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FINAL

PROJECT



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BRABANTIA

The company was originally founded in the Netherlands in 1919 by a group of 15 people and has been transferred by generations of the same family until today. This family business started producing milk churns and jugs and after the war they developed different iconic products that made the business what it is nowadays.

VISION

Brabantia tries to improve daily routines in what is referred to housework. Their main objective is to improve those daily routines but also to make their costumers love the little things in live, to relax, live on the moment, connect, and disconnect.

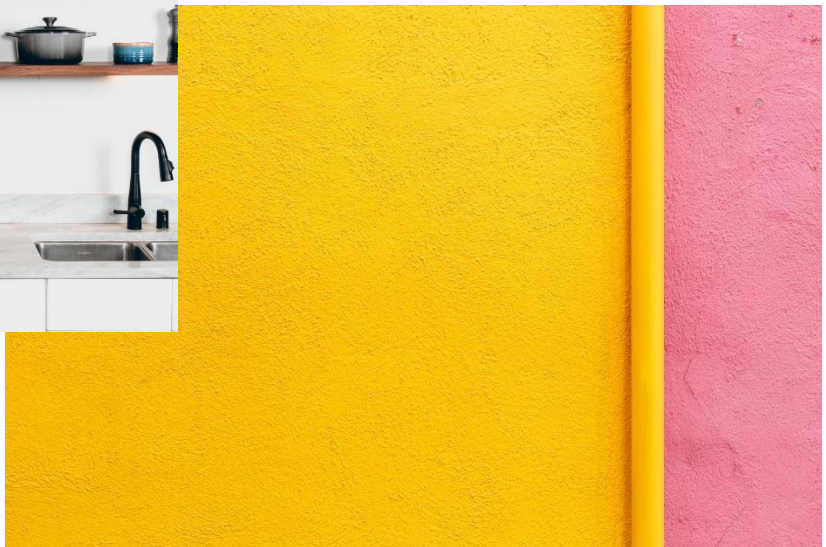
They create products with beautiful design that make life of those in possession of them more pleasant and enjoyable under the slogan “designed for living”. They believe in creating recycled products with integrity by people who care about quality. They develop ideas that are designed to last and make people's lives easier and more enjoyable.

Sustainability is another of the company's pillars. They try to design all their products in such a way that they are recyclable. They started recycling in 1940, reusing cans to create cups, before the term recycling even existed. Examples of current recycling can be kitchen utensils with double function, waste bins designed to separate waste, jars to avoid food waste...

PRODUCTS

At present, the company offers a wide range of household products with which they try to make housework easier. These products can be divided into:

- Kitchen products, including cutlery, kitchen utensils and containers, among others.
- Bathroom products such as containers for soaps, brushes, and creams; pots, brushes, etc.
- Laundry products such as ironing boards and drying racks.
- But its star products are waste management products.



PROBLEM STATEMENT

The problem that the product is intended to solve is the fact that when food is prepared, the worktop is left full of leftovers from the food used on it. These remains are normally removed with a cloth but on the way to the rubbish bin, the hand is often used as a container and many of the remains fall to the floor, making it necessary to sweep up afterwards.

Another problem that is created in many houses is that as little organic waste is produced, due to the number of people living in the house, it will not be removed as regularly. This can cause the contents to rot and generate unpleasant odours.

In addition, this product will make it easier to separate waste so that the user will make less effort to recycle. This is essential as Brabantia is very committed to the sustainability of its products.

Seeing that this was a problem that was repeated in many homes, we came up with a solution that would allow the worktop to be cleaned efficiently and that would also make the recycling of organic matter easier, as well as limiting unpleasant odours.



TARGET GROUP

First of all, Brabantia is a very big company that produces for people all over the world, but as this product is in many ways innovative, it would be sensible to produce it in a lower scale on first stage to see how the public receives it.

Therefore, on this first stage, the product will only be produced in the Netherlands, as it is a sample big enough and Brabantia products are well known in this region. If this first stage meets the expectations of the brand, then a new phase will start in which the product will be available in other important markets in which Brabantia has also a lot of influence like United Kingdom, Belgium, France, USA, Germany, etc.

For concretizing more in the target group it is important to have an idea about how the product would be like. The product will consist of an organic bin of relatively small size that facilitates easy connection with the countertop but limits the amount of waste that can be collected.

The three main objectives of this product are to make it easy to clean the countertop, to help in the recycling process and to slow the decomposition process of this organic matter, avoiding in that way the bad odours produced by it.

From these objectives we can extract that the product is suited to households where a lot of cooking takes place on a daily basis and not much organic waste is produced. We could say that the target group is every household in the Netherlands. However, that's not precise enough because for households of families in which (due to the amount of people living in the same house) a lot of organic waste is produced, the decomposition odours of organic waste are not much of an issue as they will throw it away more often and the size of the product may be too small for their waste. For this reason, even if these are also potential customers, we cannot take them into account in our target group.

Finally, the target group is narrowed down to three main groups:

- Students who live away from home
- Young couples and small families
- Elderly people

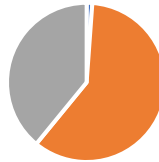
These groups have in common the fact that they don't produce much organic waste and therefore decomposition odours may be an issue for them.

BATCHSIZE

The batch size of our product has been determined by separating the three main groups and separately analysing what is the percentage of the people making up each group who will actually be a potential costumer. This calculation has been done taking into account that each product will belong not to a particular person but to a household. After iterating the process, we came to the conclusion that for each group:

- Group 1 (Students) = 5.000 Households
- Group 2 (Young people) = 260.000 Households
- Group 3 (Elderly people) = 170.000 Households

Batch size



■ Group 1 ■ Group 2 ■ Group 3

This adds up to 435,000 Products. Calculating with a different approach we got that the batch size will be of 408,000 so our final batch size will be 400,000.

For more in-depth information about batch size calculation all calculus with their corresponding explanation can be found in the appendix.



COMPETING PRODUCTS

There is currently a wide range of organic kitchen containers available, including the ones Brabantia has already developed. These small sized containers, each with different volumes, are usually fitted with a handle for carrying. Although these products may compete directly with the product we have developed, this one has the characteristic that it can be anchored to the worktop, and it is this feature that makes it special and innovative. There are other products already existing that solve the problem but not from our company.



There are also other ways of solving the problem that our product is intended to solve. Among them is, for example, one of an architectural nature such as designing the worktop with a hole to fit a waste that would be located underneath it. Other solutions are smaller waste bins that would rest on the sink and thus be at the same height as the worktop, allowing the waste to be pushed towards it, or having a special drawer for it. We can also find products that can be attached to the drawer door but not to handles.



OTHER EXISTING PRODUCTS AND THEIR PRICES



OMID HOME® - stijlvolle prullenbak RVS- Klein formaat
44,99 USD

Mr. Green Mind. 7L prullenbak
hangen of staan. Aanrecht
afvalbakje

27,95 USD



Tomado MetalTex - BinTex
Organische Prullenbak -
250X195X185mm

25 USD



Brabantia Sort & Go
Afvalbakje - 3 l – Grey

19,49 USD



Brabantia SinkSide Aanrecht
Afvalbakje - 1,8 liter – Mint

25 USD

DEMANDS AND WISHES

DEMANDS:

- The product must be adequate for the storage of organic compounds
- It must try to reduce as much as possible the decomposition process of the organic matter within it. *
- It must be able to be connected to the workspace in the kitchen, at the same height of the workspace to facilitate the cleaning of it
- It must have a top which will seal the content inside the box when it is not being used

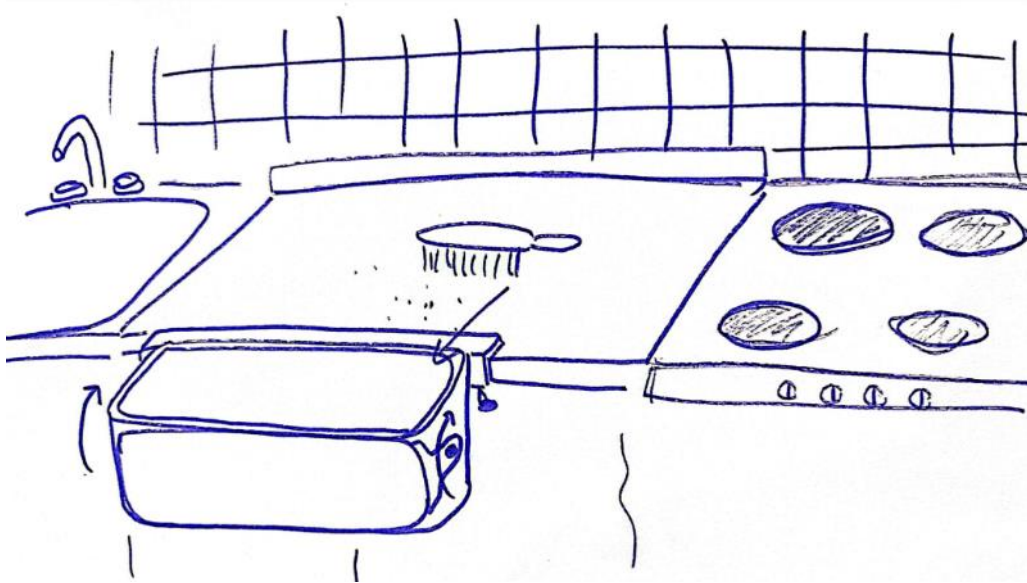
WISHES:

- The top must not to be a disturbance in the cleaning process
- It must include a handle to make the transportation of the product easy
- Connection to the surfaces must be easy to make and secure
- It must have a design that facilitates its disposal in different surfaces
- The removal and replacement of waste bags must be done with ease
- The bags must not be seen from outside
- It must feet both new and old kitchens (different drawers)

*The main factors influencing the decomposition process of organic matter are temperature, humidity, and aeration. In order to reduce this decomposition, we will mainly focus on blocking aeration inside the container and avoiding excessive humidity.

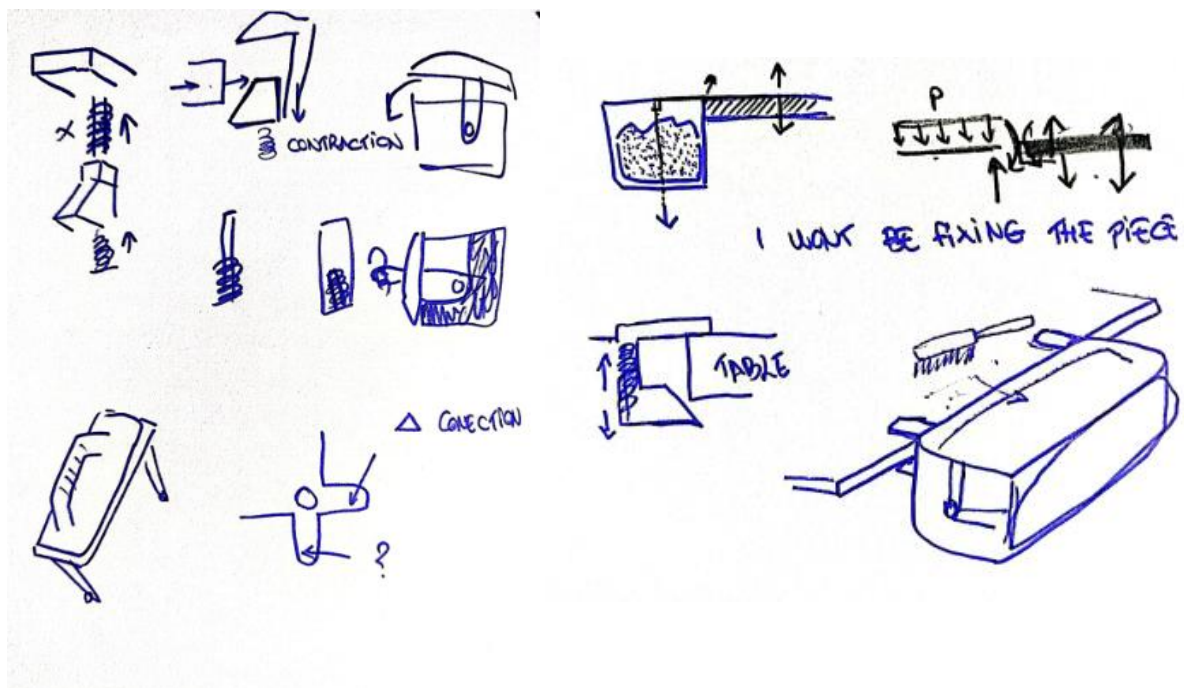


IDEATION PHASE



The first idea was to make a product that could be attached to the kitchen worktop so that it could be cleaned by simply pushing the rubbish straight into the bin without having to move it and without the rubbish falling on the floor.

