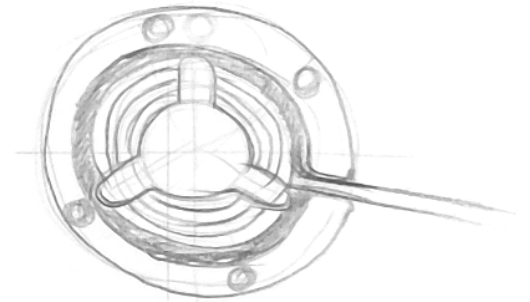
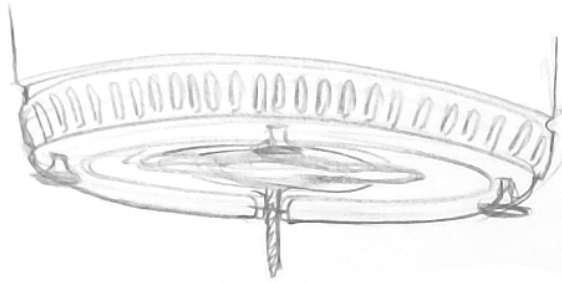
NOURISHING CARE





## IDEATION





**SACRIFICIAL  
CONCEPTS**



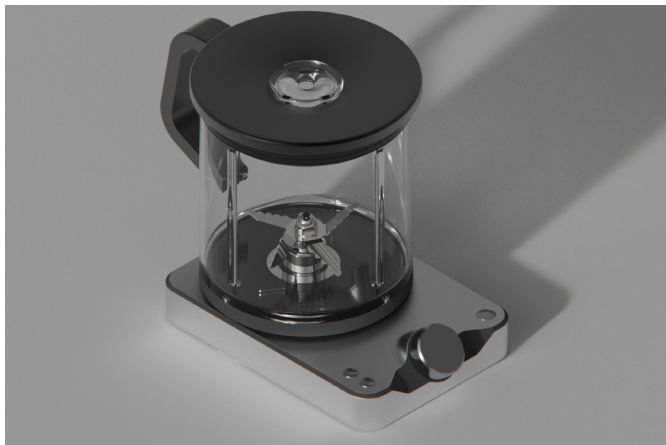
**01**  
**Concept 1A**



**02**  
**Concept 1B**



**03**  
**Concept 2A**



**04**  
**Concept 2B**



**05**  
**Concept 3A**



**06**  
**Concept 3B**

***INMIXX***

# PROPOSED DESIGN

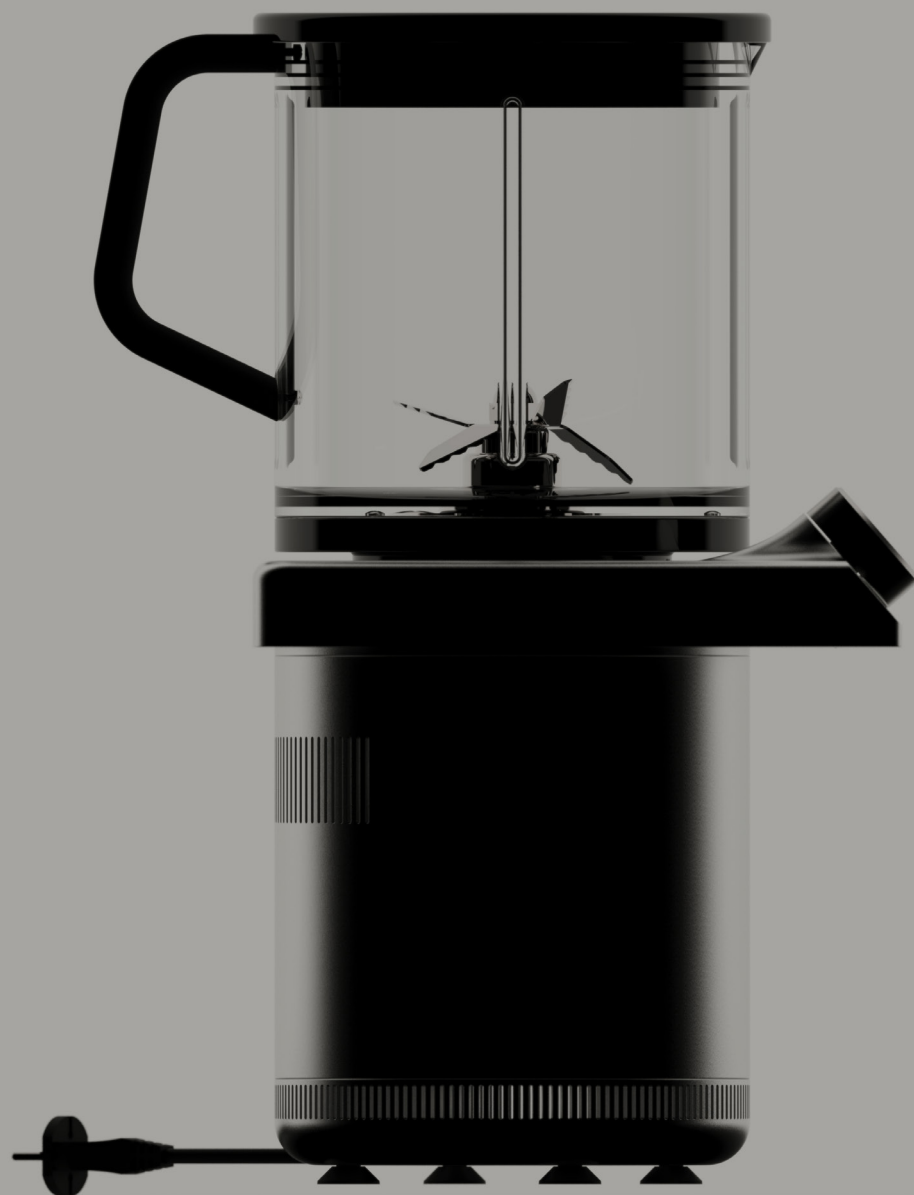
I wanted to break away from the traditional style of MG, which is designed to emphasize its function. The design of a set of minimalist countertop appliances.

