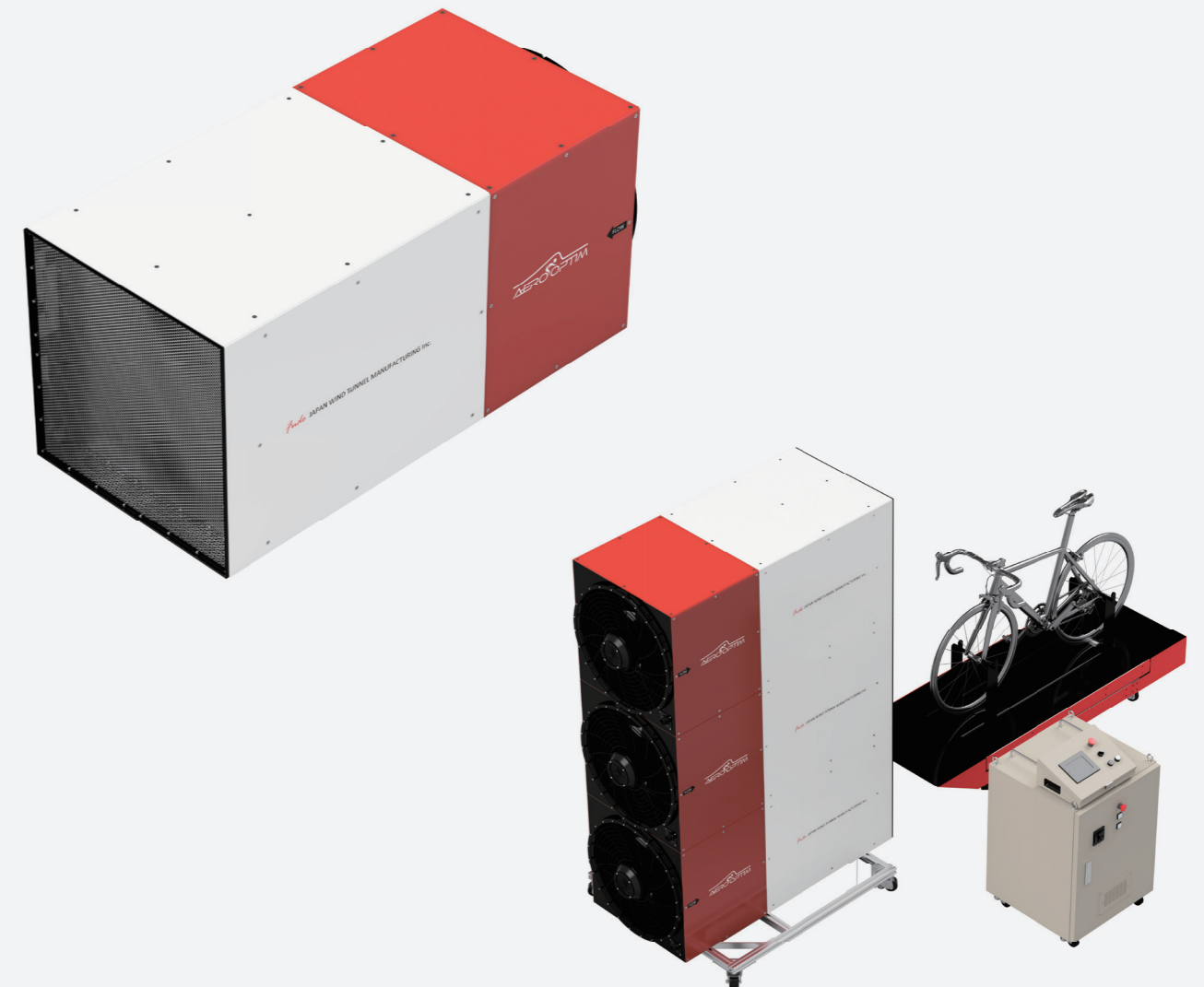




A Wind Tunnel for Everyone



What is the “Aero Optim” ?

The Aero Optim is a simple, scalable wind tunnel unit that can be joined together to create the desired flow area. All essential components of a wind tunnel (fan, diffuser, flow straightener, etc.) are included in a compact cubic unit. Therefore, a large flow area can be produced at low cost.