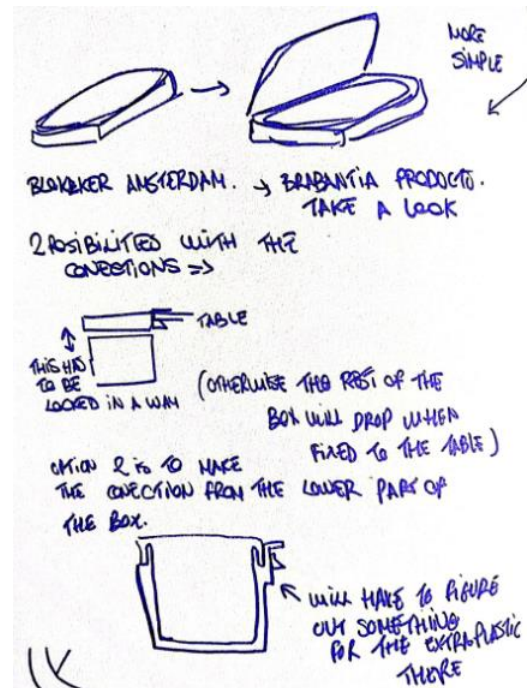
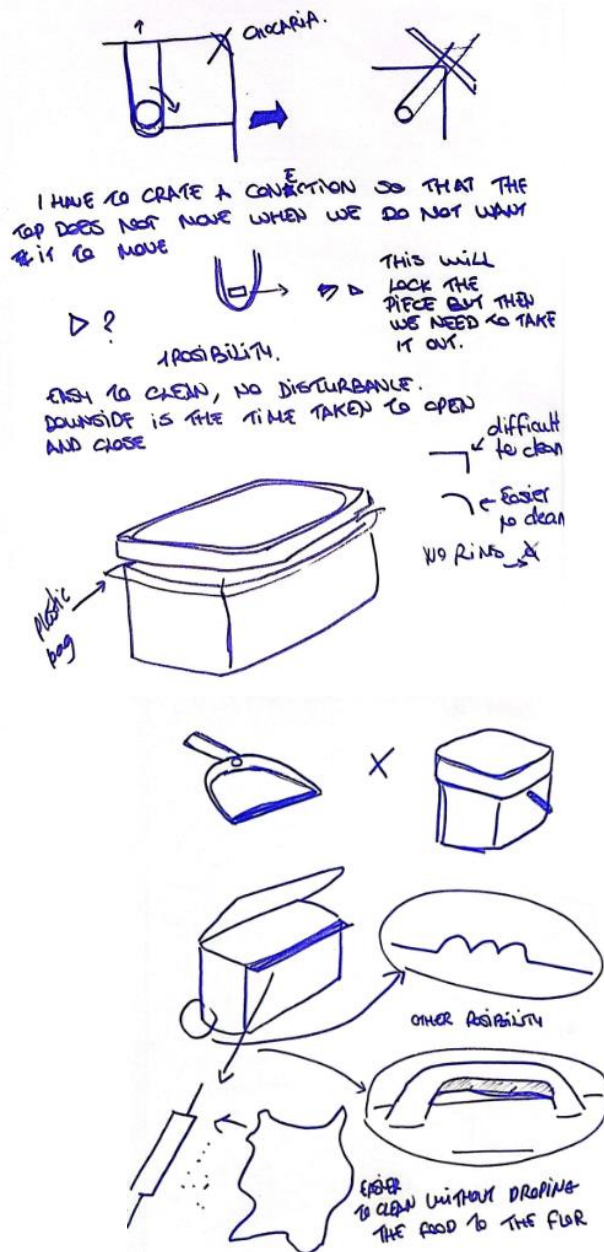
Once the idea was clear, I started to think about how this connection with the worktop would be in order to fulfil all the objectives. You can see in the images different connections with springs or clamps with which I thought that the objectives could be fulfilled in the first instance.



The next step was to think about what the lid would be like, for which I had different ideas, including making it rotate on a central axis, which can be seen later in concept 2. I also took into account different details such as how the bag had to be placed inside the container and other lids, which can be seen in the later concepts. Another important phase was to consider how the handles were to be used on the product.

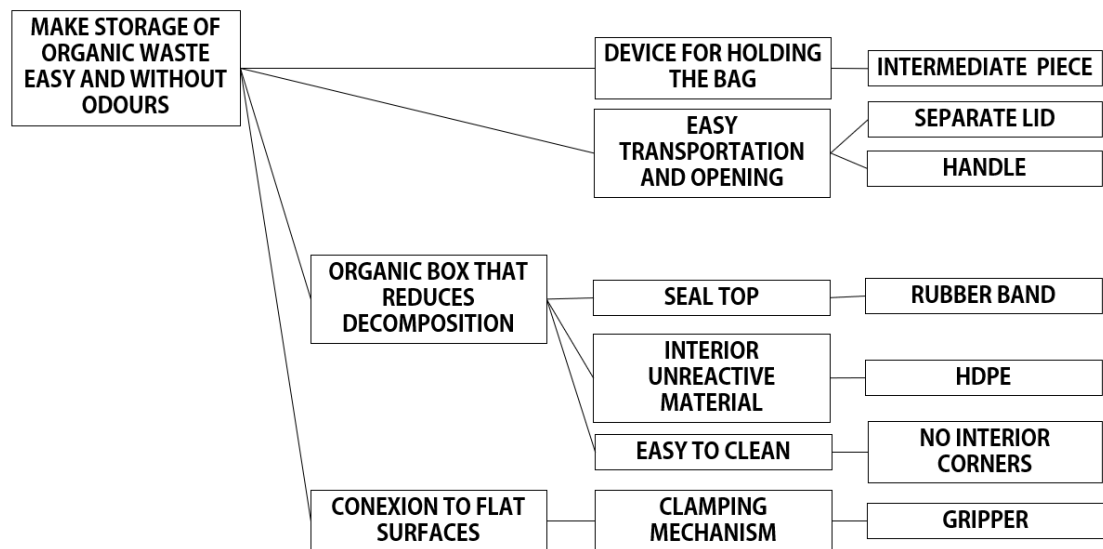
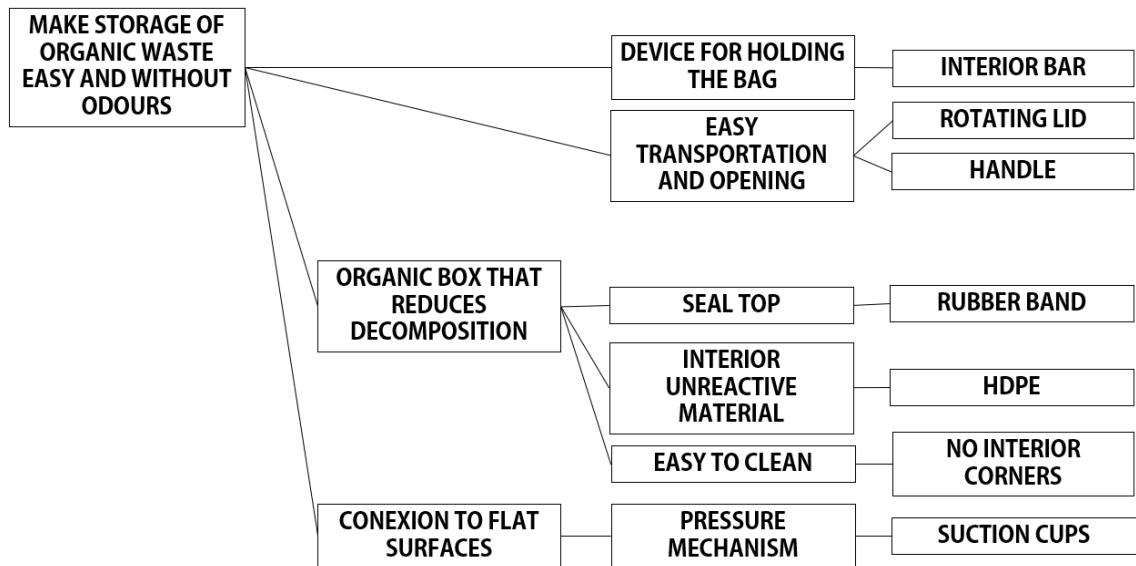
Finally, I also had the idea to realise a product that was a combination of a dustpan and a dustbin. This idea was the basis for concept 1 which can be seen in more detail on the following pages of the report.

APERIURA DE TAPA:



FUNCTION ANALYSIS

This design process had behind it a function analysis that was changing as I came up with different technical solutions to realise the different functions that the product had to have. In the images we can see two function analyses with different technical solutions that led me to different concepts.



CONCEPTS

CONCEPT 1

Concept 1 is completely based on the idea of combining the sweeping dustpan with the small organic rubbish, creating a solution that allows the rubbish to be brought close to the worktop by means of a handle. The idea is that with one hand the cloth is passed over the table while the other hand holds the rubbish. In this way it is not necessary to anchor the rubbish to the worktop and it can be cleaned quickly.



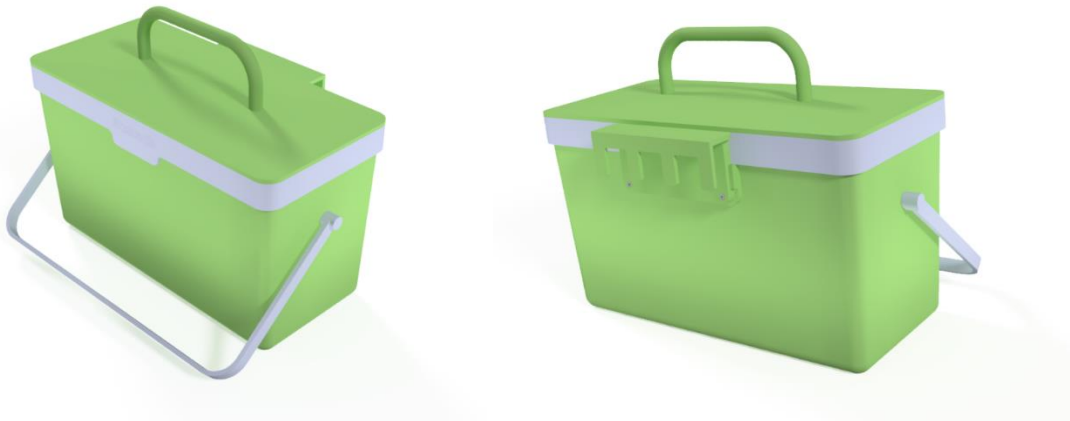
CONCEPT 2

The second concept is a litter bin which is attached to the surface of the drawer unit under the worktop by means of suction cups. In this way it can be positioned freely to achieve the desired result, which is that the edge is at the height of the worktop. This concept also has a lid that can be rotated into position so that it does not obstruct the cleaning process of the user. Other interesting features are the use of a handle for carrying the product.



CONCEPT 3

This third concept is somewhat simpler than the previous one but is more suitable for all types of kitchens. It consists of a container of a similar size to the previous ones, which also has a handle for carrying it. The main characteristic of this concept is the way it is connected to the worktops. This consists of a piece that acts as a clamp and is connected to the upper edge of cupboard doors and drawers so that when these are closed, the container is fixed to the worktop. This connection is also comb-shaped, so that it can also be connected to drawers with handles, as these do not have a flat surface and could not be connected otherwise. In addition, there is also a removable lid, the rubber interior of which can be used to simulate the worktop.



DECISION MAKING AMONG THE CONCEPTS

To decide which of the two concepts is the most convenient to develop, we have to make a list of positive and negative points of the two ideas and see which of these weighs more or less according to the importance they have in solving the problems for which the product is being developed.

CONCEPT 1

- + As it will not be anchored to any surface, it does not require a positioning time of the product and therefore requires less time of use.
- + Since the design is simpler, it will consist of fewer parts which will make assembly easier and reduce the overall cost of the product.
- As the hand is far away from the container, a torque will be generated which, with the container full, will require great force to hold and manipulate the product.
- It does not have a suitable shape to be placed in different locations in the kitchen without being physically and visually disturbing.

- The lid opens towards the handle and so that the handle does not fall back into the container by gravity, it must be rested on the arm, which can be uncomfortable.
- It deviates from the original idea of placing the element attached to the worktop.

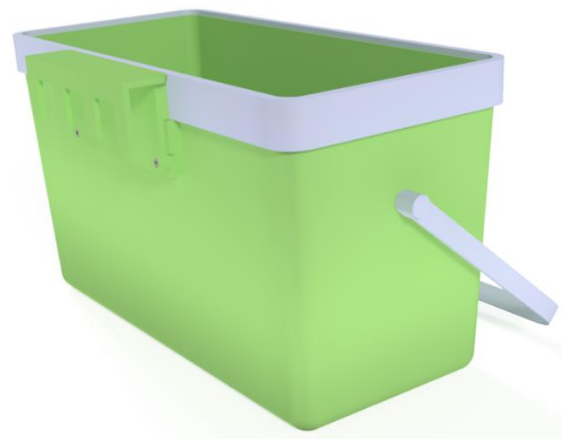
CONCEPT 2

- + It is relatively easy to attach to the desired surface and therefore does not take long to use.
- + Can be attached to surfaces in a variety of positions allowing it to be positioned in the most convenient way to collect waste
- + The lid swivels and is held in place so that it is out of the way when the container is open.
- + Transporting the product is easier and does not require as much force as using a handle from which the product hangs.
- + It's simple, compact design can fit into almost any free space in the kitchen or be stored in a cupboard without being intrusive.
- As the product is held in place by suction cups, if the suction cups are applied without sufficient pressure, the product may fall to the ground.
- When placed, the user has to move away from the worktop, which can make it difficult to use the full amount of space.

CONCEPT 3

- + Its connection allows it to be connected both to the cabinet lids of new kitchens and to the drawer handles of older kitchens. This makes it suitable for all types of customers.
- + It has a lid that can be removed so that it does not get in the way when cleaning and the inside of the lid is made of rubber so that the debris can be pushed out with it.
- + Transporting the product is easier and does not require as much force as using a handle from which the product hangs.
- + It's simple, compact design can fit into almost any free space in the kitchen or be stored in a cupboard without being intrusive.
- When placed, the user has to move away from the worktop, which can make it difficult to use the full amount of space.

Taking all of this into account we see that concept 2 and 3 have more positive points than concept 1 but there are flaws in concept 2 which make it a weak option. These flaws are somehow solved in concept 3 that is the concept that achieves our objectives in a more fulfilling way so we will continue with the idea of this third concept.



 brabantia



THE FINAL PRODUCT

Finally, we end up with the product that can be seen in the image. It is a litter bin that brings together all the technical solutions needed to tackle all the problems that were to be solved with it. In addition to the technical solutions, it also has a simple but beautiful design that integrates with the rest of the products currently produced by Brabantia, although it includes certain new features that make the product not go unnoticed.