It takes advantage of

1. The main body being below the countertop to get rid of noise and provide sound damping.
2. Or simply let the device sit like an ordinary mixer grinder on the countertop.
3. Saves space and improves work flow.

Silver and black coloured neat body shape, and silver coloured metal knobs show both images of burdenless design and premium home appliances.





## HOW WAS “INMIXX” BORN?

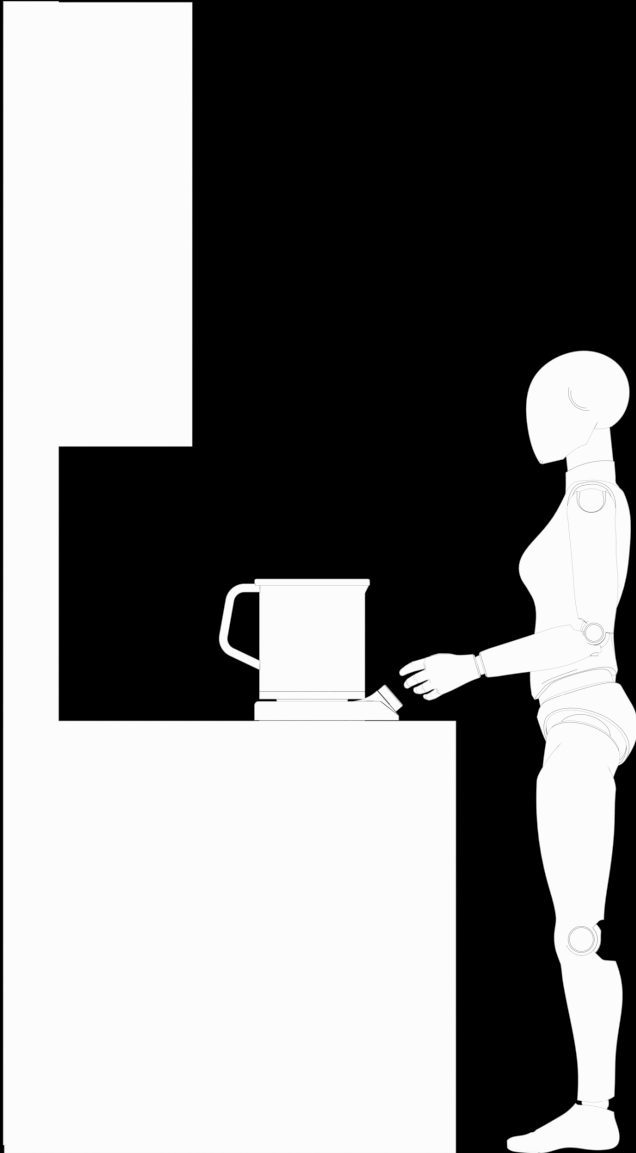
A clunky design, which doesn't match the kitchen, is covered or hidden on a shelf.

INMIXX, designed as a graduation project, is an integrated MG that redefines how a mixer grinder sits in a modern kitchen. Created to break away from the traditional style of MG, designed to emphasize its function.



