TACTILE EARPHONES FOR GAMING

drown

Drown User Guide

Twist in. Drown out.

Introducing Drown

Drown is a brand new way to experience audio.

Our patented technology uses tactile transmission of audio waves to deliver a fully immersive, real-life experience. Designed specifically for gamers, Drown's tactile audio will improve the way you play, by giving you the ability to perceive your in-game surroundings more accurately - as if it were a true physical space.

Precision

Drown is hyper-realistic audio. It's 360° with added depth, height, and spatial awareness.

Immersion

Feel like you are actually there. Drown transports us directly into the game, concert, or movie

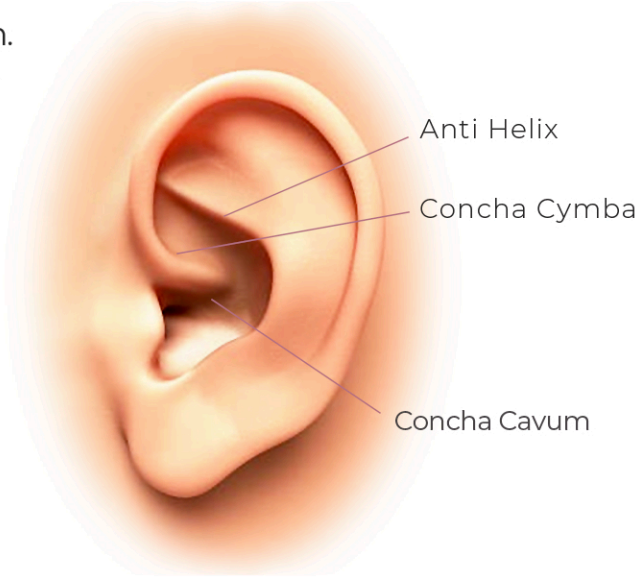
Connection

Feel like you are in the same room. Forge more meaning-ful connections as you play and interact with people all over the world.

What is Tactile Audio?

Tactile audio is pure audio that is felt through touch and is heard through bone and cartilage conduction. Tactile audio transmissions recreate the audio as if it were real life.

Drown's game-changing technology delivers the most realistic timbre, or 'tonal colour', allowing us to distinguish the intricate individual qualities of each sound.



How does Tactile Audio work?

Tactile audio is the delivery of acoustic vibrations through the solid material of our custom seals, to three specific areas of the outer ear: the concha cymba, concha cavum, and the anti-helix.

Overview

Drown is the first tactile audio platform to activate all three audio pathways to your brain for realistic in-game situational awareness and a fully immersive audio experience. We deliver a carefully sculpted soundwave through our patented waveguide to your ear canal, without alteration by reflection or refraction in the outer ear. The remarkable clarity and separation of levels improves your ability to locate objects and adversaries within the game. Bass sounds are enriched and overall immersion is amplified.

Additionally, Drown transmits the acoustic vibrations directly to the nerves in the pinnae. These nerves deliver spatial awareness to the brain, creating a real-life, 360°, spherical audio experience.

Conversely, over-the-ear headphones broadcast from much larger speakers that are a short distance away from the ear and the pinnae of each user, introducing slight variations to the audio. This degrades the signal and compromises the accuracy of the spatial information.

An entirely new audio platform, Drown will change the way you perceive your favourite games. Unparalleled clarity and spatial accuracy create an intense, hyper-realistic gaming experience.

" The depth and detail of sound is extraordinary, to the extent that I heard sounds on certain tracks that I've never noticed before...It's almost like having another sense, or super-hearing. "

-Startups Magazine

How it Works

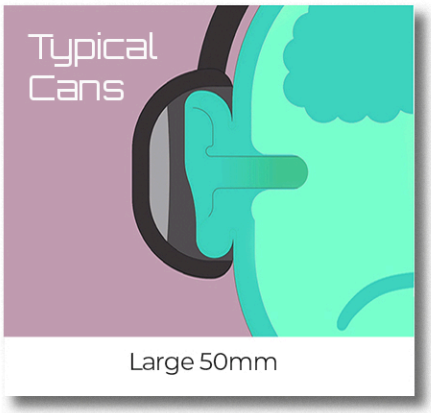
Physics & the Human Ear

Our sense of height, direction, and distance are determined by the unique geometry of the human ear. Each area of the outer ear sends signals to our brain about the strength of the acoustic wave. Mimicking nature, Drown tactile earphones deliver audio signals in the same manner.