WHY THIS PRODUCT

This product has been designed in response to the need to clean the worktop in the most efficient way possible. Clearly it is not a primary need, it is not going to make a 180 degree change in users' lives. But that's not Brabantia's goal, Brabantia's goal is to make users' lives easier and more enjoyable, and that's where this product comes in.

This product exists to help you make better use of your time, so you have more time to do what you love and make the time you spend on daily chores more enjoyable too. By adding to the organic bin, the piece that connects to the worktop, cleaning the worktop becomes a much simpler and more satisfying task.

DESIGN

CONTAINER

The container has been designed in such a way that when placed close to the worktop it does not disturb too much when cooking or working on the worktop. This is why a width of 120mm has been chosen. Once this dimension had been defined, we also had to determine what the other two dimensions would be. For the height of the product, we wanted it not to be too high, as the hook is going to be placed in the upper part of the container, so the higher it is, the further away the rubbish will be from the support point and the greater the torque produced will be. For all these reasons, a height of 150 mm was taken. Finally, for the length of the container, a slightly larger dimension was chosen, as in this direction it will not cause any problems both for the user's comfort and for the stability of the product. Finally, a dimension of 260 mm was chosen for the length, so that the volume of the interior of the product is approximately 4.5 litres with all the modifications mentioned below.



In order to stylise the shape of the container, the walls of the container have been made at an angle of 2 degrees to the vertical, creating a visual effect of greater lightness of the product. This angle also facilitates the demoulding of the product in the production process. All the edges of the piece have been rounded following the Brand Book trend that defines Brabantia's aesthetics. The rounded corners also make it easier to clean the inside of the container as no debris will remain embedded in the corners.

Another important detail in the design is that the thickness of the walls is 3 mm because we wanted it to look aesthetically not too heavy but at the same time, we want a resistant product in case of falls and blows so it could not be too thin.



Finally, for the areas where the hooks are to be screwed in, ledges have been designed. On the one hand, these allow the screws to be screwed in completely horizontally, thus bridging the difference in slope between the container and the wall. On the other hand, they also ensure that the anchoring piece is positioned vertically and anchored securely. For this purpose, two lateral projections have been fitted to connect with the coupling. A half-circumferential shape has also been added to continue the trend mentioned above.



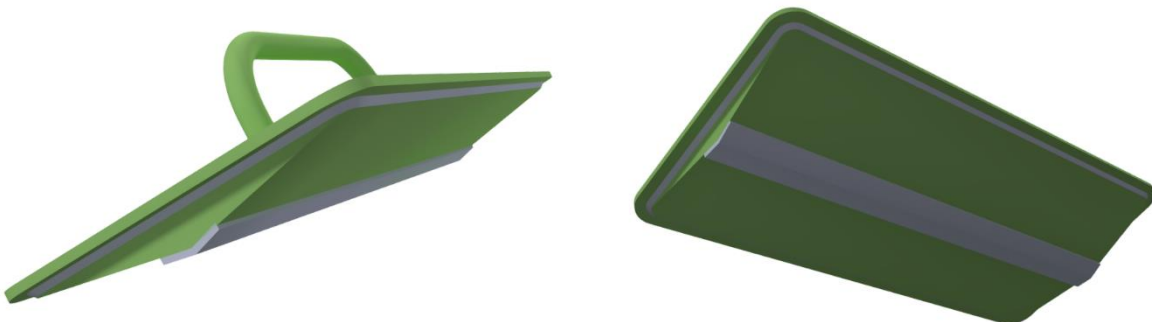
LID

For the dimensions of the lid, we have simply used the dimensions of the container as we want it to fit perfectly. For the outer surface we have brought a more innovative and ground-breaking style with a geometric pattern of four triangles creating a kind of pyramid because, as you can see in the Brand Book, we want Brabantia to start using more futuristic shapes. For the handle we have taken the dimensions of a hand within the most common parameters, and we have opted for a pipe shape that is both simple and innovative at the same time.



For the inside of the lid there are two details that have led to the final design. The first one is that the lid has to completely seal the inside of the container. That is why a rubber strip has been added around the rim that connects the lid to the container. When pressure is applied, the rubber will fill the space between them, preventing air from passing through.

The second detail is that the lid could also be used to push the waste into the container and that is why it has been designed with an inner triangular shape so that regardless of the position of the lid you can open it and use the vertex of this triangle to push the waste. To prevent damage to the plastic and to make the process easier and cleaner, a rubber strip has been placed over the tip.



CONEXION

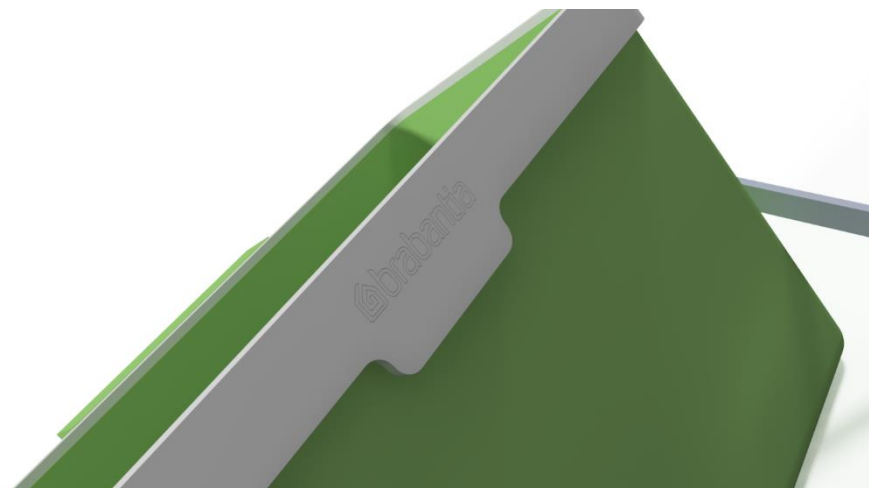
The connection has been designed with a comb shape so that it can be fixed to the top of drawers and kitchen cupboards as well as to the handles of the drawers. The thickness of the piece is also 3 mm. The inner distance is 15 mm so that it fits on thin, medium and thick lids.

The connection to the container is made by means of 2 screws which are screwed into the lower corners of the piece. To ensure that the part does not rotate, columns have been designed to fit the edges of the container so that it is always vertical. Other details are the 100 mm long distance and the rounded edges in keeping with the aesthetics of the product.



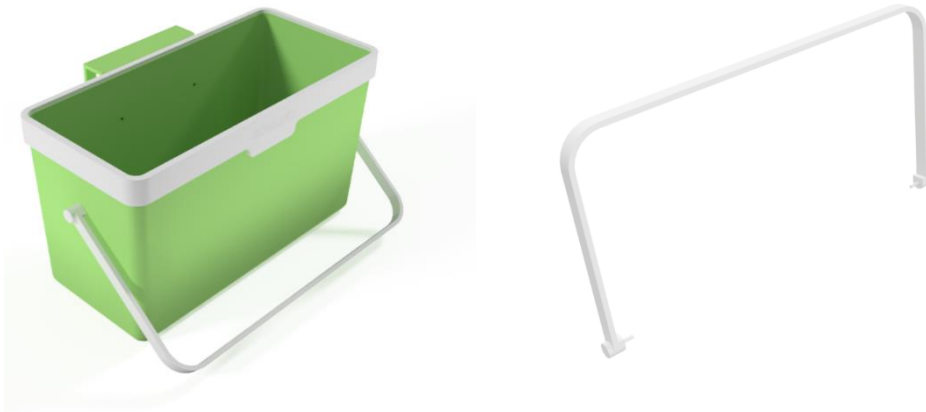
INTERMEDIATE PIECE

An intermediate piece has also been designed between the lid and the container. This piece is used so that when the bag is placed around the container it is covered by the piece so that it is not visible and remains fixed to the container. The Brabantia logo will also be engraved on this piece in the central area. The thickness is equal to the distance between the container and the connection piece, so that the bag will fit snugly into the container and will not come off easily.



HANDLE

The handle has been designed in such a way that when hanging vertically it leaves a distance of 4 centimetres from the top of the lid so that the product can be transported comfortably both inside and outside the kitchen. This will be connected through holes drilled in the container which will be discussed later in the assembly section.



USE

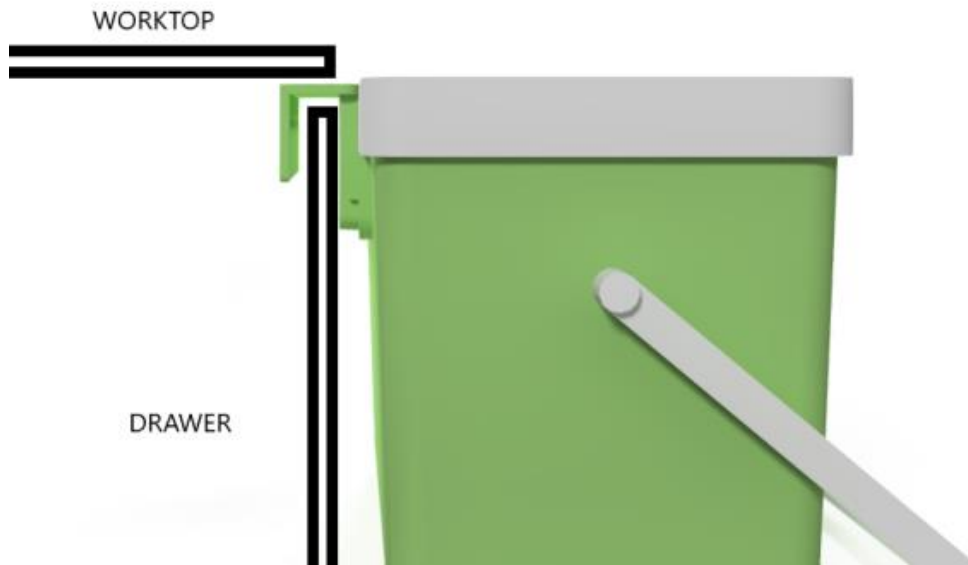
We have tried to make the use of this product as simple and intuitive as possible. First we have to distinguish between modern kitchens and more old-fashioned kitchens. In modern kitchens, the use of drawer handles is usually avoided, preferring to leave the drawer lids completely flat. In less modern kitchens, on the other hand, handles are often used, which occupy a volume that could get in the way if the product gets caught on the lid of the closet or drawer.

With plain drawer lids, you simply open the closet or drawer, connect the hook in it so that the container is hanging on the outside and finally close the drawer or cabinet so that it is glued to the worktop.

With drawer handles, you simply insert as many parts of the comb as will fit into the handle and due to the flat surface in front of the drawer, which is connected to the lid of the drawer, the product is hung vertically.

Once the product is in place, the lid is removed, which can be used as mentioned above to push out the debris, or alternatively a damp cloth can be used. The remains are pushed inside, and the utensil used for this function is cleaned.

Finally, the product is removed and stored in a cupboard or free space in the kitchen. When it is full, it is transported to the waste bin using its handle. To change the bag, simply remove the intermediate piece and replace the bag with another one.



COLOR STUDY

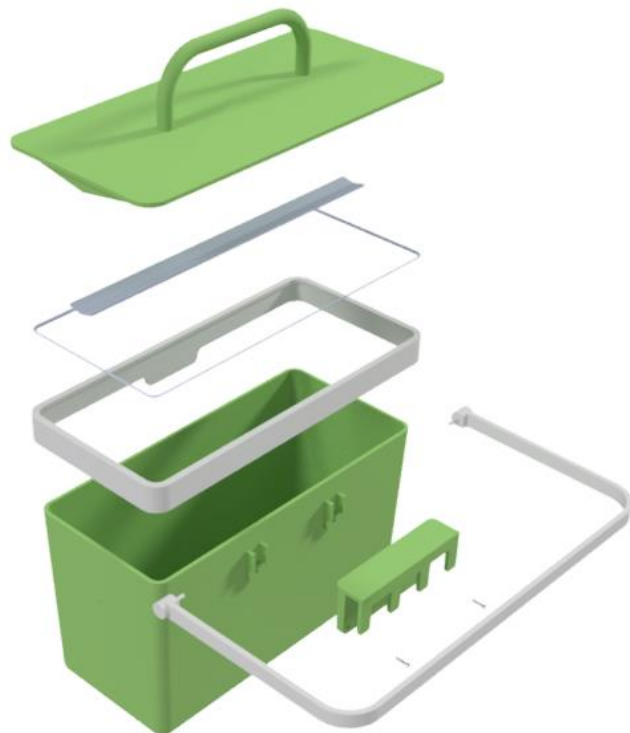
For the colours we have taken as a reference the Brabantia Brand book previously created. In this we introduced pastel colours with a matt finish, which are generally characteristic of the Brabantia company, although the colours chosen in particular are a little more daring than the ones the company usually chooses. However, we feel that these tones are more cheerful and will make the use of the products a more satisfying experience. We also introduce black and white as complementary colours.

The example product has a pale pink shade, but there are different options and combinations of the above-mentioned colours that will be evaluated in a later prototype phase and perhaps the product could be launched in more than one colour if it is as successful as expected.



ASSEMBLY

Lid
1. Glue the rubber edge to the inner corner of the lid with silicone.
2. Glue the rubber strip around the edge of the lid with silicone.
Container
1. Position the connection piece in such a way that the screw holes are aligned.
2. Screw in the two screws to fix the connection.
3. Fold the handle as far as necessary to fit through both holes of the container.
Intermediate piece



MATERIALS

HDPE

For the plastic pieces we will use high-density polyethylene. Rigid-sided litter bins can be constructed of high-density polyethylene (HDPE). These containers are often the smallest containers for the kitchen or office or heavy outdoor bins. HDPE is harder than LDPE, resistant to breakage, weather and water. High density polyethylene, such as LDPE and LLDPE, is non-toxic, and is often also used in food packaging. The HDPE resin identification code is two and HDPE PCR products include non-food packaging for household items such as detergents, buckets, tubes, fencing and recycling containers.



