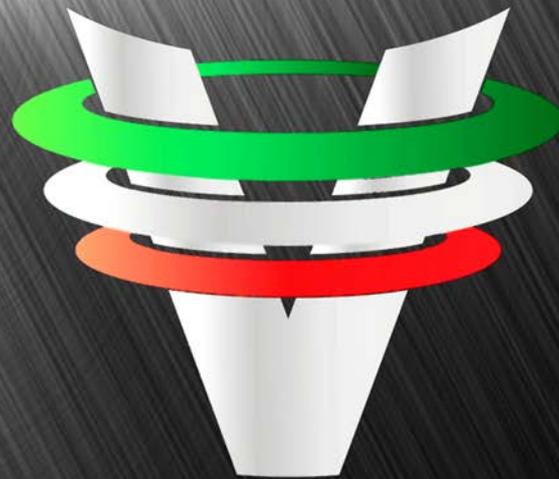


SALE KIT



VERTICAL
WIND TUNNELS

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HISTORY

The first human to fly in a vertical wind tunnel was Jack Tiffany in 1964 at Wright-Patterson Air Force Base located in Greene and Montgomery County, Ohio.

KEY FACTOR

FUN - Millions of people from all over the world have enjoyed flying their bodies. Experience the thrill of human flight

SAFE FOR EVERYONE - Anyone older than 3 years old in good physical shape is safe to fly in the wind tunnel.

GROUPS & MORE - Indoor skydiving is great for any occasion. Makes a great gift, perfect for parties, a weekend activity, large groups, or corporate event.

Public

The real deal of the indoor skydiving industry is the entertainment or "first flight" industry. Most wind tunnel installations are aimed at locations, which see a high volume of public traffic. Events like family outings, birthday parties, dates, and even corporate events are a commonplace at wind tunnels. This is largely due to the wide range of ages allowed to fly.

Skydivers

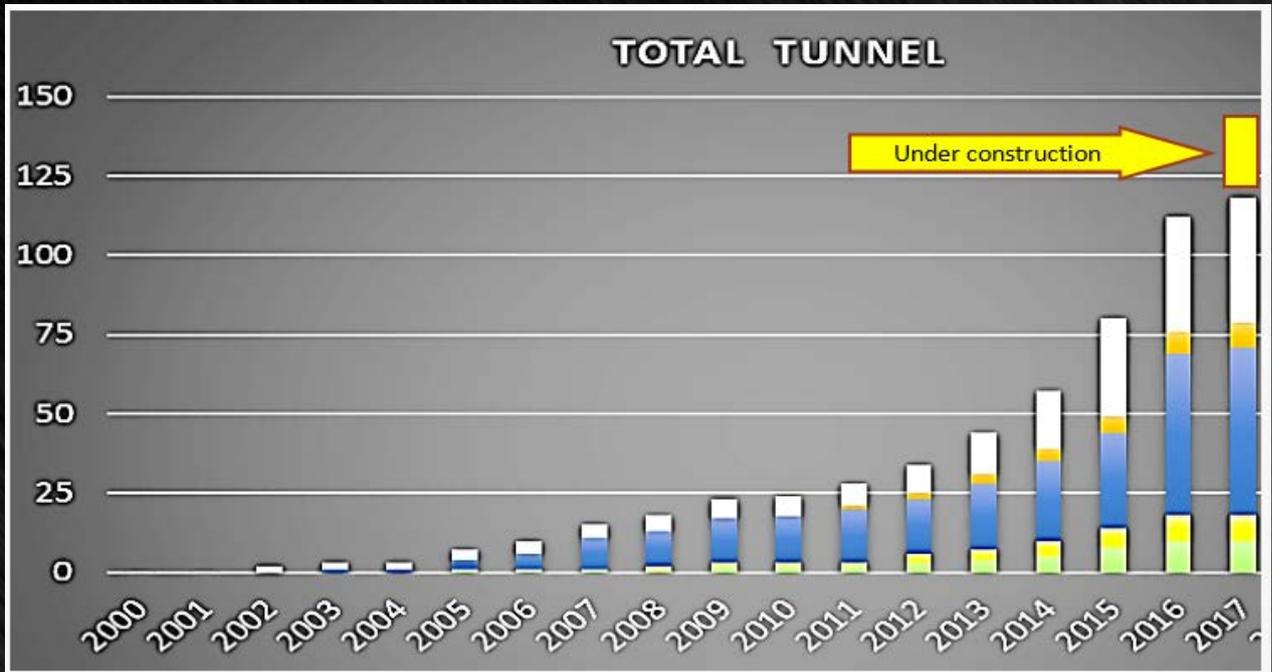
In previous years, skydivers traveled large distances to fly in the few wind tunnels available. In the recent past with wind tunnels starting to pop up so rapidly, skydivers have taken to tunnels closer to home, more convenient to travel to, or where prices are lowest. Skydivers played a large role in the development of the industry; some places, especially those close to airport or drop zone, cater a larger percentage of skydivers.