# PRODUCT ERGONOMICS

## HUMAN PROPORTIONS



This Illustration shows the proportions and height of the product with reference to average Indian female. INMIXX can be placed

1. On the counter-top
2. Integrated in the countertop

as per users desired needs.



## CLEAN DESIGN

INMIXX fits beneath your countertop and provides a neat, flush finish to your existing decor.

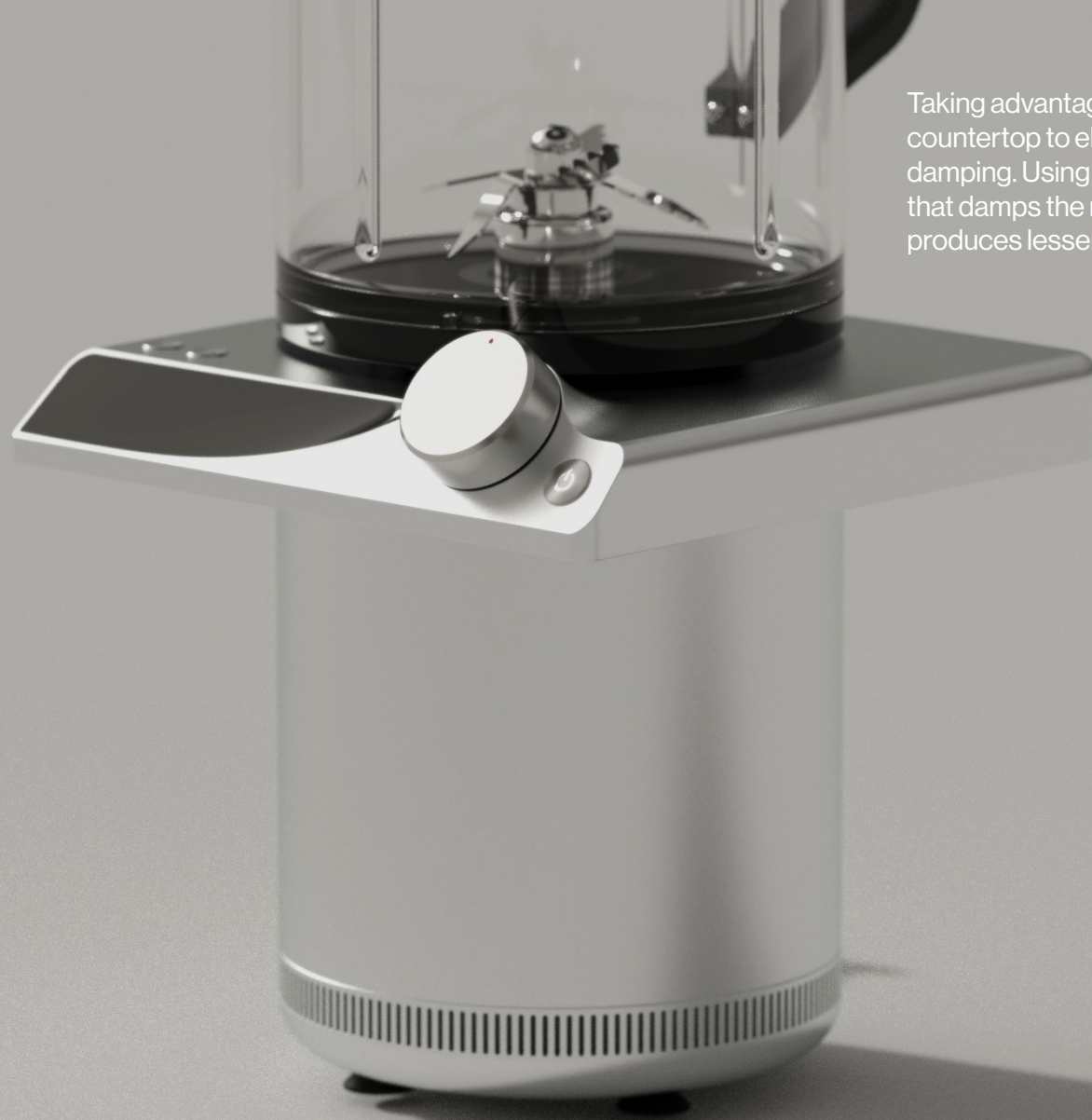
Functional components are mounted on the lower casing that goes inside the cupboard, giving the front panel a flush, sleek and futuristic aesthetic.





## NOISE DAMPING

Taking advantage of the main body below the countertop to eliminate noise and provide sound damping. Using a sound/sound-absorbing material that damps the noise produced by the motor that produces lesser noise.