RUBBER

Synthetic rubber is any man-made elastomer. They're polymers made from petroleum by-products. Synthetic rubber, like natural rubber, has several applications, including tyres, door and window profiles, seals such as O-rings and gaskets, hoses, belts, matting, and flooring

We will use synthetic rubber in the connections to be sealed as well as in the area to be used for the cleaning of the worktop. This is because this material is very elastic and can be easily deformed into the desired shape. It also has a good resistance to wear and tear.

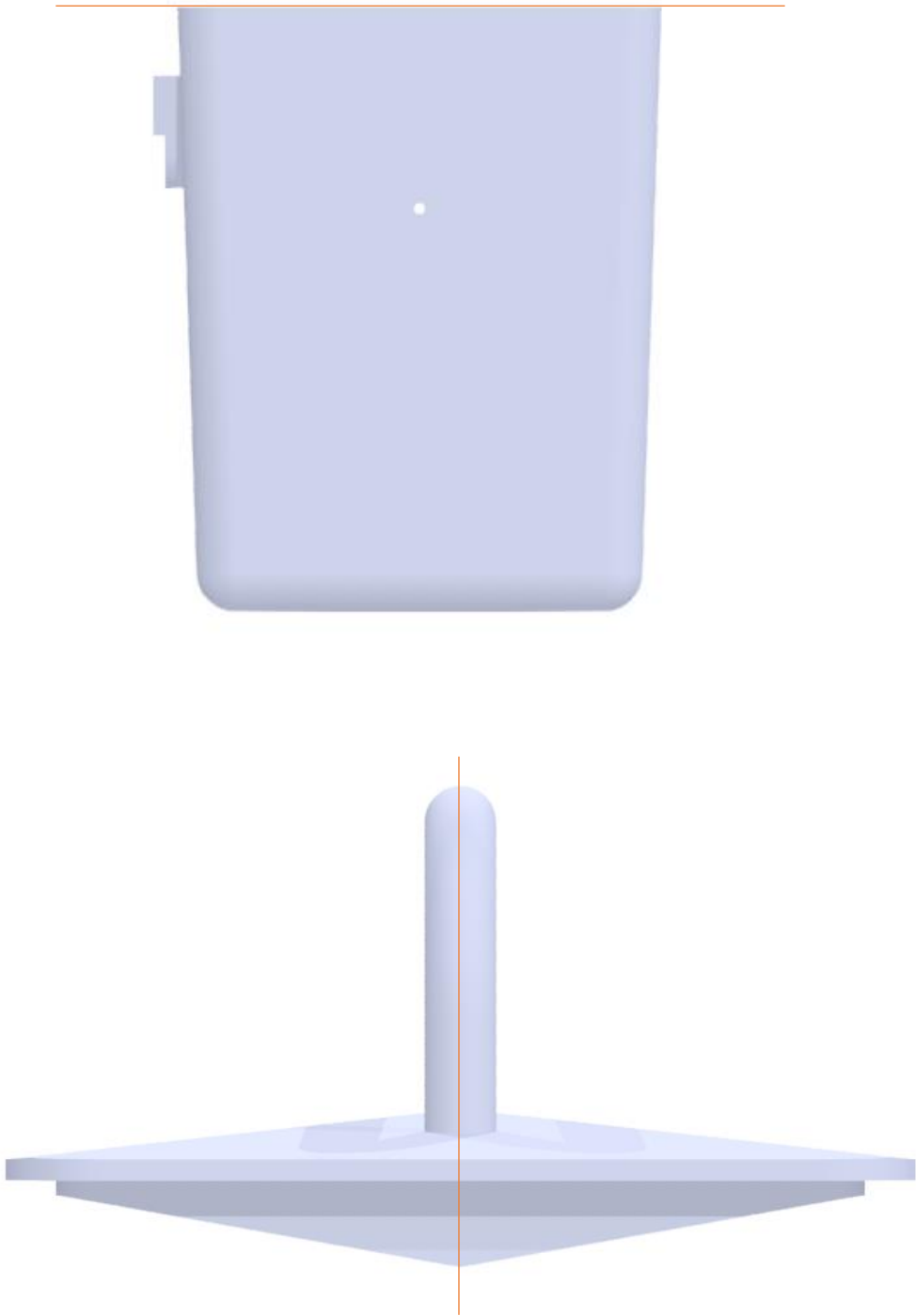


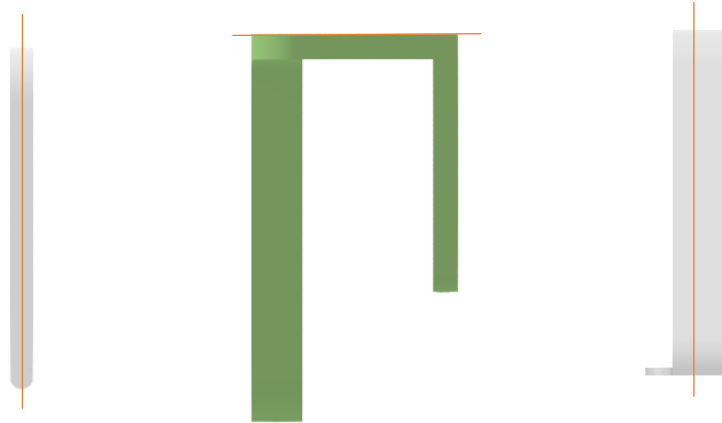
PRODUCTION

Most of the parts that make up our product will be produced using high density polyethylene, so we will use a plastic production process. There are several possible processes for the manufacture of plastic parts. These are: extrusion, blow moulding, thermoforming, rotational moulding, injection blow moulding or injection moulding.

But of all these processes, thermoplastic injection moulding is the most widespread, as it is the most economical when it comes to mass production.

To manufacture these plastic parts by the injection moulding process, it is first necessary to have a mould or die with the geometry of the projected part. This mould will cost us money at first and depending on the disposition of the piece in the mould it will be more or less expensive. It is important to locate the parting lines in a way that make the extraction of the mould as easy as possible. The disposition of the parting lines for the different pieces will be as follows:





Once these pieces have been made, it is only necessary to add a few details to complete the production process. The first of these is to make the holes for the screws, which will be done by means of a drilling machine and then the screws will be inserted.

For plastic engraving there are different techniques from laser engraving to water jet engraving to more mechanical methods, all of them CNC controlled. We have chosen a laser machine that fits the type of plastic we have as it has a higher production speed and the cost of this is not much different from the mechanical ones.

COSTPRICE

For the cost calculation we have made a table in which the costs are distributed according to the material and production costs of each part. We have also calculated separately the packaging and assembly costs as well as the transport costs and by means of all this we have arrived at a cost of 4,96USD. We are going to sell the product at a price that generates a high profit as Brabantia is a medium batch size company where the focus is on product quality.

Parts	Quantity	Material	Manufacturir	Make	Buy	Material cost	Production c	Total cost
Container	1	HDPE	PIM	x		\$1,12	\$0,69	\$1,81
Intermediate	1	HDPE	PIM	x		\$0,27	\$0,35	\$0,62
Conexion	2	HDPE	PIM, Drill	x		\$0,13	\$0,28	\$0,42
Rubber strip	1	synthetic rubber			x	\$0,10		\$0,10
Lid	1	HDPE	PIM	x		\$0,40	\$0,39	\$0,80
Handle	1	HDPE	PIM	x		\$0,03	\$0,36	\$0,39
Screw M2	2				x	0,12		\$0,24
Rubber band	1	synthetic rubber			x	\$0,06		

Total cost of manufacturing	Total cost per piece
\$1.982.360,01	\$4,96

Costs of pakaging	Assembly
\$0,53	\$0,05

Fixt costs	
Per piece	\$0,23
Total	\$93.000,00

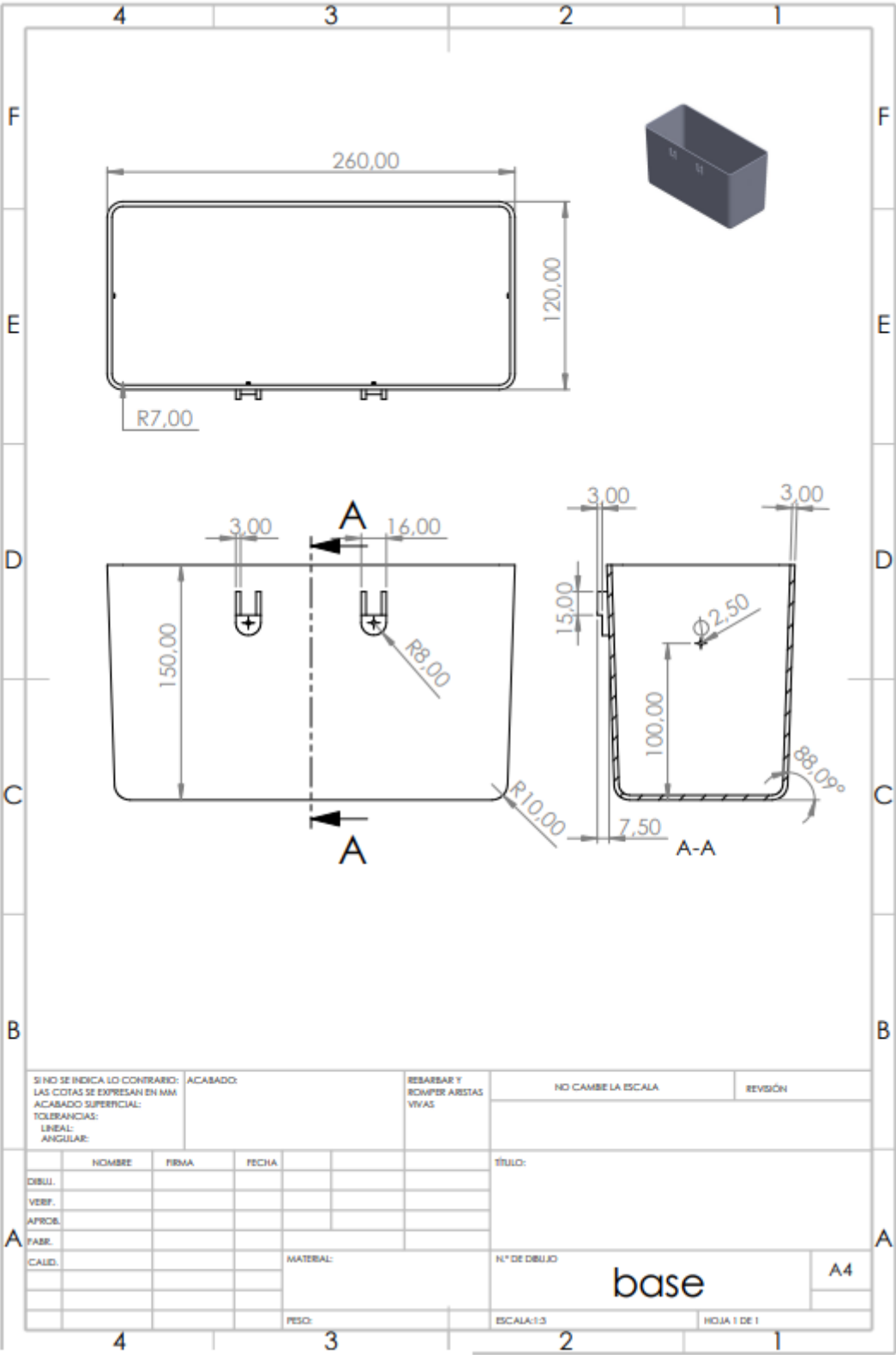
Cost of transport	
Per piece	\$1,43
Total	\$572.597,00

With all this we could calculate the breaking point for our product. To do this we take as fixed costs the machinery and transport which give a total of 665,597 and we add the cost per piece multiplied by x number of pieces. To this we subtract x multiplied by the price of our product and by simply solving this equation we obtain the breaking point.