With Drown, the two materials through which sound travels are air and the silicone seal; the sensitive skin and cartilage of the ear also become an integral part of the equation. The waveguide inside Drown is designed to minimize reflection off the inner walls and maximize absorption, delivering the acoustic signal to the outer ear, specifically both conchae and the anti-helix.

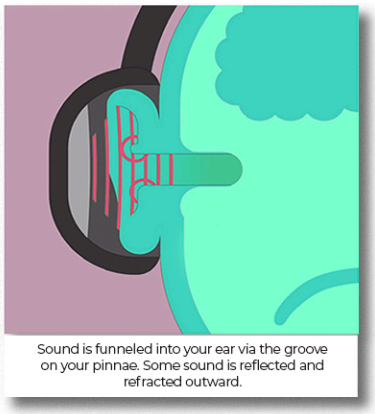
Think, for a moment, about concert halls. The walls and ceilings of concert halls are typically made of softer, often rough-textured materials such as fiberglass and acoustic tiles. These materials are more similar to air than concrete, thus having a greater ability to absorb sound. The result is a space with more pleasing acoustic properties.

The amount of reflection (bounce) is dependent upon the dissimilarity of the two media. This is why acoustically-minded builders of auditoriums and concert halls avoid the use of hard, smooth materials in the construction of their inside halls. A hard material like concrete, for example, is very dissimilar to the air through which the sound moves. This means that the walls reflect most of the soundwave and little is absorbed.

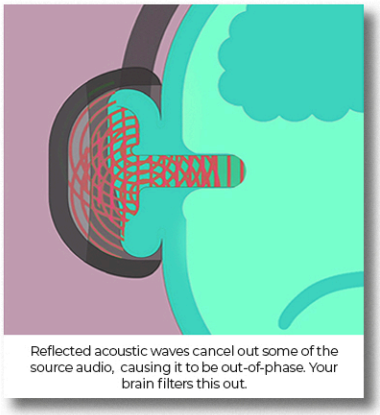


Large 50mm

Audio broadcasts indiscriminitly. Sound travels out wide, in a spherical pattern.



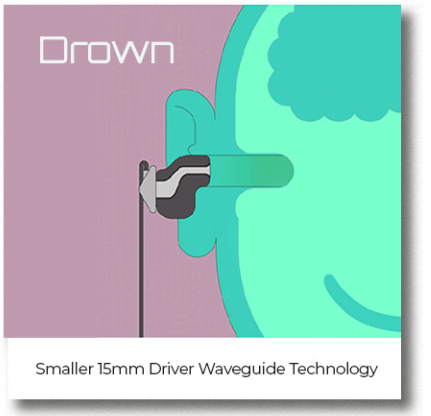
Sound is funneled into your ear via the groove on your pinnae. Some sound is reflected and refracted outward.



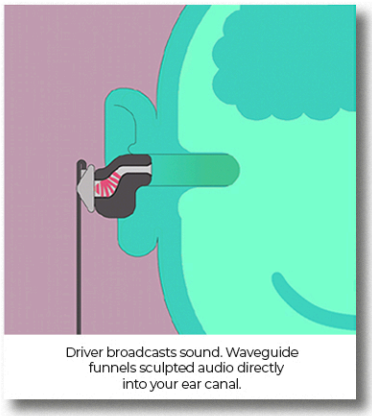
Reflected acoustic waves cancel out some of the source audio, causing it to be out-of-phase. Your brain filters this out.

The walls of our silicone seal are soft and smooth to maximize effectiveness. The seal transmits acoustic vibrations, giving us the ability to perceive spatial awareness. Drown uses smooth walls to focus the audio waves from the driver, delivering the sound precisely into the inner ear canal.