Military

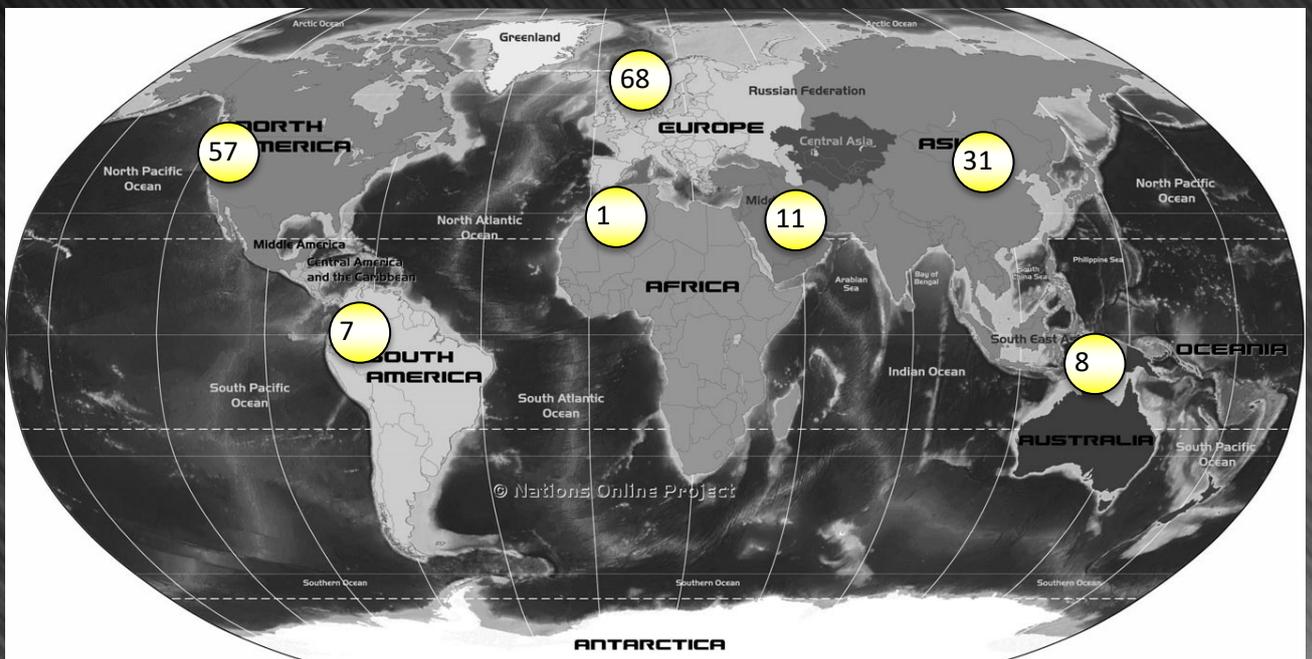
The military has come to embrace and accept wind tunnel use as an important part of their training regimen. All branches of the military seek tunnel time in order to better prepare and train for military applications.

MARKET BACKGROUND

The wind tunnel industry is growing fast in the last 4 years. There are about 80 wind tunnels actually operating at the moment and around 70 coming soon in the next 2 years.



Rapid growth of the vertical wind tunnel industry [q1 2016]



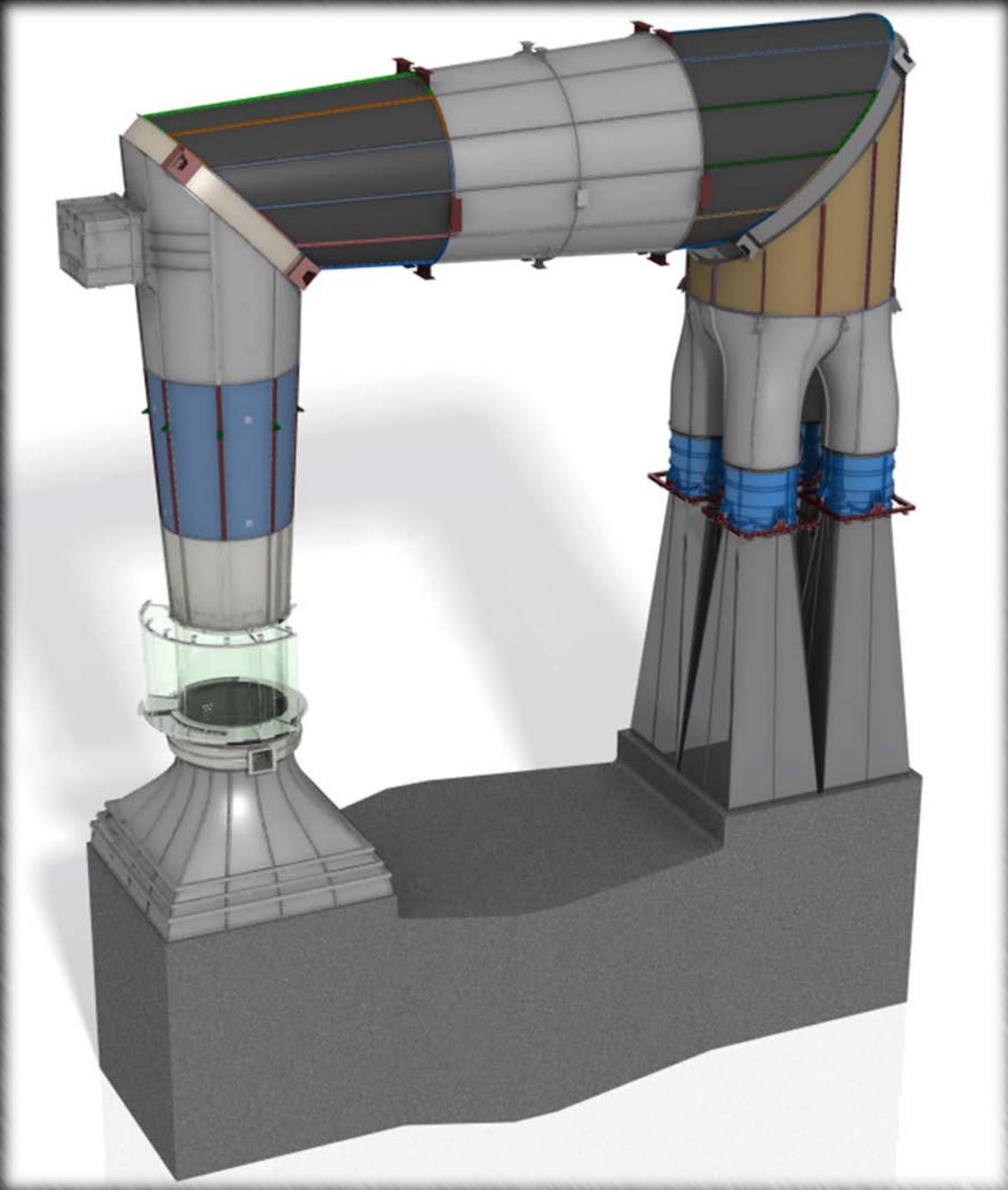
Distribution of the Wind tunnels around the world (Q1 2017) – Permanent and Free-Standing type; announced, open, and under construction