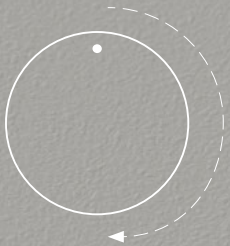
## BETTER WORK FLOW

An MG integrated with the kitchen counter has an advantage in space utilisation. Its semi-integrated HMI and mounting take up little space on the countertop, allowing users to use the space better.



## PHYSICAL INTERFACE

The complex control display is hidden behind a black glass molding on the front so that when it is turned off, the unit is invisible. When you want to use the MG, natural scrolling of the unit is available anytime.



### CONTROL KNOBS

The control knob is used to select the presets and to regulate the RPM of the motor.



## DYNAMIC UI

A digital control interface was designed for the appliance to ensure physical buttons for the specific specialized task, but there was no reduction in options.





## COOLING SYSTEM

### How to vent out heat?

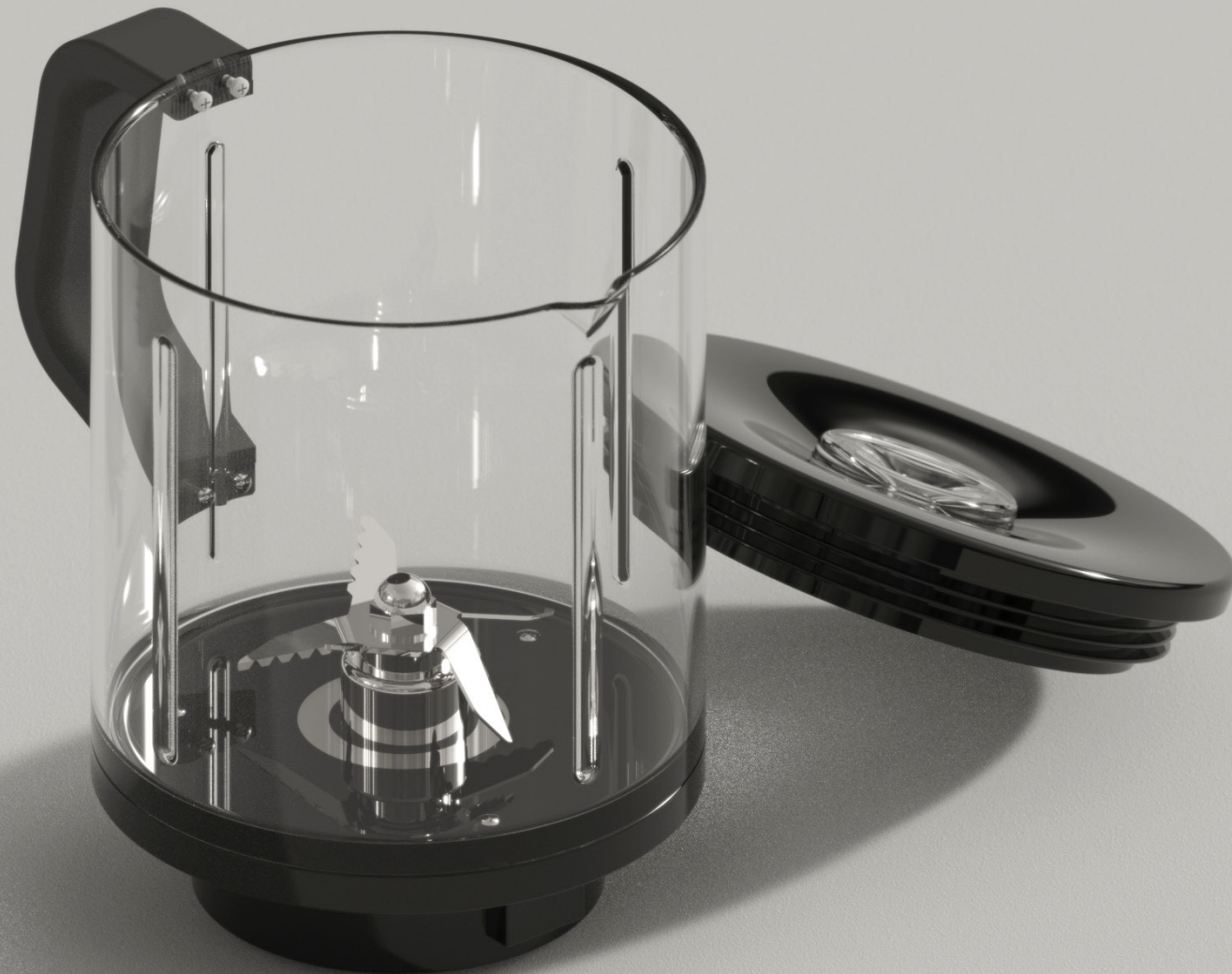
An externally vented MG uses a fan to draw air through the mixer's vents and into a ductless recirculating vent, pulls air through a filter and exhausts the air back into the kitchen.