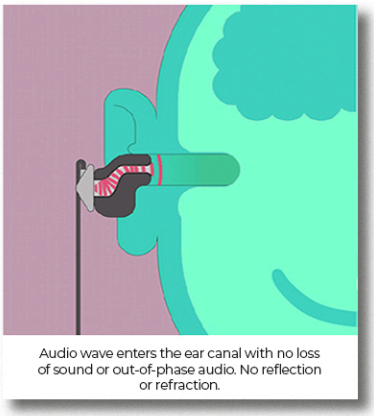
Utilizing the full anatomy of the human ear to deliver a clean audio wave and acoustic vibrations with no bounce, Drown tactile earphones provide the wearer with revolutionary precision, immersion and connection.



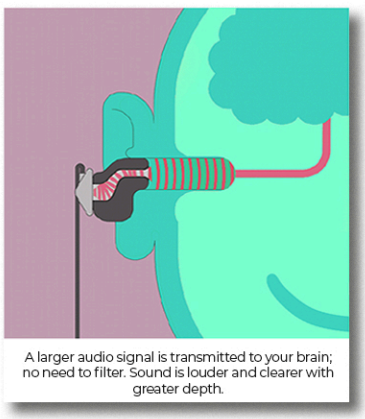
Smaller 15mm Driver Waveguide Technology



Driver broadcasts sound. Waveguide funnels sculpted audio directly into your ear canal.



Audio wave enters the ear canal with no loss of sound or out-of-phase audio. No reflection or refraction.



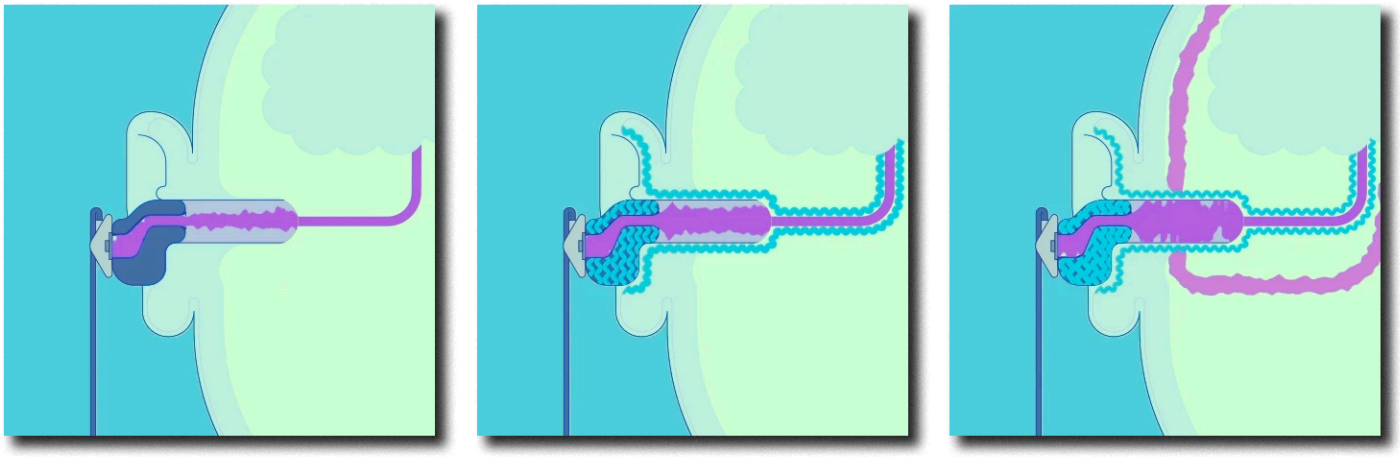
A larger audio signal is transmitted to your brain; no need to filter. Sound is louder and clearer with greater depth.

How it Works

Audio Pathways & Acoustic Seals

Drown technology delivers audio via 3 audio pathways:

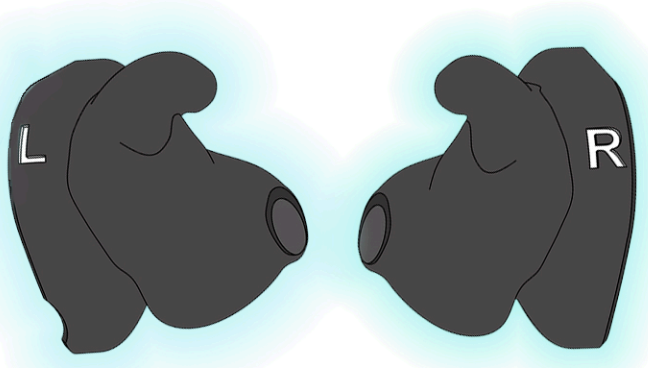
1. The first audio pathway is a sculpted waveguide designed to deliver sound waves directly into the ear canal.
2. The second pathway is stimulation of the sensitive nerves in the outer ear via vibration; this is how our brain perceives spatial awareness.
3. For the third audio pathway, Drown's unique tactile material delivers bone and cartilage conduction where the skin surrounding the temporal bone is thinner than tissue paper.