WIND TUNNELS

Indoor Skydiving is the simulation of flying performed inside a vertical wind tunnel. The vertical wind tunnel devices can be grouped in 2 categories

PERMANENT	FREE-STANDING
	
<p>Higher performance Higher efficiency Permanent Building construction All year operational >5M USD investment</p>	<p>Basic Performance Low efficiency Free-Standing structure Seasonal <1M USD investment</p>

OUR PERMANENT TECHNOLOGY



KEY INNOVATIONS BY VERTICAL®

VERTICAL® is set to deliver a totally unique indoor skydiving concept through the dynamic combination of extensive technical research and design along with several years of commercial operating experience by our partner company in Dubai. This collaboration has created a harmonized wind tunnel designed to minimize operational cost and maximize customer experience through technological innovation and stringent safety standards.

Our technologies are derived from our partnerships within leading aerospace development and manufacturing companies. Thanks to a truly comprehensive research and development program, VERTICAL® is proud to present the only zero-pressure, single loop system in the world for wind tunnels of over 14ft diameter, with our technology providing for:

- The largest, totally round-shaped, flyable area by volume
- Uninterrupted access to the flight chamber
- The highest air efficiency-to-operation cost ratio
- Design criteria based on safety, efficiency and smart solutions
- Flexible smart exposure of the flying chamber.
- A reduced building footprint
- Maximum exposure and exhibition through building construction in any orientation

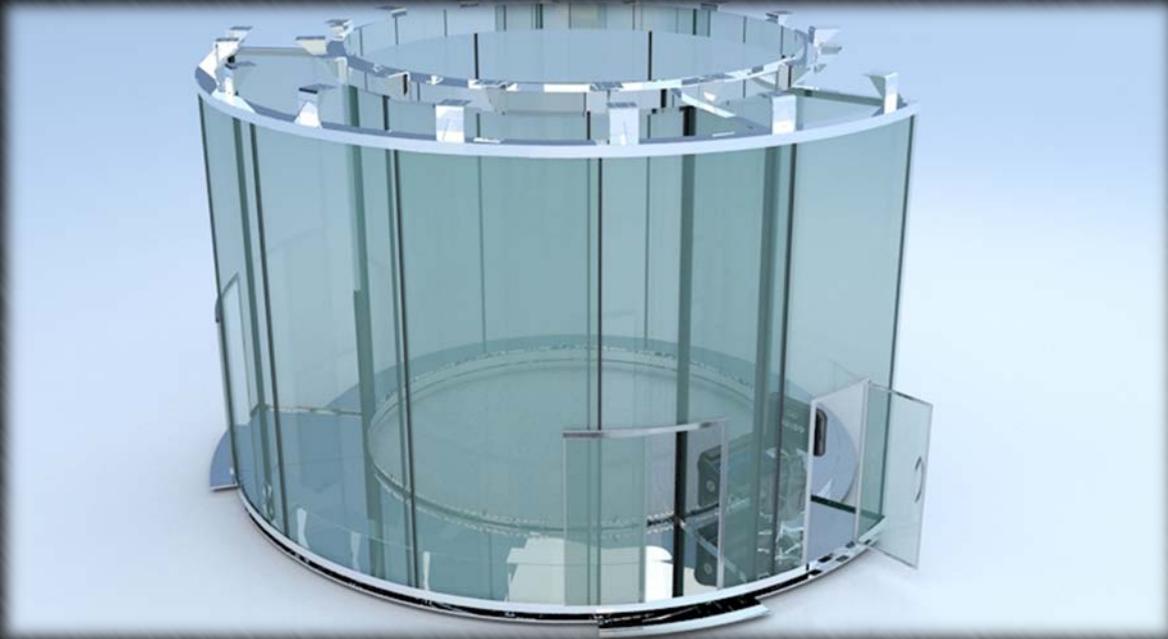
Single loop and zero-pressure

A single loop configuration is defined as a wind tunnel system developed in one single duct. This configuration reduces drag and energy losses, thereby increasing total efficiency compared to a multiple loop wind tunnel. Because of its geometry, the single loop system reduces the overall building footprint and the ducting surface, allowing the wind tunnel to be oriented in any position on a given plot for the best visibility.

Our zero-pressure technology means that the air pressure across the entrance doors of the flight chamber is kept equal. This condition allows flyers to enter and exit the antechamber with no need to halt operations, while simultaneously increasing the air density inside the tunnel, providing for a more powerful airflow. This allows lower power input.