## EASY CLEAN

No more pulling out the mixer grinder from under their counter and sweeping around them to get the crumbs or offcuts that may have fallen through the gaps around the appliance. Due to your worktops built around, there are no gaps around the appliance for rubbish to fall into.

It comes with a lid that makes sure nothing falls in the shaft when not in use.





## WIRE MANAGEMENT

### Cord Winder

Providing provision for cable management at the base, users can now wind the power cord instead of winding around the body.



**2 L**  
**MASTER**  
**CHEF+JAR**

A versatile food processor designed the Master chef of the house. It can chop, mince, slice, grate, juice and now dice too. It's easy to use and easy to clean.



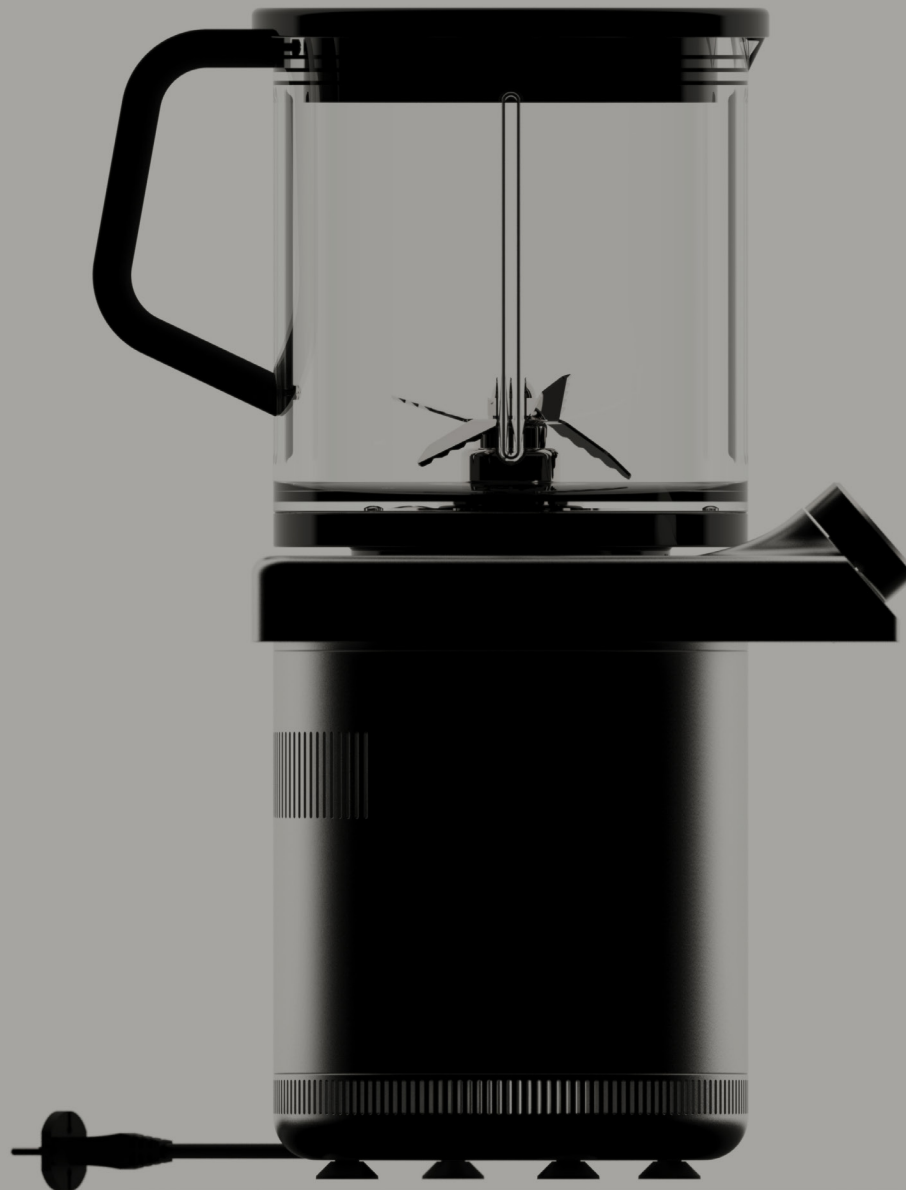
## JAR LOCK

A unique locking mechanism to keep the jar fully secured, even when you're not around.



# MONOLITHIC DESIGN

Compact design to save space. Suctions for sturdy placement and easy usage.





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an industrial design learner.

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