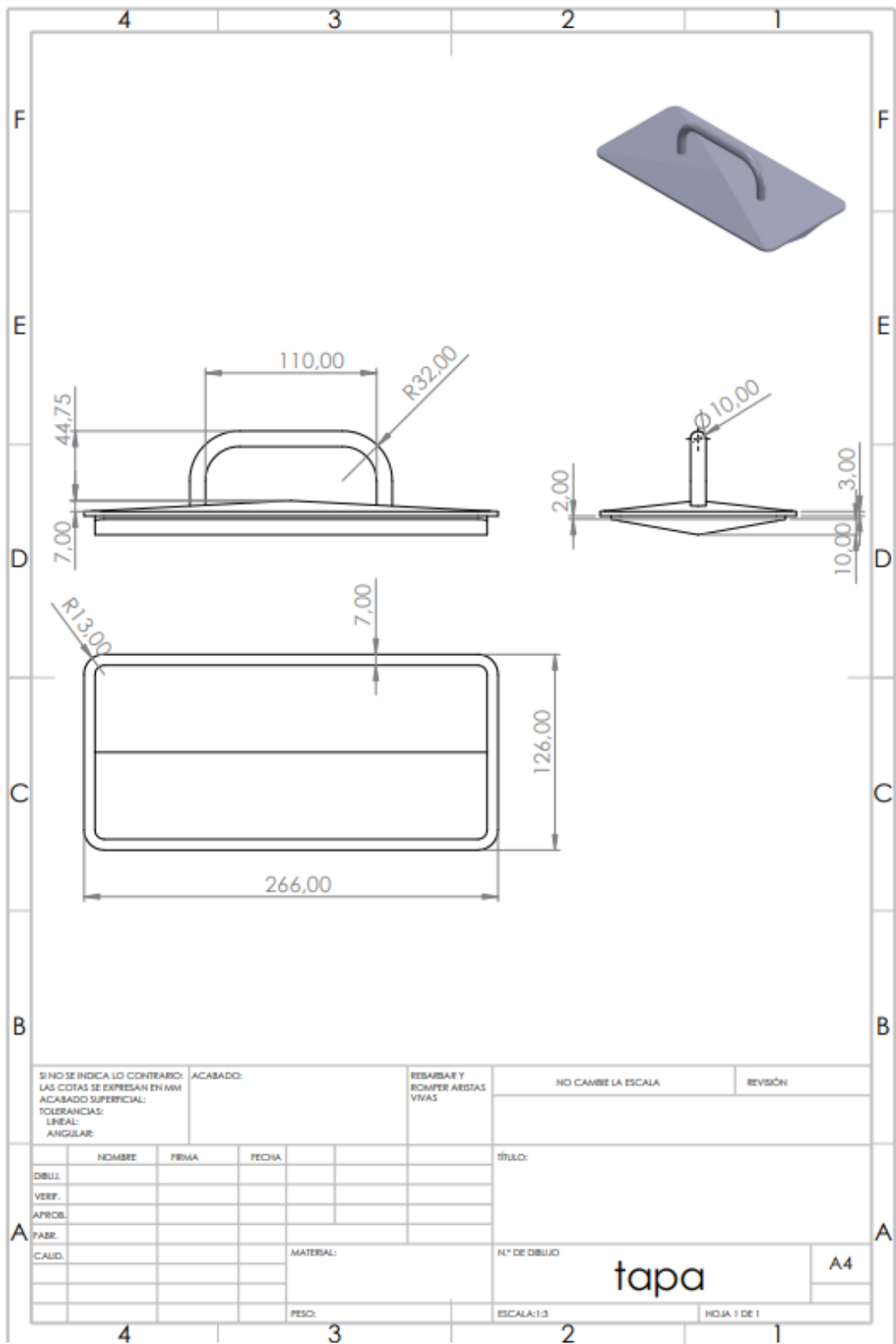
$$665,597 + 4.96x - 20x = 0$$

We obtain that the break-even point for a selling price of 20 USD will be of 44,255 units of the product.

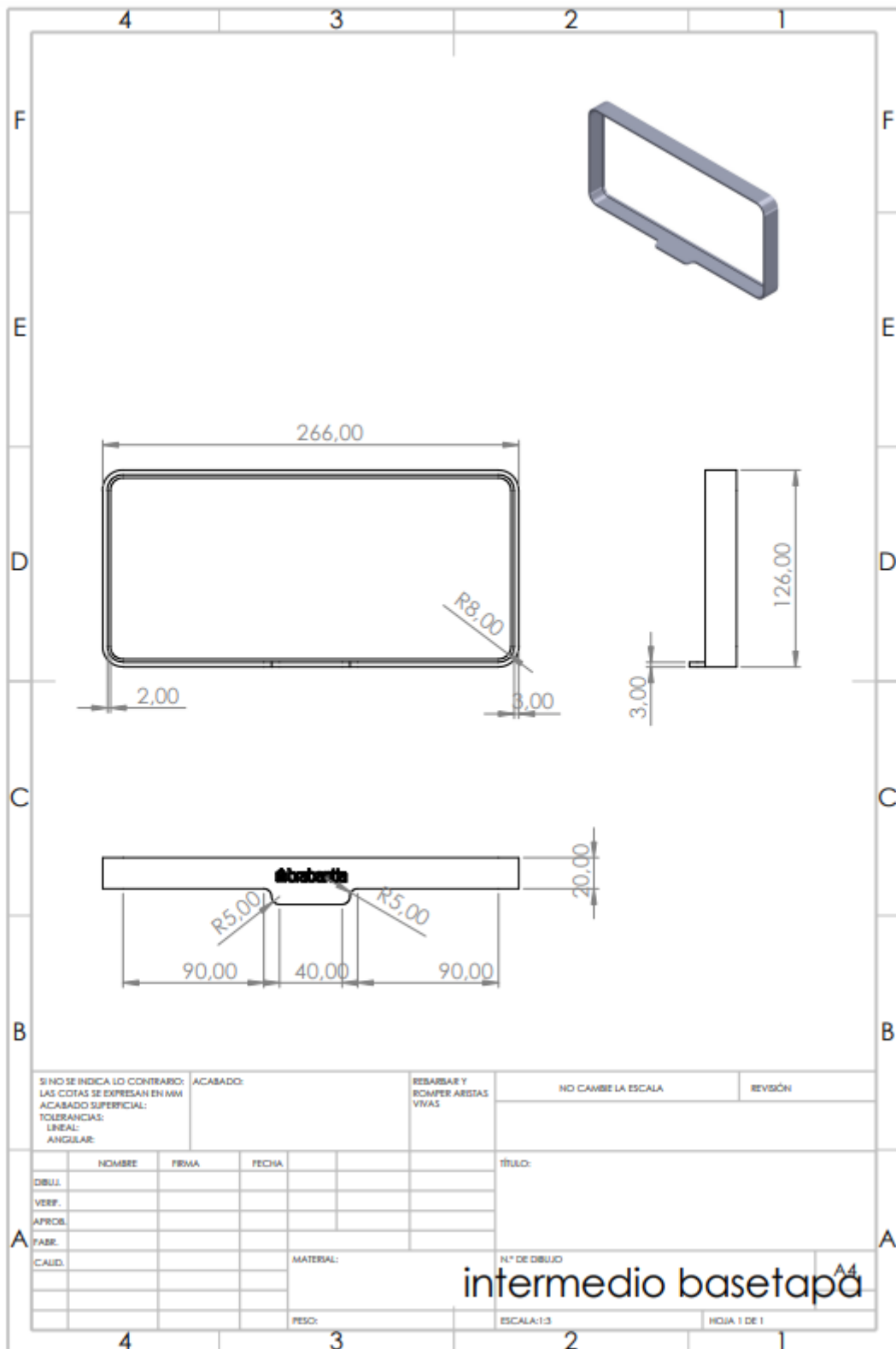
DIMENSIONS



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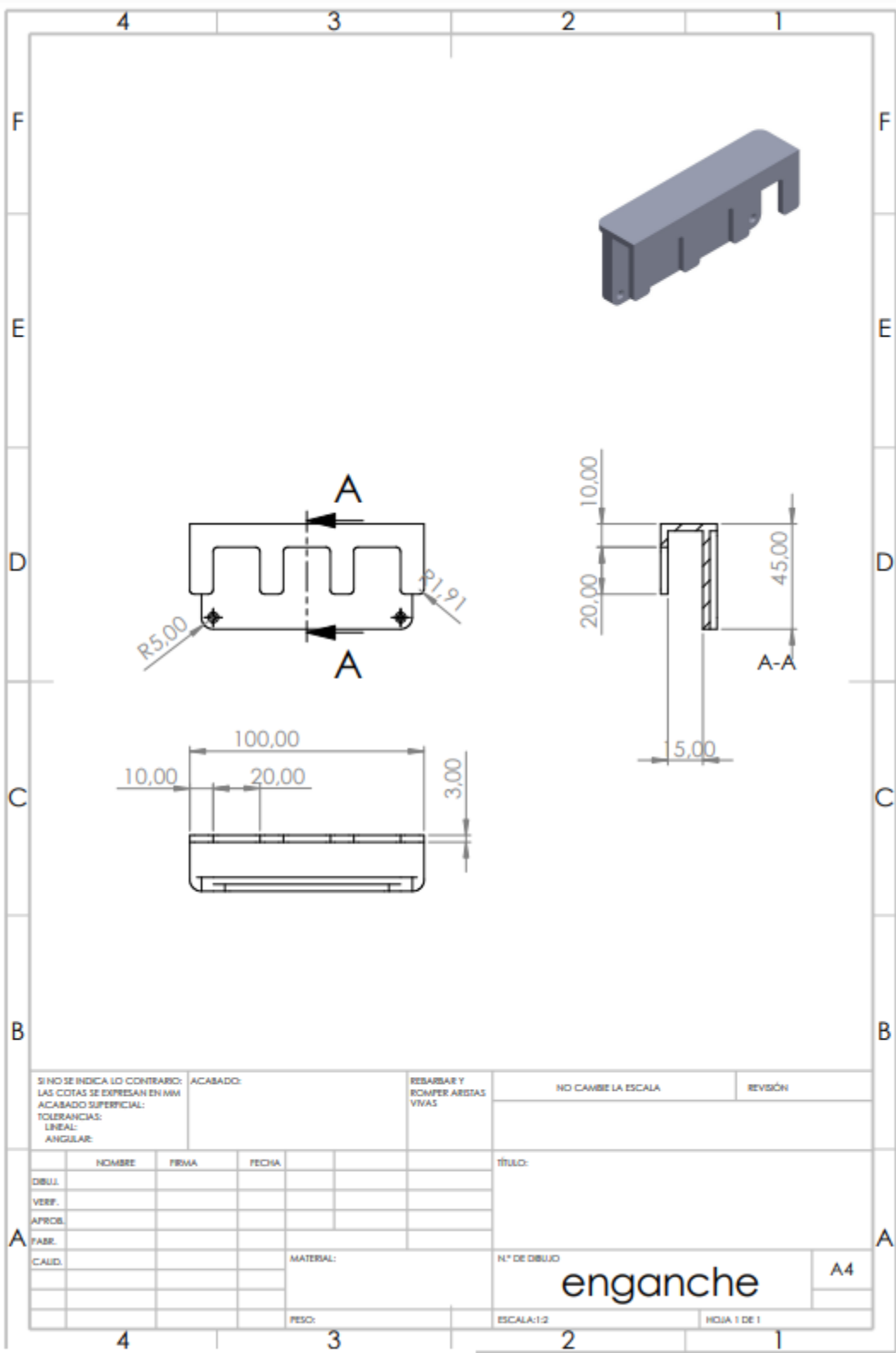


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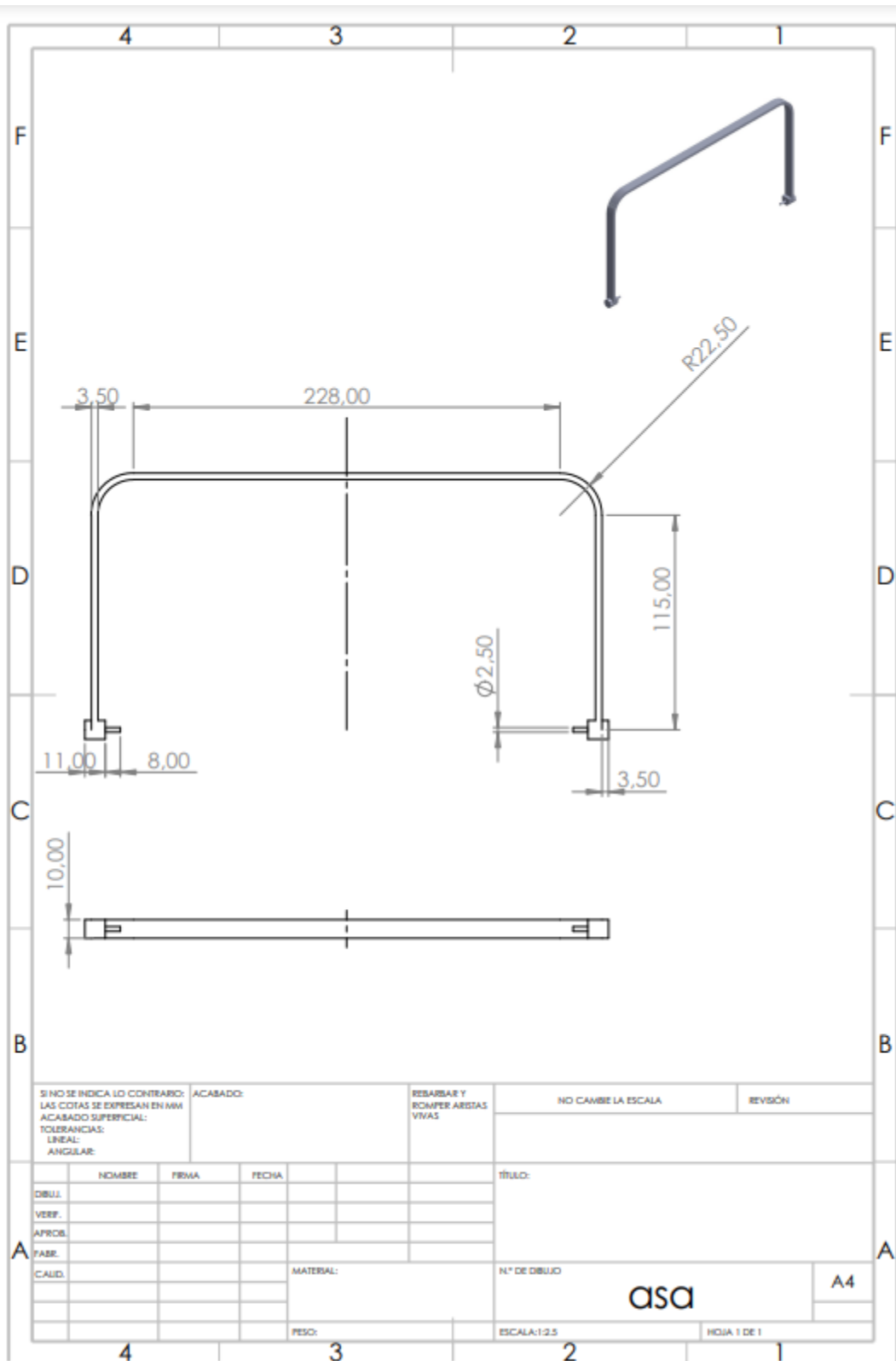
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FINAL ITERATION

After completing the development of the concept 3 idea, we realised that it had a number of flaws both in terms of manufacturing and usability. Therefore, we decided to make another iteration of the design of this product trying to solve these errors to reach a product that really satisfies the user.