DISTORTION-FREE ROUND GLASS

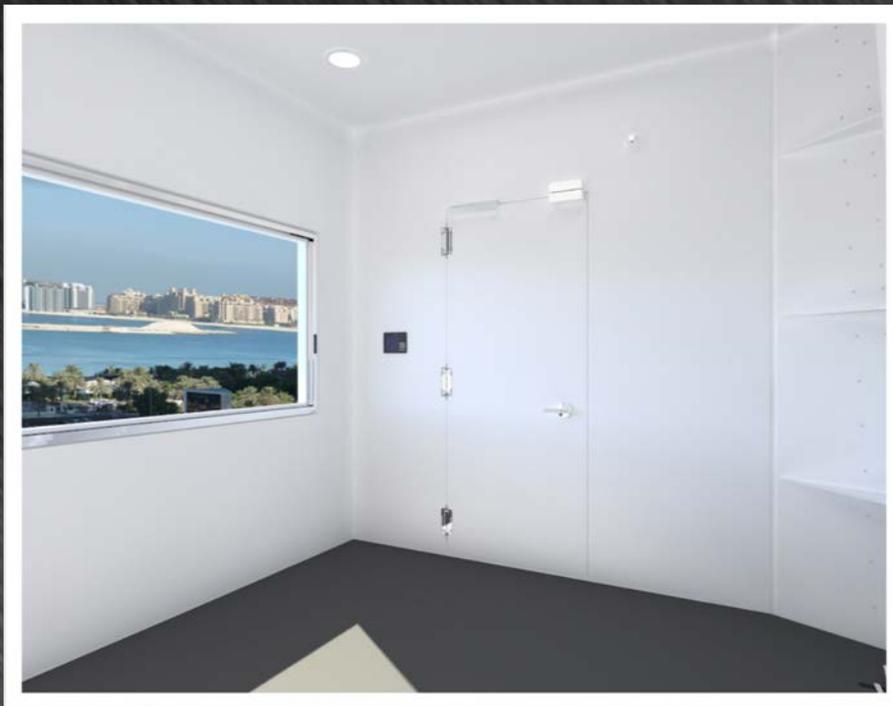
Our rounded glass panels are uniquely designed to work in both zero and non-zero pressure conditions. Distortion-free panels, obtained through a unique chemical toughening process, allow audiences and flyers to see through the glass without blind areas or visual interruption: the experience will be almost akin to flying without glass. The quality of pictures and videos taken through glass used in **VERTICAL**[®]'s tunnel will be crystal clear. The staging area also takes advantage of floor-to-ceiling glass panels for an uninterrupted view by instructors and those waiting to take their turn.



BASE JUMPING ROOM

A high raised room connected to the flying space will provide the experience of leaping into the airstream just as if from a real airplane, and lays the groundwork for a brand-new bodyflight discipline: indoor BASE-jumping.

The room's design and operating procedures are planned and constructed to maintain safety as our highest priority.



TUNNEL DIMENSIONS

VERTICAL[®]'s 17-foot wind tunnel is, by all dimensions of flying area, the biggest wind tunnel in the world. The chamber, at 17' in diameter and almost 90' in height, is by far the biggest volume of flying space, and has been replicated nowhere else in the world.

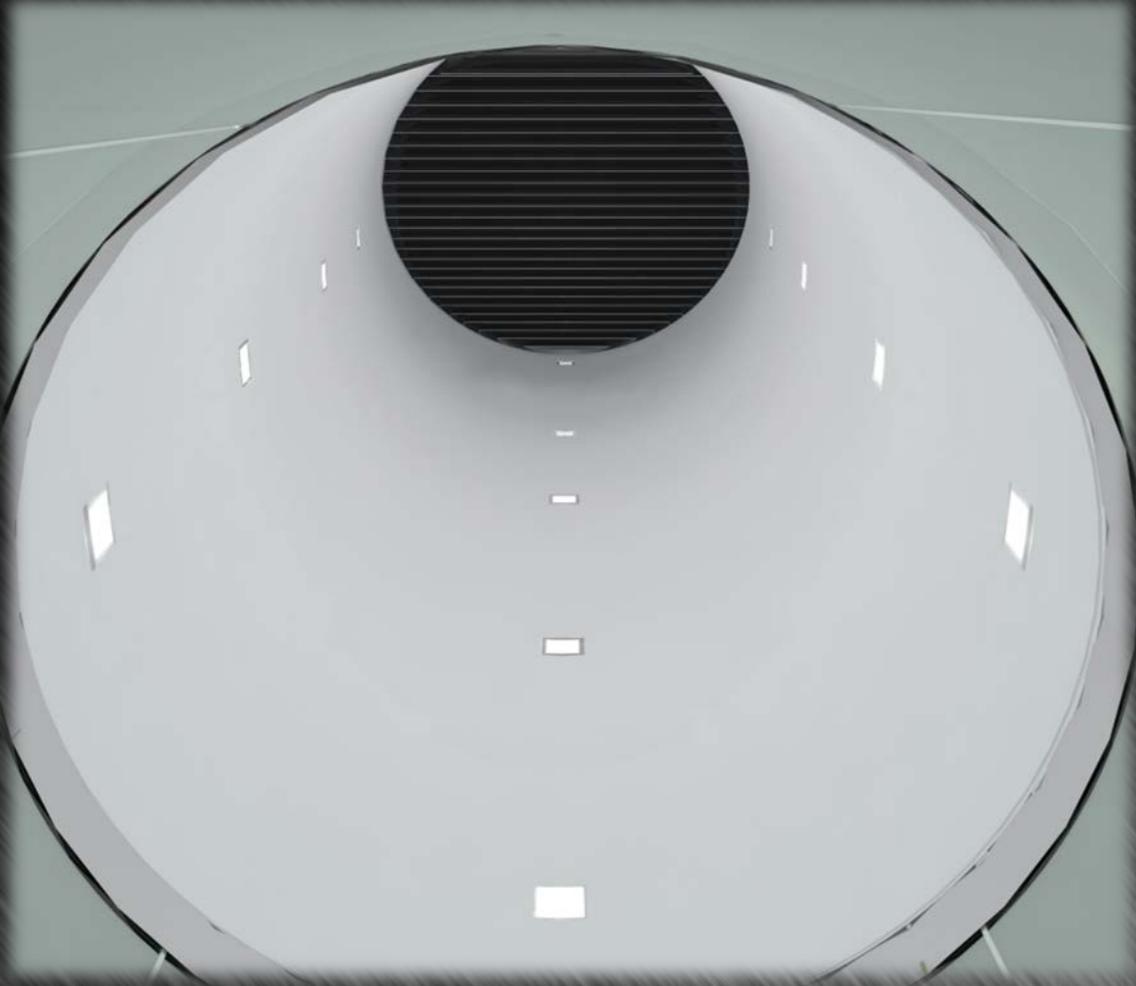
The sheer height and size of the wind tunnel allows for the closest simulation yet to a 'real', outdoor skydiving experience, providing a vast area for dynamic flying from the net all the way up to the turning vanes.