Acoustic Seals

When it comes to Drown tactile earphones, it's really all about the seals. Made of pliable silicone, our patented acoustic seal surrounds the high-quality graphene driver to deliver serious timbre to the outer and inner ear whilst perfectly shaping an audio wave with no bounce. Think of a surfer finding that ultimate, perfectly-shaped wave - but instead, we are shaping a perfect sound wave.

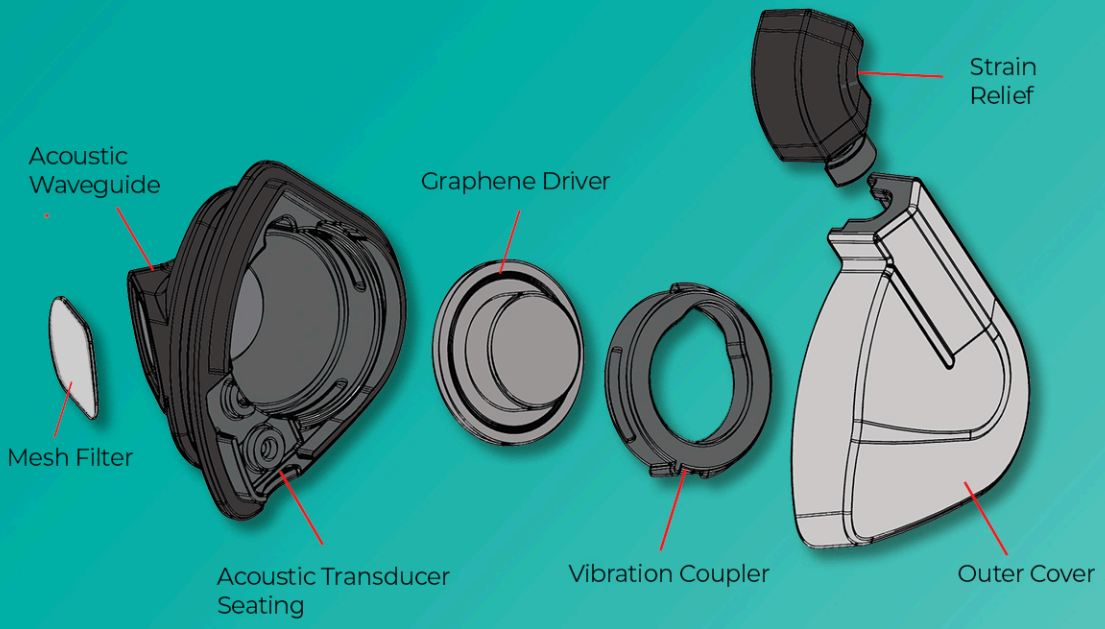
Sound waves also travel at different speeds in different materials. Extensive research by the Drown team determined the exact shore (hardness) of silicone to give us optimal perceptions of real-life audio. This is achieved by delivering audio waves simultaneously to both the inner and outer ear, delivering sound exactly as nature intended, to provide a realistic audio experience.