Firstly, in terms of manufacturing concepts, one of the problems was that the lid consisted of two parts that were joined together by means of a silicone, this solution was not effective as it was not a good adhesive and required a longer assembly process. Another problem with the model was that the thickness of the mould was not constant, mainly in the lid where the thickness changed significantly along the length of the mould, and this would produce failures in the distribution of the material.

As far as the container box was concerned, it also had some minor flaws such as the fact that there were holes that allowed air to enter the container, as well as the screw holes that also went all the way into the container. Another problem was that the dimensions of the container were small.

Also, regarding the connection piece, this, besides not having a constant thickness, consisted of screws for its assembly, which could be avoided as it was not a good option as it hindered the assembly process and did not allow an easy assembly and disassembly. In addition, this piece had a size that does not suit all types of drawers as the standard size of kitchen door thickness varies between 22 and 16 millimetres.

Finally, there were also other problems with the lid, such as the handle which, due to its shape, made the mould more expensive as it was a more complex one. This lid also had flaws in terms of usability as it was difficult and messy to collect the waste with it, as had been established as an idea.

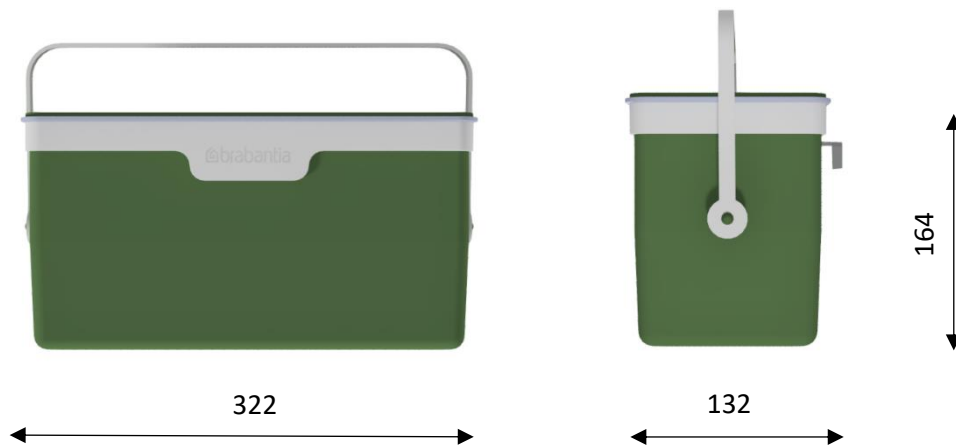


MODIFICATIONS

DIMENSIONS

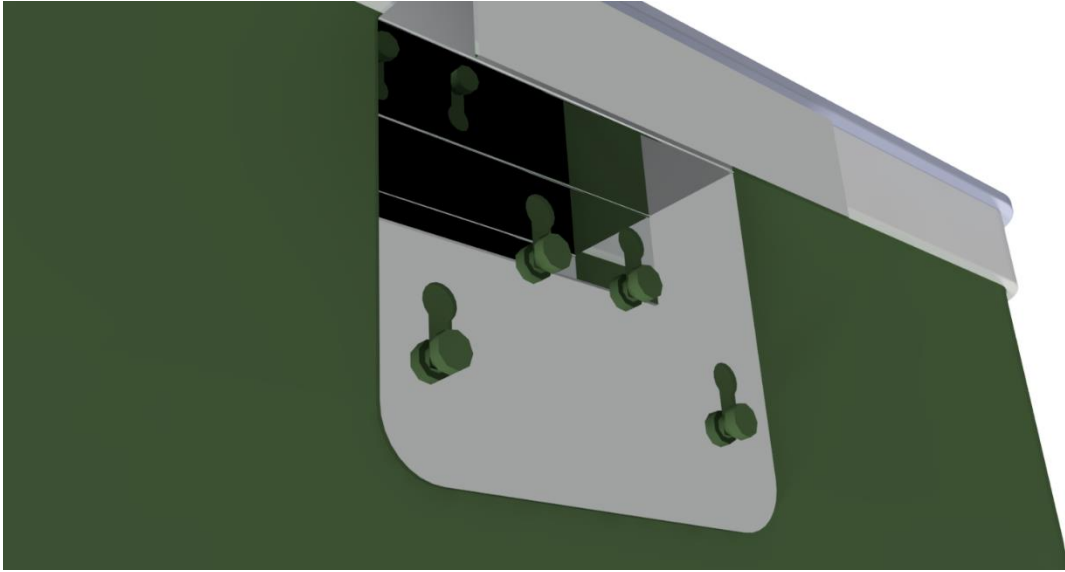
Regarding the dimensions of the container, we have decided that it would be a good option to increase the longitudinal dimension of the container, as this dimension does not directly affect the stability of the container, so it would not cause problems and would increase the volume inside the container. In this way we would obtain a greater capacity and it would not be necessary to take out the rubbish so often.

The final dimension adopted for this length is 300 millimetres. The rest of the dimensions have been kept similar to the previous model, varying a few millimetres due to thickness readjustment.



THE CONEXION

Both the coupling piece and the connection with the container have been modified as the previous connection was more tedious to assemble and did not allow the container to be assembled and disassembled in this one. For the new connection, a key-shaped slot mechanism has been chosen so that the projections of the container enter from above in the area of greatest diameter and when the container is dropped by gravity, these projections descend until they are hooked in the narrowest area. In this way the coupling can be fitted and removed at any time so that it is not necessary to remove it for transporting the container.



THE CONTAINER

Several modifications have been made to the container, mainly to make it easier to demould and reduce the number of processes involved in its manufacture. Firstly, the way of attaching the connection piece has been changed, as the previous attachment was neither safe nor easy to assemble and disassemble, as explained above. For this purpose, the container has 4 projections distributed in such a way that they are in different positions for greater stability. These protrusions have a narrower trunk than the lid so that they can be anchored to the other piece. In addition, they are fixed to the part of the container wall that is completely vertical so that the partition line can pass through the middle of them, making the mould simpler (no moving parts).

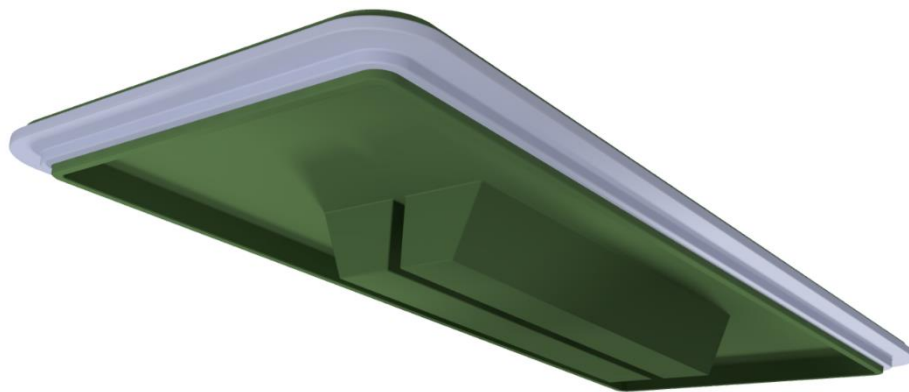


Another change in the container is the inclination of the walls, which are now vertical in the upper 2/3 of the container and inclined at an angle of 2° from there. This makes it easier to demould the part with the various protrusions that have been added. In addition to the protrusions mentioned above, two more protrusions have been created (one on each side) to connect the handle without having to make an inner hole. These thumbtack-like protrusions allow the handle to be inserted and once inserted it will not be easy to remove due to gravity. The parting line will also pass through the middle of these protrusions.

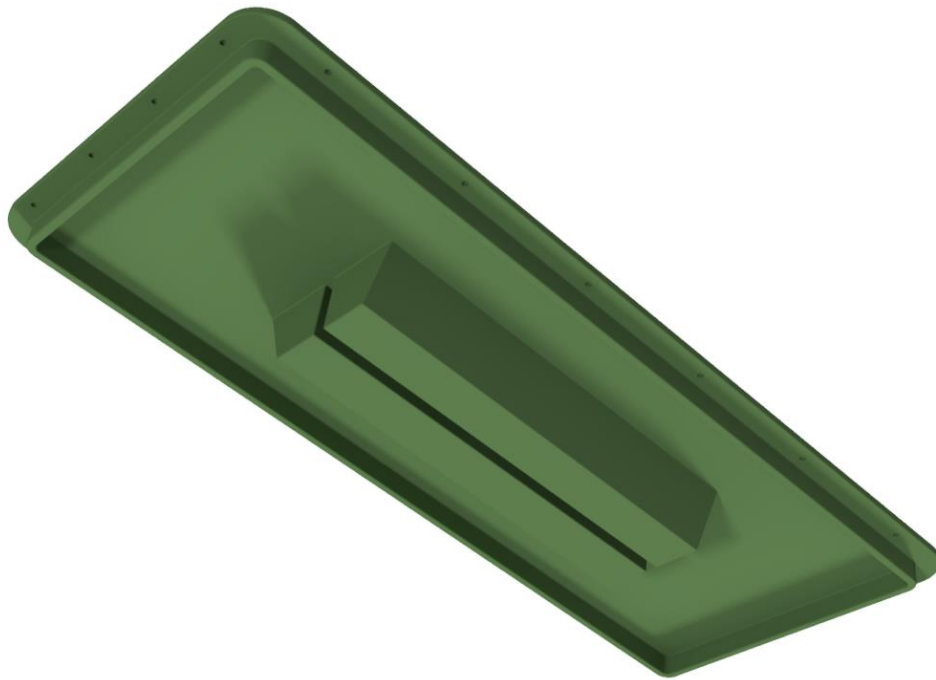
Finally, another important change is the introduction of a 0.5 millimetre radius rounding on all the straight edges of the container, as it is not possible to produce sharp corners with plastic injection moulding, thus better distributing the internal pressures.

THE LID

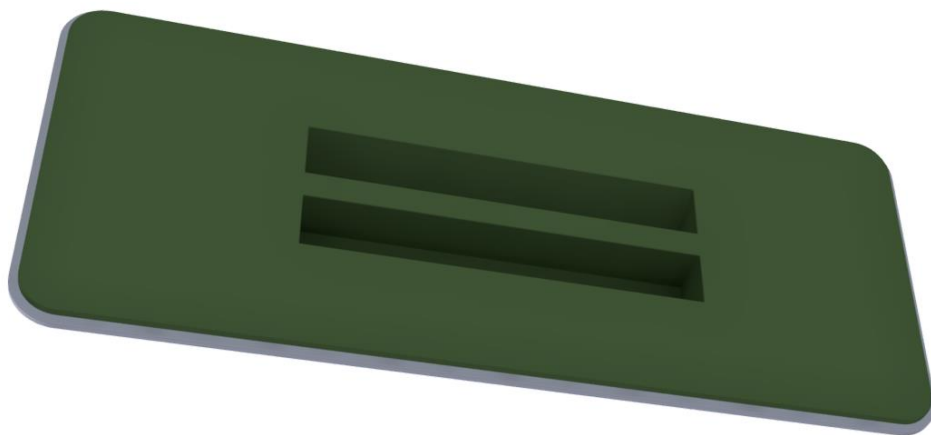
The lid has also been redesigned to solve all the problems of the previous model. To begin with, it has been designed in such a way that the thickness of the piece is constant (3 millimetres). The previous design consisted of a thicker area to push the waste into the container, but it was not a very clean idea. That is why we have chosen to make a flat lid and that the elastic plastic coating that served to seal the lid also serves to push the waste.



This elastic plastic cover will be produced by combined injection moulding at the same time as the lid, so that the entire lid can be produced in the same step. For this purpose, the lid consists of a series of shallow holes distributed along the length of the lid in order to insert and fix the second material. The second material will protrude from the lid on all four sides, leaving four possible faces to push the waste. It will also fulfil its initial purpose, which was to insulate the inside of the container.



As for the handle, there is no longer a handle as such, but two symmetrically placed grooves have been created that are large enough to fit a person's fingers, so that the lid can be manipulated by means of this grip and there is no need for a handle that would require a more complex mould. A 0.5 millimetre rounding has also been applied to all straight edges.



COUPLING PIECE

The part used to attach to the enclosure lids has been modified in both design and material. The part will now be made of AISI304 stainless steel because with this material the thickness of the part can be reduced without compromising the integrity of the container. This way the thickness of the piece will be 0.8 millimetres, which is a measure that fits without any problem on top of any drawer or cupboard.



The design of this part has also been simplified a lot, as it was not necessary to have so many complications and in this way, it will be manufactured in a simpler way. It is a steel sheet that is bent into the shape of the hook that we need and then the corners are rounded, and the holes are drilled for the connection. Another important change with respect to the previous piece is that this one has an inside measurement of 22 millimetres to adapt to the thicker drawers and also fit in the thinner ones.



INTERMEDIATE PIECE

The intermediate piece has hardly been modified. Only the dimensions have been modified a little bit so that it can fit with the rest of the new pieces. In addition, the straight edges have been rounded. As for the manufacturing process, the logo will also be made by means of the mould so that everything is made in one process instead of two.