ROUND DIFFUSER

Rigorous testing has shown that a round-shaped diffuser is the most effective solution for the reduction of airflow losses, which ultimately means that less electricity needs to be used to power the motors. For flyers, the rounded shape of the diffuser is the optimal shape to fly around, with no corners to negotiate or avoid. Flyers can enjoy a consistent space to perform tricks and aerobatics regardless of height within the chamber.

Additional safety aspects are incorporated within this design, as there are no kinks or sharp edges on any part of the diffuser.



ROUND-SHAPED MOTOR INLET

The inlet's geometry is optimized to guarantee a smooth transition of air from one circular duct to four smaller ducts. This increases overall efficiency, in turn reducing the operational costs.



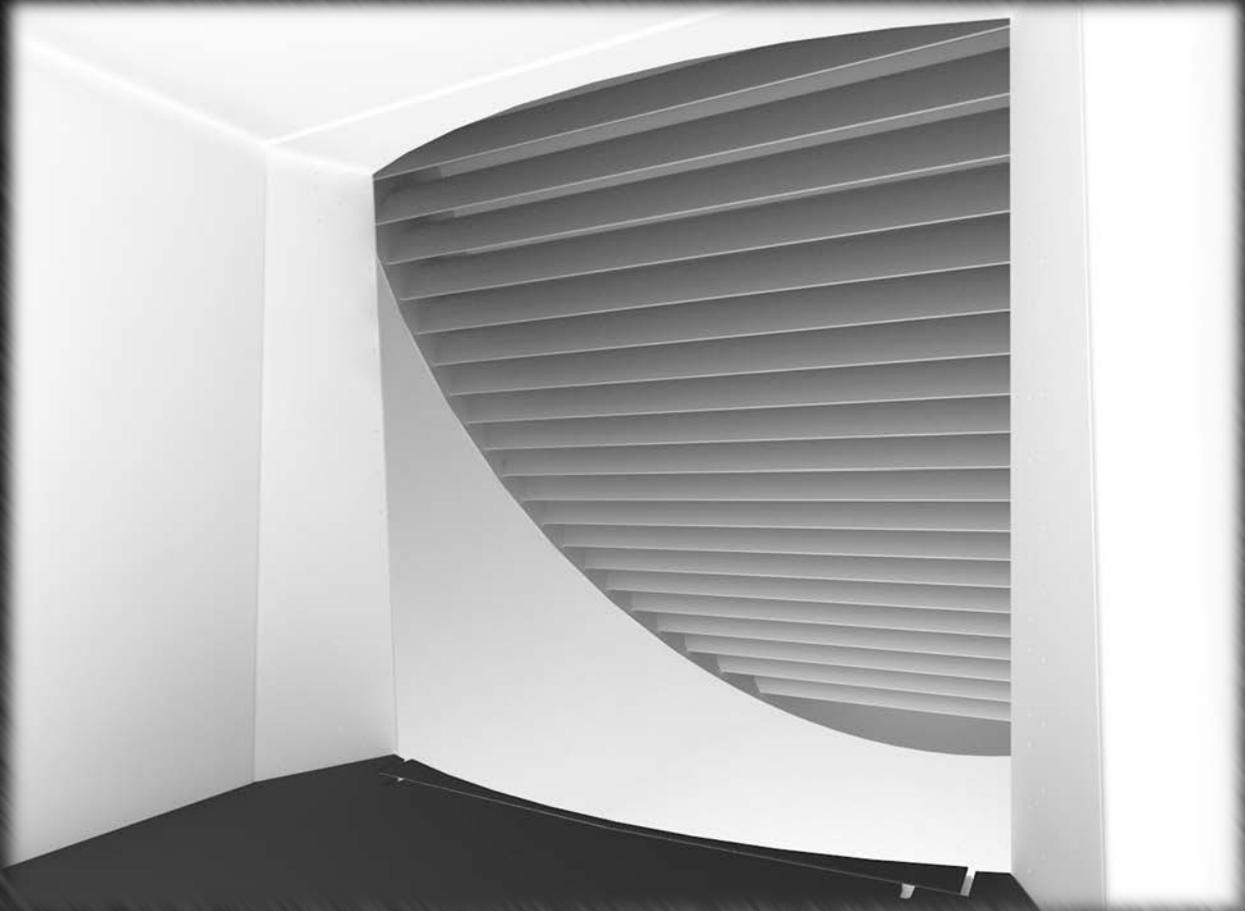
DIFFUSING CORNER

The corner above the flying area has been specifically designed and developed to diffuse the airflow throughout the corner section. Diffusion of the air through the corner allows us to restrict the overall wind tunnel dimensions and still retain a larger flying area. A diffuser without kinks acts as a natural extension of the flying space, allowing for a smoother flying experience and increasing the overall efficiency of the airflow.