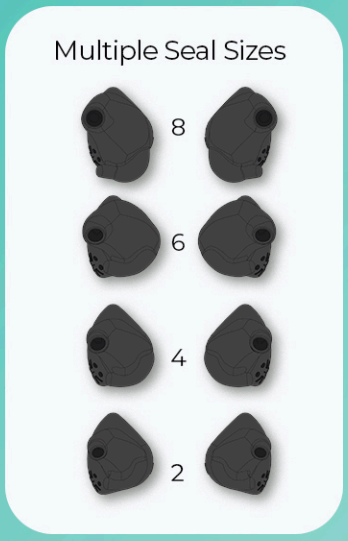


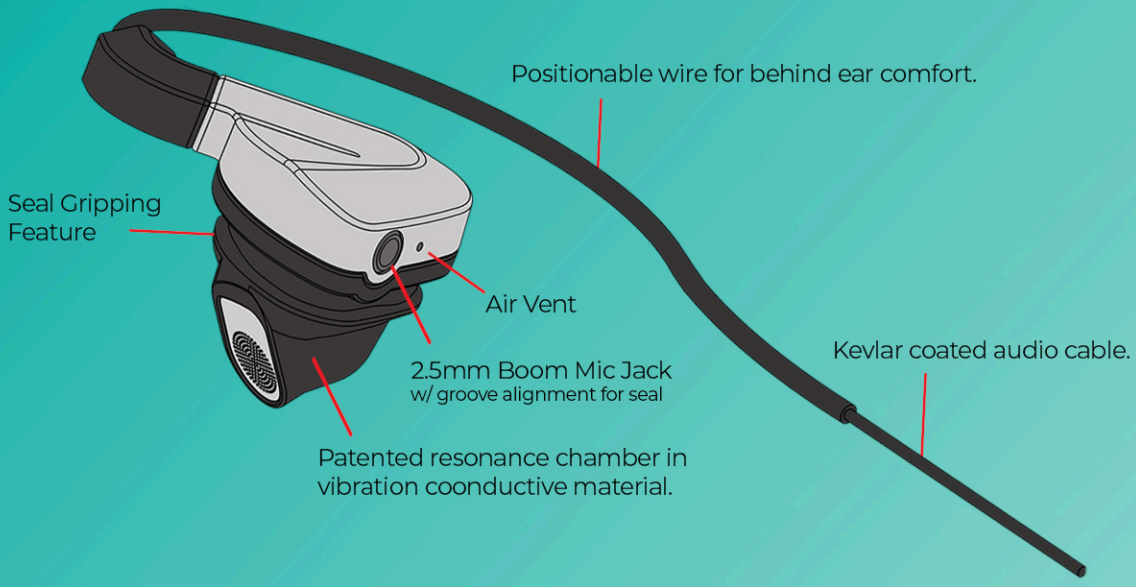
Drown's range of seal sizes (2, 4, 6, 8) ensures that you will find your perfect fit for maximum performance and comfort.

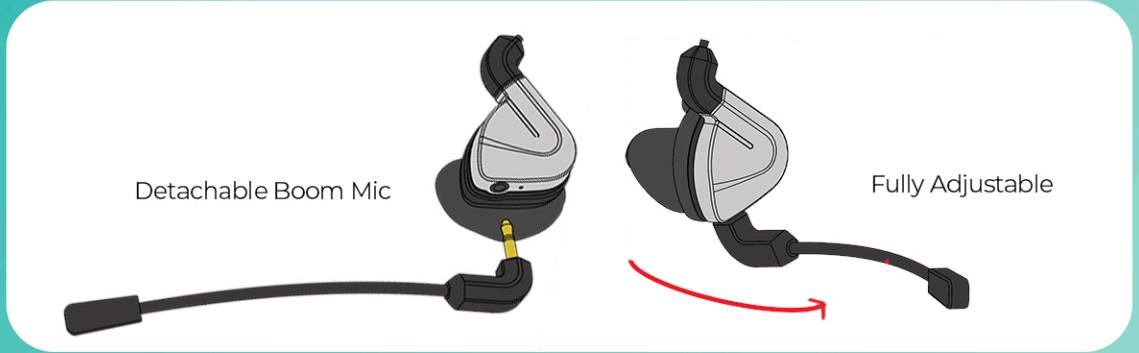
- **Acoustic Seals -** Silicone seals fit comfortably to deliver a perfectly shaped audio wave.
  - **Comfort -** Drown's supple acoustic seals mould to your ear for a comfortable, immersive audio experience. Lasting comfort, even during all-night gaming sessions. No more hot cans or headset hair!
  - **Fit -** Our silicon seals come in four different sizes, meticulously designed to fit ears of all different shapes. When combined with the undiluted sound provided by the waveguide, the snug fit causes an increase in air pressure; these forces then help to promote additional cartilage conduction.
  - **Sizes -** Drown comes in four sizes, 2, 4, 6, 8
- **Passive Noise Isolation -** The snug fit helps feed sound directly into your ear while blocking out environmental noise. The better the fit, the more outside noise will be blocked.
- **Bass -** Drown's bass is deep without overwhelming the higher frequencies. The best of both worlds for the most authentic sound.
- **Graphene Driver -** Drown uses a high-quality graphene dynamic driver. Dynamic drivers move more air, create more vibration, and deliver deeper bass. Our 14.8mm driver is precisely positioned to transfer vibration to nerves in the outer ear.
- **Wired for lag-free gaming -** Wired headphones (with high-quality wires) give the best possible acoustic signal and eliminate lag for the highest quality gaming experience.
- **Packaging** - Drown packaging is fully recyclable.