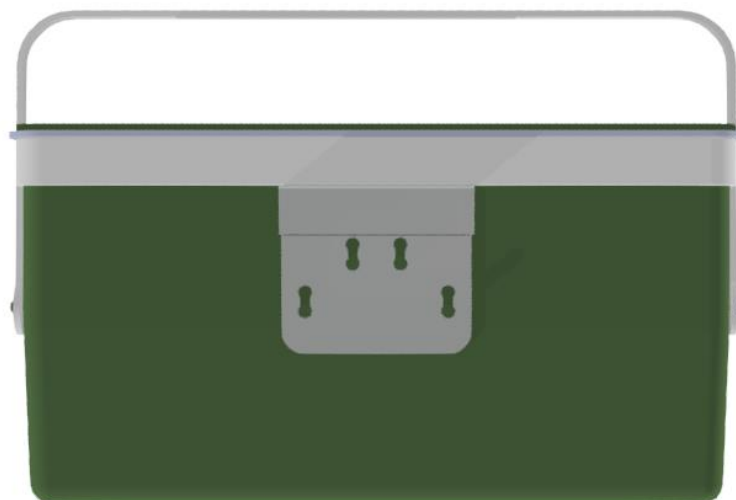
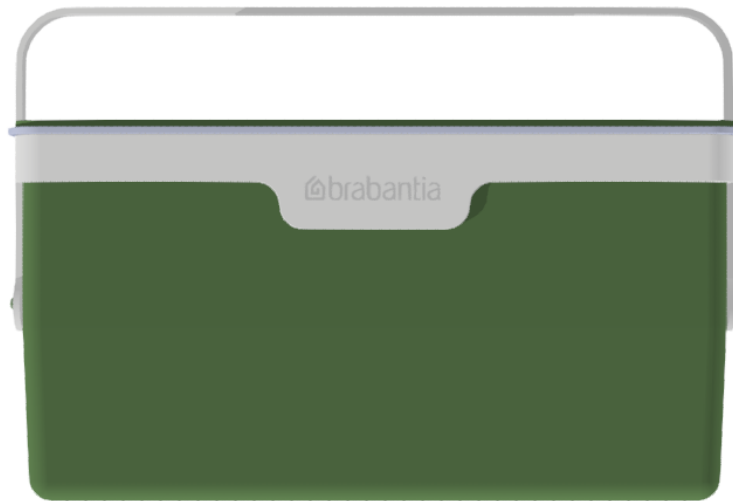


HANDLE

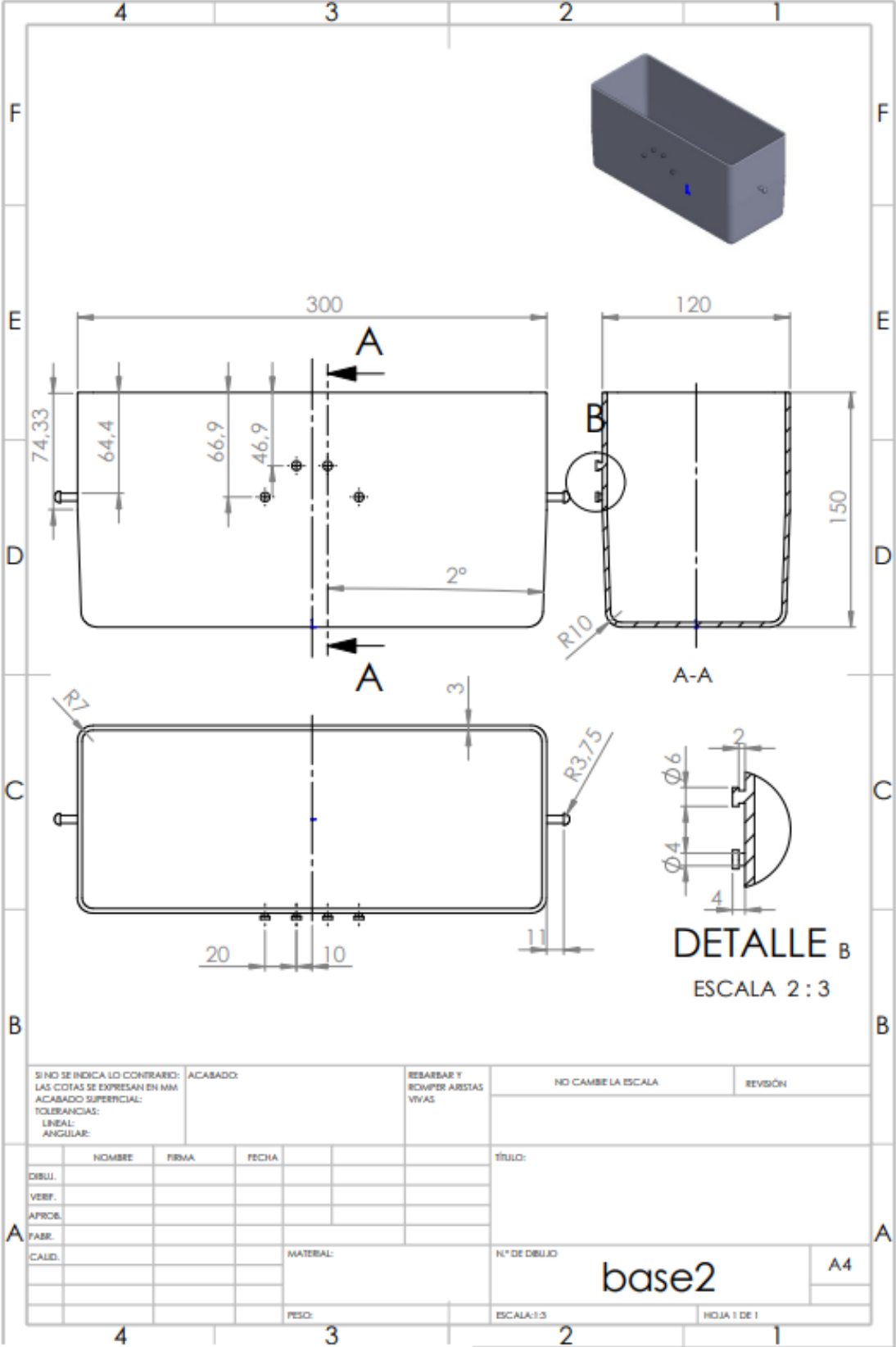
For the handle, the dimensions have simply been modified to fit the dimensions of the new container and a connection with a hole has been created to fit the projections of the box.