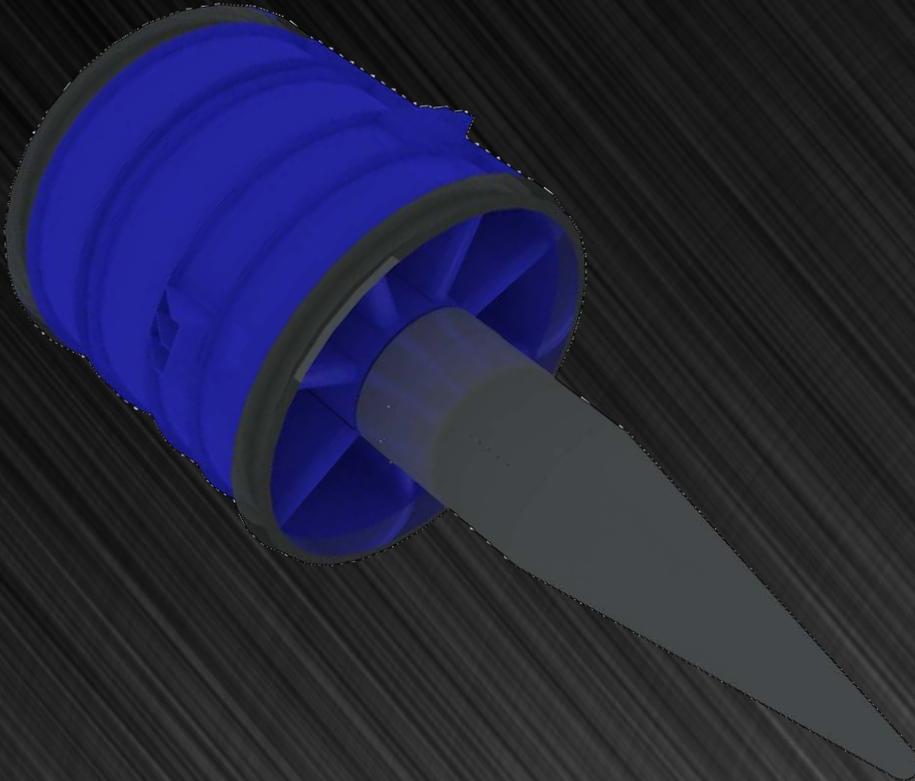
BIGGER TURNING VANES

Our turning vanes are designed with the optimum chord-to-distance ratio along with an efficient airfoil profile. In all four 'corners' of the tunnel, the distances between turning vanes have been increased to allow for the reduction of aerodynamic losses and manufacturing costs while keeping flyer safety absolutely paramount. Such efficiency is also reflected in the airfoil design of the vanes, which efficiently turns the airflow through 90 degrees, minimizing energy and operation costs.



NACELLE DIMENSION

The nacelle housing, with its streamlined body, is based around the motor dimensions in order to provide a smooth airflow beyond the fan, and to significantly reduce the losses of interrupted airflow. The nacelle can fit two people standing at full height.



PERFORMANCE (HIGH WIND SPEED)

Notable improvement of aerodynamic efficiency allows the wind tunnel to reach a faster airspeed with the same energy consumption (or to reduce the energy consumption required to power the equivalent wind speed).

ACTIVE FRONT END ELECTRICAL DESIGN

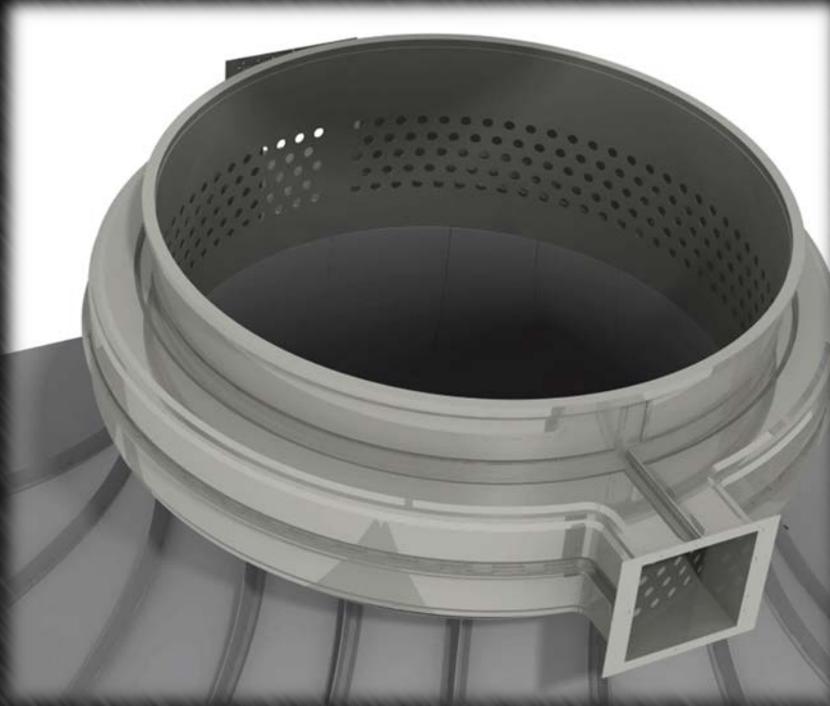
Active Front End is a new electrical design for the VERTICAL[®] wind tunnel industry. This design provides the possibility to regenerate energy during deceleration while removing the requirement for the expensive harmonic filter. This innovation reduces complexity, cost and the size of the electrical room.

COOLING SYSTEM

The VERTICAL[®] cooling systems have been comprehensively designed and tested in the harshest and most demanding environments. We can provide a fully-proofed system for every possible need.

ANNULAR RING

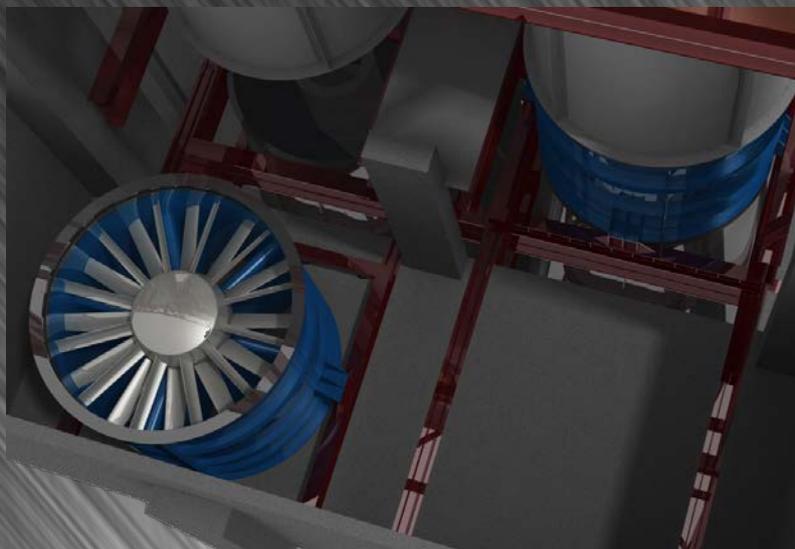
Annular ring will be used to equalize the air pressure inside the tunnel to match the outside, allowing the tunnel to work in zero-pressure conditions. Air symmetrically flows in and out of the tunnel without disturbing the main airflow of the tunnel. The ducted ring allows, if required, treatment and control of the inlet air (which could include a filter system, a cooling system, or a partial or full flow block as necessary).