Product Overview









Audio Quality and the Gaming Experience

As gaming content becomes increasingly true-to-life, hardware developers strive to accommodate these advancements. Newer technology exponentially increases our potential to create ever more expansive simulated worlds.

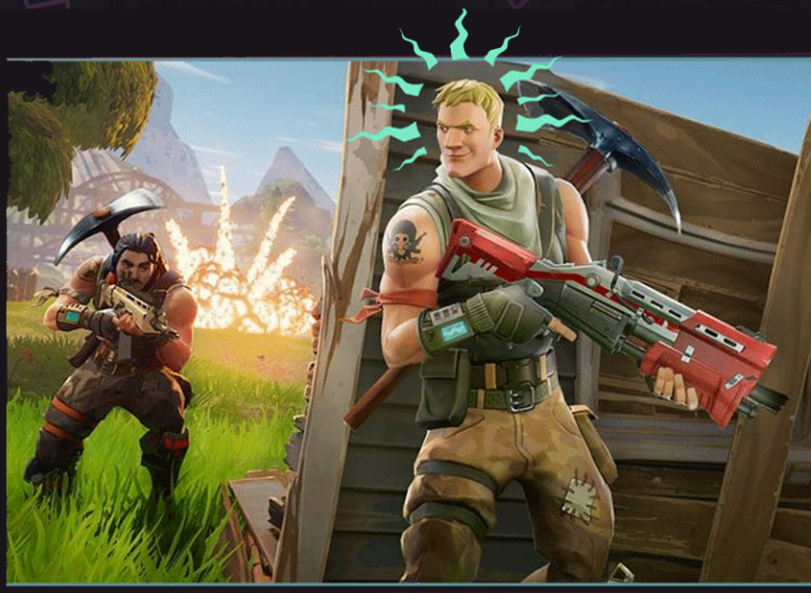
There is a technological arms race occurring in which the end goal is to achieve an entirely immersive gaming experience. Immersion is typically defined as being a state of suspended disbelief, in which we can picture ourselves inside the game. Our brains have not yet developed to the point in which they are immune to manipulation. However, certain mediums are needed to achieve this sensation, be it via an encapsulating narrative, state of the art graphics, or a **highly sophisticated soundscape.**

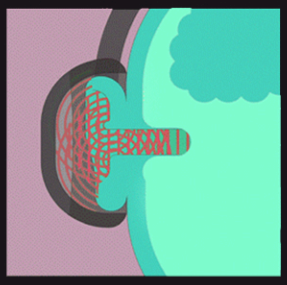
The latter had gone somewhat underappreciated in the gaming world until recently. Now, one must only look as far as Sony's announcement of the PlayStation 5's 3D audio Tempest Engine or Microsoft's Project Acoustics for the Xbox Series X. Both conglomerates have identified a need for vastly advanced audio capabilities. With the arrival of the next generation consoles we can expect more processing power to be made available to these respective engines, effectively opening the door for developers to showcase object and location-based audio like never before.

This leap in technology allows the inclusion of significantly more complex audio experiences – it is the difference between a single audio source in a simulated direction to a multitude of different sound sources all independently reacting to their environment before they reach you; much as they would in real life.

Drown's tactile earphones are geared towards these advancements. Our uniquely sculpted waveguide works like a horn, channelling undiluted sound directly into the ear canal. This causes the amplification of presence frequencies, allowing us to capture audio cues on the first instance of the sound. By doing this, Drown brings clarity to previously more obscure,indefinable audio.

