

CABEAU EVOLUTION X



Cabeau's Evolution X pillow is designed to provide comfort and support for people sleeping upright in travel.

When sleeping on a plane most people's head falls forward. Current travel pillows provide cushioning side and back but lack the structure to hold the head in a comfortable, stable forward position.

Evolution X is the solution to this problem. The following pages describe the solution in detail and the process we went through to develop it.



# Ergonomics

Consider this when sleeping on a plane: The load of your head on your spine increases almost six fold from 5 KG to up to 28 KG as your head falls forward when sleeping. Most people have experienced the heavy toll this position will take over time - with the inability to fall asleep, head-bobbing and wake up during the rest periods, or tension headaches upon waking up.

The common architecture of a travel pillow is focused on back support and most competitive products are completely inadequate in supporting the head correctly. Cabeau partnered with us to solve this issue and design the next generation of travel pillows.

**5 KG**

**12 KG**

**22 KG**

**28 KG**



**0°**



**15°**



**45°**



**60°**

Cabeau's Evolution X pillow cradles your chin comfortably and supports your head at a gentle forward lean of around 15 degrees.

You can turn your head lean sideways and backwards and change position as we subconsciously do while sleeping. The pillow will always, however, limit the forward lean of your head.



# Hey, good looking!

Evolution X borrows visual cues and color schemes from fashion, furniture, and athletic goods making it a fashion statement with high recognition value.

You can look good wearing this around the airport.

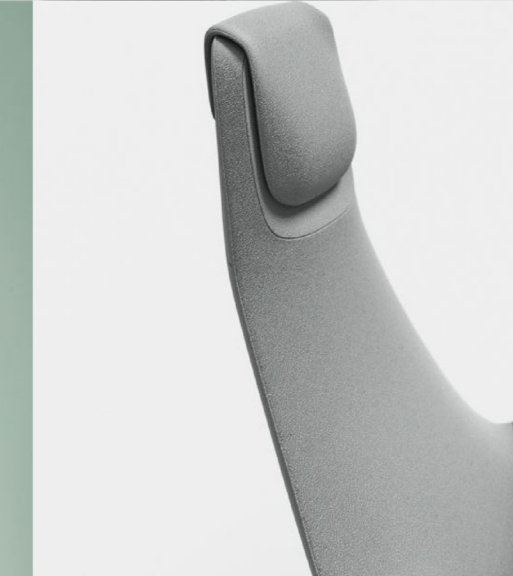


# COCOON



Soft materials  
Natural materials  
Formed fabrics  
Taut and controlled  
Warm, muted colors  
Reduced branding

BRANDS:  
Incase  
Cote&Ciel



# How It Works

**Construction:** Evolution X supports the head like no other travel pillow. The secret is an innovative mix of structural and non-structural materials in the pillow: Solid plastic shells on either side of the front provide support under the chin and keep the head at a comfortable angle. The shells are covered with memory foam to be soft and comfortable wherever the pillow touches the user. The plastic shells are limited to the areas under the chin. Other areas such as the neck are designed to be compressed so as to not push the head forward like other travel pillows may. Structural solidity is achieved by gently tightening the plastic and foam assembly around your neck with a combination of circular and flat straps. The fabric cover can be removed for washing.

**Adjustability:** We realized that the ergonomic differences between people are substantial. Evolution X is designed to fit all people so it offers a variety of different adjustments that other travel pillows don't.

A custom closure makes it easy to fix and adjust the pillow around the neck: A cord lock around a cord provides 6 inches of additional circumference if needed. The cord lock slides through a d-ring to hold both sides together. The d-ring is large and easy to use for one-handed release.

Should you want a higher fit or your neck is on the smaller side you can change the circumference of the pillow more by adjusting the neck strap - a 1.5 wide woven strap that provides structural support around the back of the neck. This adjustment is designed to be a set-and-forget per user so the strap is covered by the outer fabric and accessible by opening a zipper.

Lastly you can change the height of the pillow by changing the angle of the sides of the pillow (the areas around the plastic shells) vertically. This has a meaningful impact on comfort and support for people with shorter necks.

For more information on adjustability please review this video: <https://www.youtube.com/watch?v=p1E12G2xpCo>

**Venting:** The front of the neck has several large blood vessels running to and from the brain. It is one of the areas of the body that gets the hottest and the ability to cool it is essential for perception of ambient temperature and overall comfort. The plastic shells of Evolution X funnel into vent openings that direct fresh air to the front of the neck. The openings are covered by mesh fabric. The plastic shells pick up the look of the mesh and visually transition to the fabric by means of a generative pattern that fades out. The mesh on left and right side evoke the appearance of headphones and add an element of "casual cool" to wearing the pillow around your neck on your way around the airport.

**Storage:** The entire product folds flat into a compact unit that can be compressed and easily stored in your hand luggage.



# Familiar, Yet New!

While evolution X is a revolutionary product we designed it to be self-explanatory in non-assisted sales at the airport.

We opted for an evolutionary change to the well established visual archetype and usage model of the "horseshoe". At the same time we accentuated the visual elements signifying our key benefits of frontal support and ventilation.

The result is a never-before-seen VBL that is yet comforting and familiar.



Ye' old



Accentuated vents



Volume shifted forward



Accentuated support



Progressive angle



# Sketch, Build, Test, Repeat

We designed and developed Evolution X from problem statement (“wouldn’t it be nice if my head didn’t dangle on a flight”) all the way to production.

We sketched and prototyped, tested and learned and then did it all over again in a rapid, iterative development process. The mockups were quick and imperfect but perfect for answering questions quickly. Some of our early concepts were pretty wild but they paved the way for a successful solution. Here are a few examples of our work.

The iterative prototyping effort focused on these challenges:

**Comfort & Support:** We needed to provide the right balance of support and freedom of movement while providing comfortable resting positions for the head.

**Ventilation:** We needed to provide ventilation to the front of the neck where major blood vessels create one of the most sensitive areas of the human body - the area incidentally also most valuable to position physical structure for frontal support.

**Storage:** The product needed to be light weight, compact-able for travel.

**Cost:** Our product needed to be inexpensive to produce. Experience showed us that the pillow needed to be below \$50 to the end user to be competitive. Achieving this was challenging in a channel environment where airport retailers have margin expectations substantially above what is customary in regular channels.

**One-size-fits-all:** The product needed to fit all people with one size to avoid end user confusion and enable channel efficiencies. This was not a small challenge given the ergonomic variations we encountered.



# Test, Test, Test

We iteratively developed the design of the product along the KPI of comfort, support and usability. A massive amount of user testing was a natural component of the process.

The after focusing on the “horseshoe” architecture we needed to adjust the height, shape, circumference, amount of hard vs. soft structure, adjustability ranges, among many other factors to be comfortable and supportive for a large sample of the population.

We introduced CAD and version control to the process and tested many generations of refinement with a sample of 25 people of a wide ergonomic variety.

The prototypes were a combination of printed CAD and hand-cut memory foam. In the final stages of development we worked with injection-molded foam from prototype molds to verify dimensions down to the millimeter.

We also invested substantial time into development and testing of the intuitiveness and ease of use of our product, specifically the closure mechanism, size adjustability and fabric exchange.



THANK YOU!