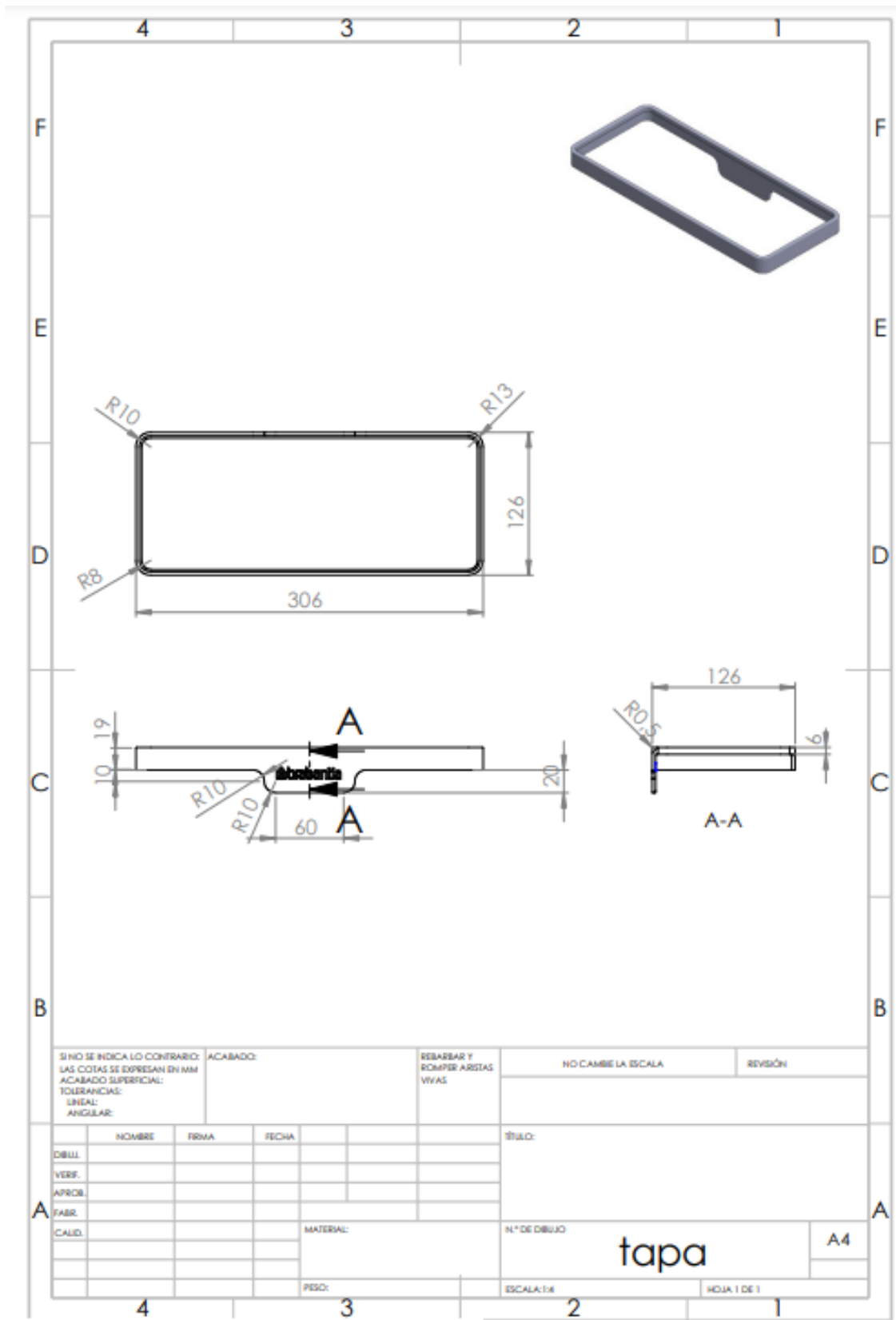
FINAL PRODUCT



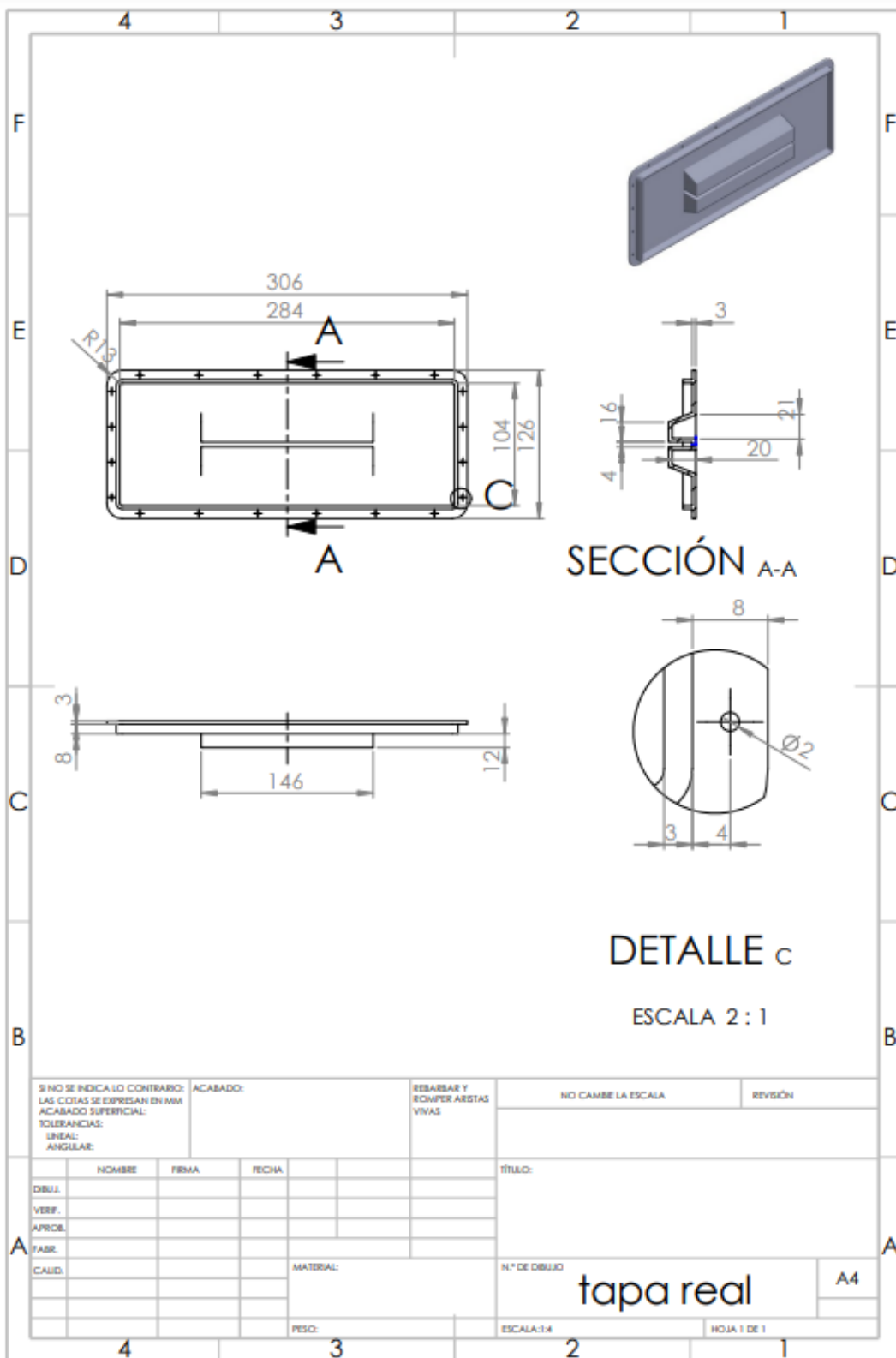
DIMENSIONS



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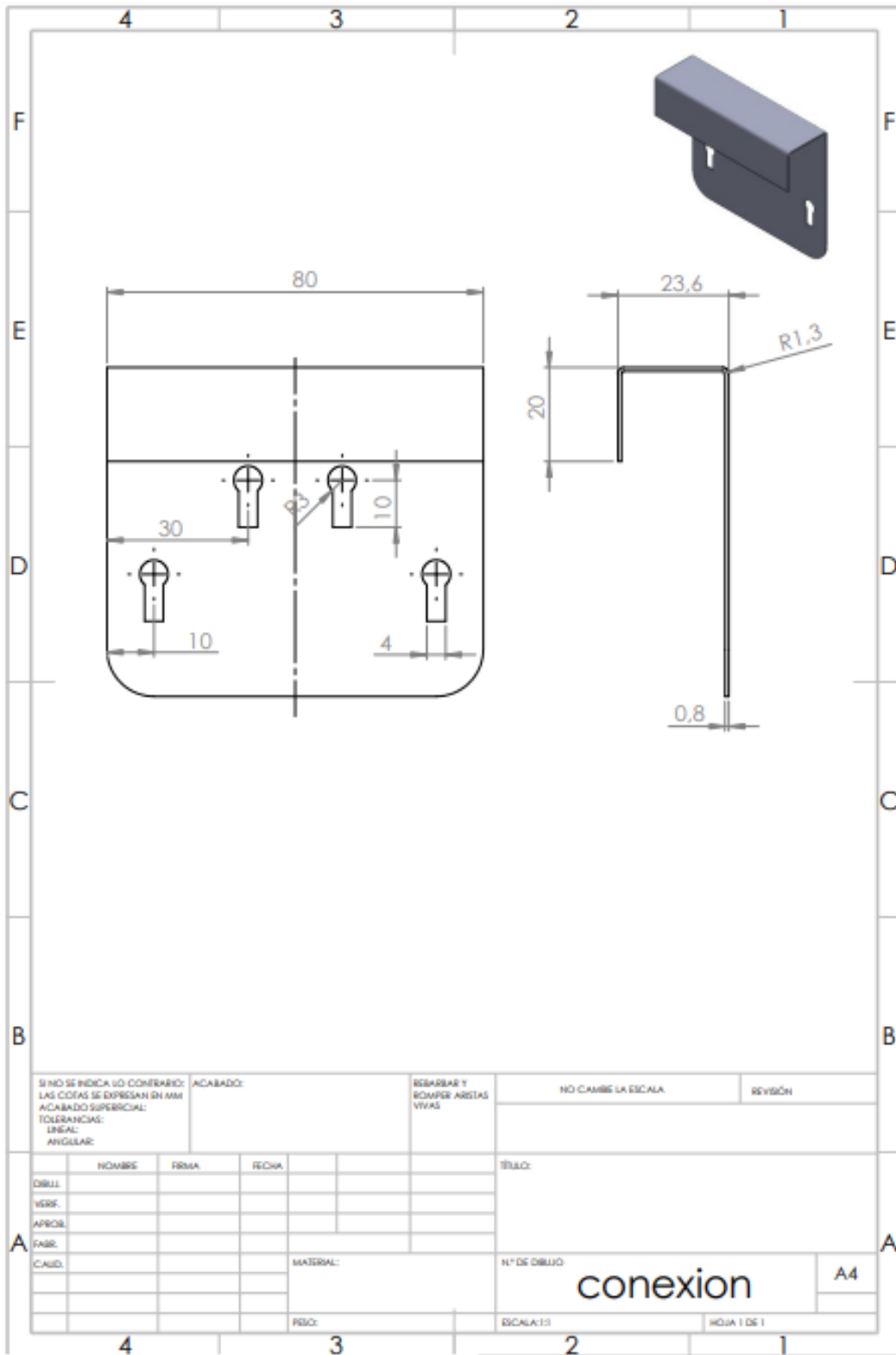


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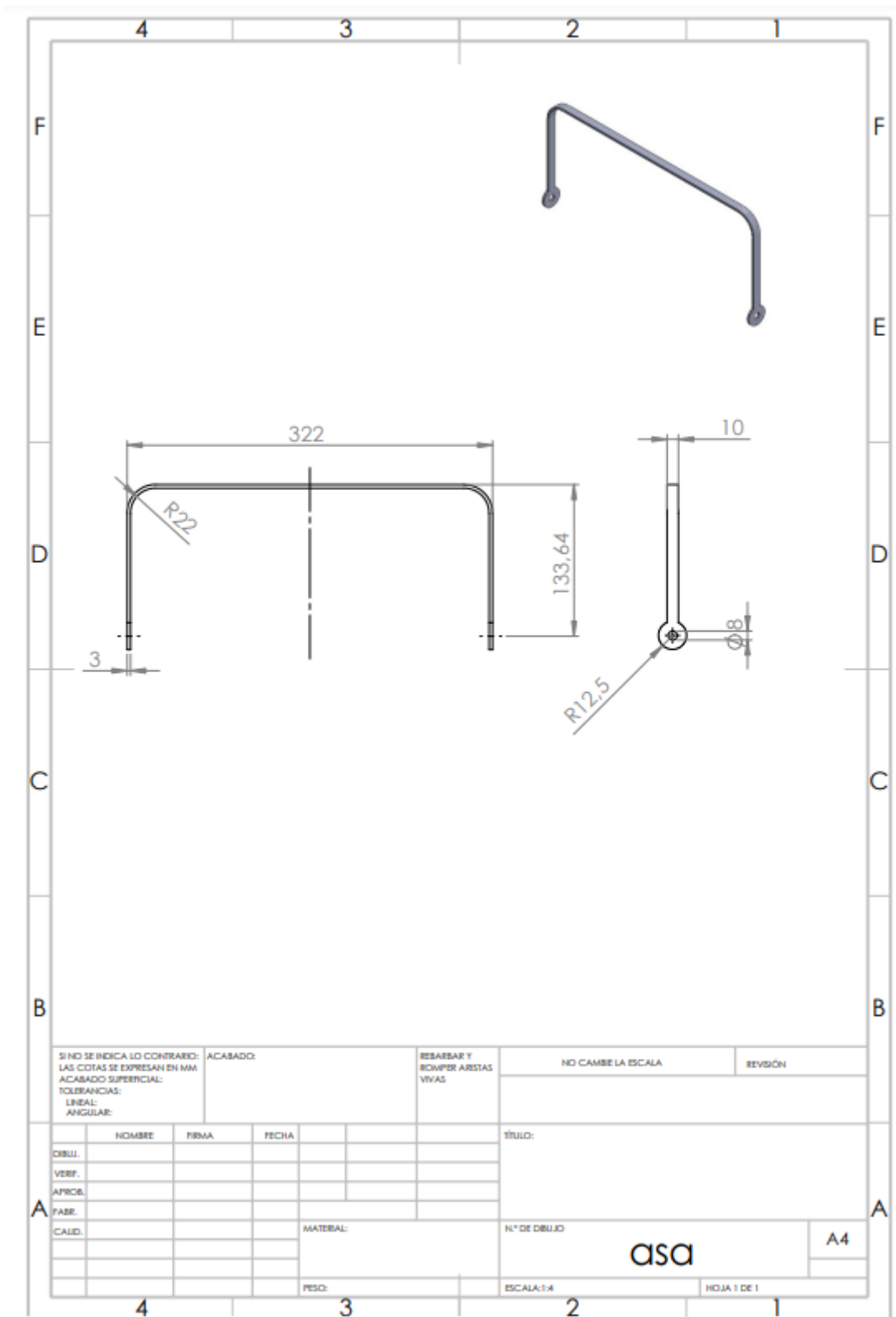


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APPENDIX

BATCHSIZE CALCULATION

Estimating the batch size is a really important step in the creation of a new product because it helps estimate whether a certain production method will become too expensive or not.

Having the target group determined as it has been in the previous chapter, next step is to prepare a research plan to gather information as not all the people in the target market will be willing to buy the product, and from those who are willing, not all of them will buy it.

Some interesting questions that can be asked are:

- Which products do people already have?
- Are they interested in the product?
- Is there any existing product that can be a competence?
- How often do people replace this kind of product?

Answering these questions, we will be able to estimate the percentage of the target audience that will purchase the product.

Group 1: Students

There are 707,000 students enrolled in the Netherlands from which 101,000 are international students studying abroad. It is estimated that 1 of each 4 students from the Netherlands move from their parental house while studying. From these data we can get the number of students living away from their parents:

$$101,000 + \frac{(707,000 - 101,000)}{4} = 252,000 \text{ Students}$$

Most of these students share kitchen within them. These kitchens can be shared between groups of 2 to 7 people usually, so a sensible estimation will be to say that every 4 students share one kitchen.

$$\frac{252,000}{4} = 63,125 \text{ Kitchens}$$

Now, evaluating this group based on the questions mentioned before, we can see that:

- + There is no real competence as the product has features that make it unique

- + Cleaning of the kitchen and common areas are usually an issue of argument in student accommodations.
- Students budget is reduced, and they tend not to spend more money than the strictly necessary on household equipment

Considering the previous information, it is fair to estimate that around an 8% of the student accommodations will buy the product and therefore will be considered in the batch size.

$$63,125 \times 0.08 = 5,050 \text{ Products}$$

Group 2: Young people

The number of inhabitants in the Netherlands with ages between 25 and 35 is 2,258,000. People of this ages tend to live alone, in couples or with small children therefore they fall into our target group. Taking the data of the average number of inhabitants per household in the Netherlands, which is 2.14, we can calculate the number of households in the target group:

$$\frac{2,258,000}{2,14} = 1,055,000 \text{ Households}$$

Now evaluating this section of the target group, we can see that:

- + There is no real competence as the product has features that make it unique
- + This group has a higher budget in relation to the previous one and is willing to spend money on household appliances
- The product is not necessary for them, it is just convenient

Having in mind all of this, a good estimation will be that 25% of this group will buy the product and therefore they will be included in the batch size:

$$1,055,000 \times 0,25 = 263,750 \text{ Products}$$

Group 3: Elderly people

There are 3,457,000 people living in the Netherlands which are older than 65. This people usually have their sons emancipated already and live in couple.

$$\frac{3,457,000}{2} = 1,728,000 \text{ Households}$$

Evaluating also this subgroup we get that:

- + There is no real competence as the product has features that make it unique
- Elderly people are used to certain routines like cleaning the house and its difficult for them to change the habits they already have

For these reasons it would be adequate to estimate that only 10% of this people will buy our product, therefore:

$$1,728,000 \times 0,1 = 172,800 \text{ Products}$$

Finally summing up the number of products that are going to be bought by costumers of the three different groups we get to the batch size which will be:

$$5,050 + 263,750 + 172,800 = 441,600 \text{ Products}$$

Now we should iterate this process but with a different approach to see if we are getting a similar result. For this iteration we will use the total number of people in our target group. After that we will calculate the number of houses that make up that percentage of people and from there, we will guess how many of these houses need our product taking into account different aspects of the product such as its novelty etc.

Population in the Netherlands by age:

People between 20 and 35: 3,365,000

People between 65 and 80: 2,095,000

This gives us a total of 5,460,000 people that fall into our target group. We will use the average number of people per household in the Netherlands with is 2.14 giving a total number of households of 2,551,400 houses.

From this point we will be asking ourselves how many of those households are in the batch size, better said, how many of the people living in those house will buy our product. According to similarweb a total of 23.3% of people in the ranges between 20 and 34 buys products from Brabantia in the Netherlands and also a 12.69 of people older than 65 do so. Calculating a weighted average we get that a 16% of these people buy products from Brabantia so:

$$2,551,600 \times 0.16 = 408,256 \text{ Products}$$

BRAND BOOK



DESIGNED FOR LIVING

BRAND BOOK

IDENTITY

WHAT DO WE STAND FOR



Brabantia tries to improve the daily routines in what is referred to as housework.

It also aims to make people love the little things in life, to relax and live in the moment, by creating beautifully designed product concepts for pleasurable living and giving.



Concepts which are made sustainably and leave a better world for generations to come.



REFINED MISSION AND VISION

In Brabantia we ought to try to make household chores more fun by creating beautiful, sustainable designs that turn your daily chores into valuable



TARGET GROUP



Our target group are a busy bunch, people with busy lives to juggle (relationships, work, exercise...) And not forgetting household chores, which take a big amount of time. Therefore, we try to ease the load, making household chores easier and more enjoyable

Brabantia provides a range of high-quality homewares designed for different sectors like retail, catering, hotel and garden centre sectors. Our ranges include products covering waste management, laundry care, food enjoyment and bathroom.

PRODUCTS



COMPETITORS

- The biggest competitor of Brabantia is Curver. Curver is a manufacturer of plastic household articles. Their wide range of products is sold by retailers across Europe and beyond.
- Their second biggest competitor is Sterilite, a Townsend, Massachusetts-based company that makes light and portable drawers, baskets and other containers out of plastic in various sizes



BRANDING

Brabantia is a leading Dutch premium brand with beautiful and smart household products like waste bins and laundry products. Brabantia stands for beautiful, pleasurable and sustainable products and these premium goods are available all over the world.

CORE VALUES

SUSTAINABLE

We create products where beauty meets sustainability

ENGAGING

We want to learn, work and have fun together

PLEASUREABLE

Beautifully designed product concepts for pleasurable living and giving

SIMPLE

Trying to make peoples lives simpler and more enjoyable

LONG LASTING

Certainly not the cheapest but the quality of our products offers longevity

HIGH QUALITY

Made with integrity by people who care about quality.

MOODBOARD

QUALITY



LASTING



SIMPLE



SUSTAINABLE



PLEASURBLE



ENGAGING







BRAND COLORS

MAIN COLORS



SECONDARY COLORS



COMPLEMENTARY COLORS



MATERIALS



SHAPES