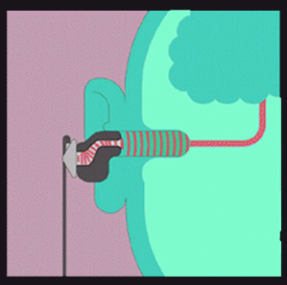
Audio Quality & The Gaming Experience





Typical Headphones

Less Audio is transferred into the ear canal. Soundwaves are refected back and lost.



Drown Earphones

The sculpted waveguide allows us to channel more audio into the ear canal, giving us more information at a much faster rate.

Additionally, the vibro-tactile elements stimulate the sensitive cartilage of the outer ear, creating an increased perception of height and depth. Vibration, coupled with the high-frequency content, gives an accurate representation of an object's locale within the simulated space. This unique blend allows players to pick up more subtle audio cues, providing an unparalleled sense of situational awareness. Elite level Esports professionals commonly sacrifice the graphic quality of the game in favour of faster frame rates and the benefits that can bring. Wearing Drown is the audio equivalent of playing on an increased frame rate; **Drown delivers more concise sound, with greater detail, for a more immediate sense of what's happening.**

The realism created by Drown's tactile technology allows players to rely on their instinctual reactions. When applied to an FPS title such as Valorant, Overwatch, or Apex, Drown gives a noticeable audio-related advantage over your opponents. Our technology allows you to locate enemies with pinpoint accuracy, providing invaluable time to interpret each situation and approach each gunfight accordingly. **Gamers who tested Drown called this an "unfair advantage." Advantage? Absolutely. Unfair? Might seem that way - if you're the other guy!**

Whereas in an adventure title such as Red Dead Redemption or a VR title like Half-Life Alyx, you would really experience the accentuated audio of the simulated world around you. As developers strive to continually expand and deepen the gaming experience, soundscapes will continue to grow in sophistication. We believe that Drown is a revolutionary product, capable of getting the utmost out of future gaming technology.

Getting the Most of Your Drown Experience

Drown tactile earphones are different from anything you have used before for an audio experience that is different from any other. As such, Drown may take a bit of getting used to before you feel the full effect.

Here are a few pointers for getting the most from your tactile earphones out-of-the-box. Audio is subjective; by all means, feel free to experiment with your own settings, but this gives you a good starting point! For more details, or for information about splitters or our inline controls, please see our FAQ page.

Volume Levels

Be kind to your ears. Always start at low volume then increase to the loudest comfortable level. Please note that volume does affect the audio experience. Certain sensations may be lost at lower decibel levels. If we imagine a classic stereo dial with 10 marks to incrementally turn up the volume, it is the midway point, around 'level 5', that we would begin to experience the effects of the tactile soundwaves, accurate precision and feel the immersive elements of the audio. As with any audio source, immersion is optimized at higher volume levels. That said, we must stress to always start on a low volume. Trust us, you want to protect your ears! Adjust responsibly to find what you are comfortable with!

PS4:

Adjust volume specifically for headphones
(factory settings are typically at 50% volume)

Xbox:

Set to 'Windows Sonic for Headphones'
Set to 'Stereo uncompressed'

Switch:

Be sure to choose the 'Stereo' setting

PC:

Be sure your PC is clearly set to 'Stereo'. Turn off audio enhancements, i.e. Dolby Atmos, Surround sound (or any audio setting outwith Stereo) You can also reset PC audio to factory settings and add features as needed

What happens when an Canadian sound engineer with a brilliant, innovative product meets a Silicon Valley technophile with a knack for sniffing out brilliant innovations? Audio magic.

The original tactile earphones were all custom-made, using silicone moulds of each individual wearer's ears. They worked great, but it presented a challenge: Drown's commercial success depended on developing an easier way to make the moulds.

Drown creator Mark O'Callaghan traveled the world to learn how different manufacturers produced custom earphones. He discovered new methods for taking an ear mould, but none were simple enough to mass-produce an out-of-the-box version. Mark then went back to the hundreds of ear moulds he had created and started to look for similarities.