MAINTENANCE

The tunnel is designed in such a way that we can guarantee high availability at low maintenance costs. Our direct involvement in the supply chain guarantees the quality and consistency of the key components and spare parts for the future.

The rendering below shows an example of smart design, where a special terrace and rails allow easy fan installation and removal.



TECHNICAL CHART

DESCRIPTION	12 FEET	14 FEET	17 FEET
Electrical Motor [kw]	500-600	400-500	600-900
Fans [#]	2	4	4
Total Power Installed [kw]	1000-1200	1600-2000	2400-3600
Design Speed [kmh]	280 - 300	290 - 310	290 - 330
max speed (zero Margin) [kmh]	300 - 320	310 - 330	300 - 350
Energy consumption [First Time Flyers] [kw]	214	325	443
Energy consumption [Pro Flyers] [kw]	573	871	1188
Estimated Cooling [ton]	150-200	200-300	300-400
Estimated Cooling Energy Consumption [kw]	180-230	250-350	350-450
Tot estimated power [excluding Building]	1.2 – 1.4 Mw	1.9 – 2.4 Mw	2.8 – 4.0 Mw
Glass Height [m]	5 or on request	5 or on request	5 or on request
Diffuser Height [m]	on request	on request	on request

- Wind Tunnel plot >500 m²
- Building height above ground 20m
- Soil preferably suitable for deep excavation (the tunnel may require 5-10 m underground)
- Use: entertainment, sport, or commercial.
- Parking lot
- Good visibility and exposure to public
- Easy access from the road
- Easy connection with an airport

These are guidelines but not limitations

PROJECT TIMEFRAME**PHASE 0 – INTRODUCTION**

DESCRIPTION: first contact; Vertical introduces to the wind tunnel industry. The buyer Introduces the project concept. Vertical assesses a high-level feasibility; the buyer verifies the budget.

OUTCOME: Wind Tunnel Model Selection

DURATION: as long as necessary

PHASE 1 - TEAM SELECTION

DESCRIPTION: selection of the design team (architect, structural, PM, contractor, etc.) that will work with Vertical throughout the project.

OUTCOME: Project Road Map; Responsibility and role of each player; LOI signed with Vertical

DURATION: 1-2 Months

PHASE 2 - PROJECT UNDERSTANDING

DESCRIPTION: With Letter of Intent signed and the architect team available, we work together to conduct an overall project review. At the same time, negotiation of the Wind Tunnel Technology SPA (Sell purchase agreement).

OUTCOME: Project specifications, Project feasibility and risk report.

DURATION: 1 months

PHASE 3 - PRECONSTRUCTION PHASE

DESCRIPTION: This is the core of the project. DESIGN, BUDGET APPROVAL and AUTHORITY APPROVALS.

OUTCOME: Construction Drawings and any Authority approval

DURATION: 1-3 months, depending on the complexity of the project, local regulation and approval process.

PHASE 4 - CONSTRUCTION

DESCRIPTION: General Contractor tender and selection; mobilization (site set up), Procurement of all components. Building construction and Wind Tunnel Installation; Start up and commission.

OUTCOME: Wind Tunnel Building ready to generate income.