He found those similarities. Mark realized that nearly all of his prototype moulds fit into one of four sizes. A great way to think of this is to compare it to shoe sizing. Although no two sets of feet are exactly the same, most of us fit into a finite range of sizes. Mark had found the fit solution. More importantly, the new earphones delivered those tactile sensations to the outer ear. Having the custom sizes also allowed Mark to create the 'ideal' waveguide. Up to that point, all of the waveguides were manually carved into the silicone ear moulds, so they were far from perfect. Creating the sizes allowed us to design the perfect wave in four sizes. These design advancements created the foundation for what is now Drown tactile earphones.

After testing hundreds of headphones over many years, Mark knew there had to be a better option. He had tried them all: top-of-the-line over-ear cans, custom-moulded IEMs, electrostatic drivers, noise-canceling electronics...and ultimately came away disappointed and dissatisfied with the sound quality and comfort he found on the market.

Inspired by the shape of the human ear, Mark started building and experimenting with designs to deliver a superior audio experience. His discoveries and subsequent patents are the basis for Drown tactile earphones. In 2018 Mark partnered with David Law, a Silicon Valley design veteran with a knack for taking great inventions to a global market. Among his many accomplishments, David co-founded Speck and grew it to be one of the leading case and accessory brands worldwide.

Drown is dedicated to bringing this technology to as many ears as possible. We believe that audio can make a huge difference in everybody's life. To create the best possible product, Drown engineering team 3D printed over 1,000 design iterations, in order to perfect the way our audio is delivered.

Designed specifically with gamers in mind, Drown was introduced via an Indiegogo campaign in August, 2019.

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Jessica Hardwick joined Drown in early 2019, rounding out the leadership team. As founder and CEO of two innovative startups and a successful digital marketing firm, Jessica leads Drown's Marketing efforts, with a hand in product management.

We are fortunate to have an exceptional team of gamers, designers, engineers, and forward thinkers on the Drown team. They are passionate about Drown - and they have mad skills!

Based in Edinburgh Scotland, the Drown team is continually inspired by the long list of Scottish innovators and artists, as well as her breathtaking beauty. We are and will continue to be committed to creating jobs and furthering Scottish enterprises.

Since forming Drown, the team is dedicated to bringing this technology to as many ears as possible. We believe that audio can make a huge difference in everybody's life. To create the best possible product, the Drown engineering team has 3D printed over 1,000 design iterations, in order to perfect the way our audio is delivered.

Designed specifically with gamers in mind, Drown was introduced via an Indiegogo campaign in August, 2019. People were intrigued, but we kept hearing the same thing: "It sounds too good to be true." In the end, we didn't quite reach our crowdfunding goal - but we didn't let that stop us. We knew that Drown was that good and we decided to go ahead with production, with the first shipment scheduled for February. Of course, COVID-19 changed everything, causing closures and work stoppages worldwide. As a result, production was slowed and the Drown ship date was unavoidably delayed.

But, we did it! Shipping to our Indiegogo backers will begin mid-June. Online pre-sales started in early 2020. Drown's first production run of tactile earphones will be available for retail sale in June 2020.

Product Specifications

Measurements

Cable Length
95in (2400mm)

Dimensions (Hard Plastic ID)
L: 45mm W: 30mm D:18mm
L: 177in W: 1.18in D: 0.7in

Weight:
0.04lb (20g)

Audio

Compatible Systems
PC & Mac, Apple or Android Mobile Phones, or anything with an audio jack.

Cable Material
Oxygen free copper with kevlar coating.

Connector
Gold-plated3.5mm right angled audio jack

Inline Control Box
Volume up and down. Mute button.

Frequency Response (Driver)
10Hz-22KHZ

Impendence (Driver)
32 Ohms

Driver Size
14.8mm Graphine Driver

Boom Mic Specification (pro-gamer)

Microphone Size (Diameter)
9mm Black

Pick-Up Pattern
Uni-Directional Noise Canceling

Frequency Response
100Hz-15KHz

Sensitivity (S)
-47 (+/- 3dB)

Output Impendence (Z out)
680 hms

Signal to Noise Ratio
65

Maximum Input Sound Pressure Level
110

Standard Perating Voltage
1.5

Operating Voltage
1.5

Operating Voltage Range
1.0-10v

Decrease Voltage Characteristics
-3

Current Consumption
0-500 microA