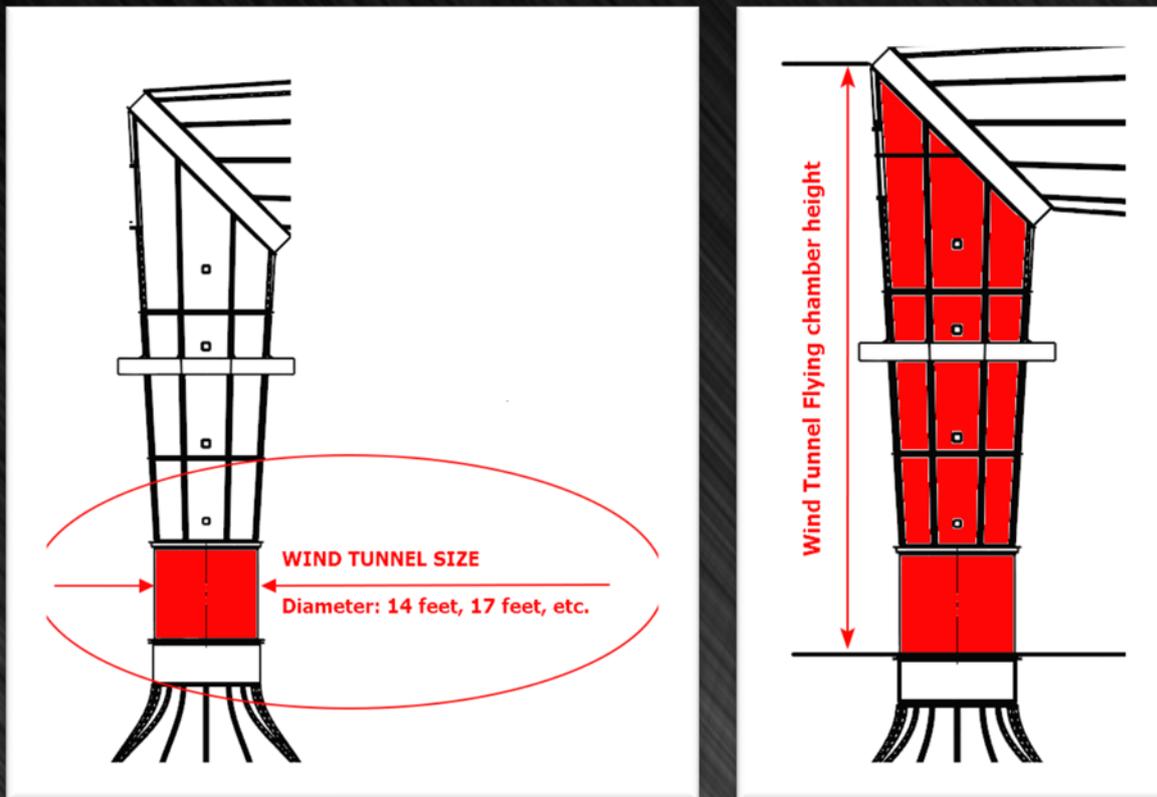
DURATION: 4-8 Months

THE PROJECT

When a wind tunnel project starts, the first feature to be determined is **the size of the wind tunnel**. The size is commonly referred to the diameter of the flying chamber (which is the cylindrical portion of the tunnel where the flight takes place) and the flying chamber height. Together these dimensions define the total flyable volume.

The size affects the power required to run the tunnel but on the other side it increases the appeal of the experience (flying in a bigger volume is much more pleasant).

Despite we have studied tunnels of all the sizes, the most viable project from a commercial point of view nowadays are from 12 to 17 feet (according with the local market).



Main Dimension of a Vertical Wind Tunnel: Diameter of the Flying Chamber – height of the Flying chamber. Total flyable volume

THE PLAYERS INVOLVED

PLAYER	ROLE
"The Seller"	Supplier of the wind tunnel technology and point of assistance for the design, construction and commissioning of the building
"The Buyer"	The Company which owns and run the Wind Tunnel Business As an option the Seller can take full care of the operation
The Buyer's Architect and Contractor	Responsible for the EPC of the building and installation of the wind tunnel in it.

The main components in a wind tunnel project are the Wind Tunnel Technology, the Building, and the Operations. What follows is our best practice on how to divide these responsibilities.

WIND TUNNEL TECHNOLOGY	OPERATION	BUILDING
PROPULSION	Day to day operation	PROJECT MANAGEMENT
TUNNEL STRUCTURE	INSTRUCTOR HIRING and CERTIFICATION	DESIGN
FLYING CHAMBER	COMPANY PROCEDURES	CONSTRUCTION
INFOTAINMENT	Sales and marketing	
The Seller	The Buyer or The Seller	Buyer's Architect and contractor

THE BUILDING

Building a Vertical wind tunnel is a 1 to 2 years project. The main reason is that a wind tunnel can be anything in between a basic wind tunnel structure only, to a real high raise building equipped with restaurant, landscaped outdoor and side activities:



- Fancy building enclosing the Vertical wind tunnel technology:*
- ✓ Reception
 - ✓ Offices
 - ✓ Merchandising area
 - ✓ Staff room
 - ✓ Gear room
 - ✓ Observation/Lounge area
 - ✓ Restaurant / Bar
 - ✓ Birthday party room
 - ✓ training rooms
 - ✓ class room
 - ✓ conference room (for corporate event)
 - ✓ Technical rooms (janitor, storages, IT, etc.)



- Vertical wind tunnel Technology only: tunnel components and steel structure.*
- ✓ Reception
 - ✓ Offices
 - ✓ Staff room
 - ✓ Gear room
 - ✓ training room
 - ✓ class room
 - ✓ Technical rooms (janitor, storages, IT, etc.)

THE LOCATION

Vertical Wind Tunnel for entertainment purpose, expresses their best commercial attitude in an environment where amusement, recreation, and new adrenaline experience is demanded. Theme parks, new residential complex, shopping mall, etc. are the best location to attract First Time Flyers.

Where the target markets are instead Military it could be instead an independent destination; for skydivers, the proximity to a Drop Zone are definitely an added value.

In all cases is always recommend to have an easy access, and exposure on main roads.

WHAT WE OFFER

VERTICAL® is a business-to-business entity. **VERTICAL**® can serve any type of investor: from those experienced in wind tunnel that only requires the wind tunnel components, to the one that requires a turnkey solution.

OPTION A - THE TECHNOLOGY

VERTICAL® can design, produce, and deliver to your plot the wind tunnel components. We'll also assist you during the design of your building / structure and during the final installation / commissioning

OPTION B - THE TURNKEY

VERTICAL® can provide the most demanding investor with a Turnkey solution. Just have a look at the design prospective, the tunnel specification, the cash flow and the overall business plan...if you like it, approve it, and you'll get it done.

OPTION C - CALIBRATED.

Our flexible approach can accommodate anything in between option A and B.

Do you own the wind tunnel components and you need to erect it? You have a drop zone and you want to rent a Free-Standing for it? Do you have a yacht and you wish to have a custom-made wind tunnel just for your pleasure?

You name it and our team of wind tunnel expert can fit a tunnel in any location and in any format.

OPTION D - CONSULTANCY

Do you have already your plan to buy or build a wind tunnel? Would you like to have a full comprehensive business plan analysis of your location or you just need a due diligence on your project?

We can stand on your side, be your consultant for the whole process, and make you feel comfortable that you are always taking the right decision.

CONTACT US

Our Engineering and Commercial Teams are happy to answer all your question,

To provide a full comprehensive Wind Tunnel Project Cost Analysis

To prepare a preliminary business plan for your wind tunnel,

To provide you with a technical due diligence on an existing project,

To provide consultancy services for your own project,

To assist you making your idea a reality.



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