Characteristics

- Compact (about 1.5 meters long)
- Low cost and large flow area
- Portable
- Scalable

Official Distributor



Manufacturer

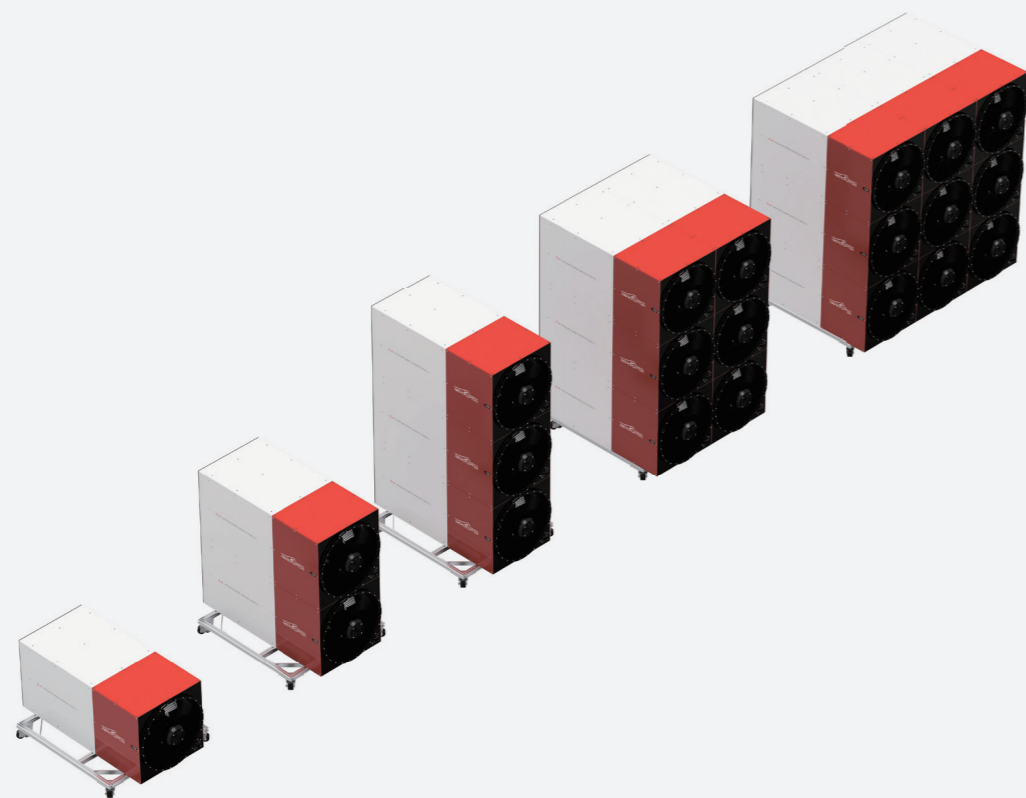
JAPAN WIND TUNNEL MANUFACTURING Inc.

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Specification

Model	Aero Optim	
Version	21 J	21 E
Max. Wind Speed	1~15 m/s (3.6~54 km/h)	
Distribution ¹	under ±8 %	
Fluctuation ^{1,2}	under 1 %	
Outlet Size	W 630 × H 630 [mm]	
Unit Size	L 1470 × W 686 × H 683 [mm]	
Fan	7.5 kW IPM Motor Axial Fan	
Max Sound Level ³	105 dB	
Weight	160 kg	160 kg
Power Supply	3 φ 200V 50/60Hz	3 φ 400V 50Hz

¹ : At rated fan speed, 50mm downstream, center of the fan (20J Prototype)

² : Defined as the coefficient of variation of wind speed

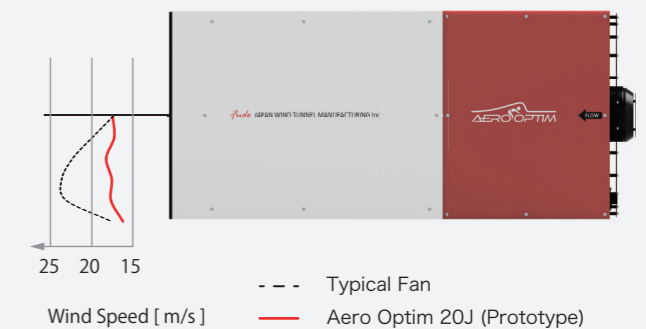
³ : At rated fan speed

Notification : Specifications are subject to change.

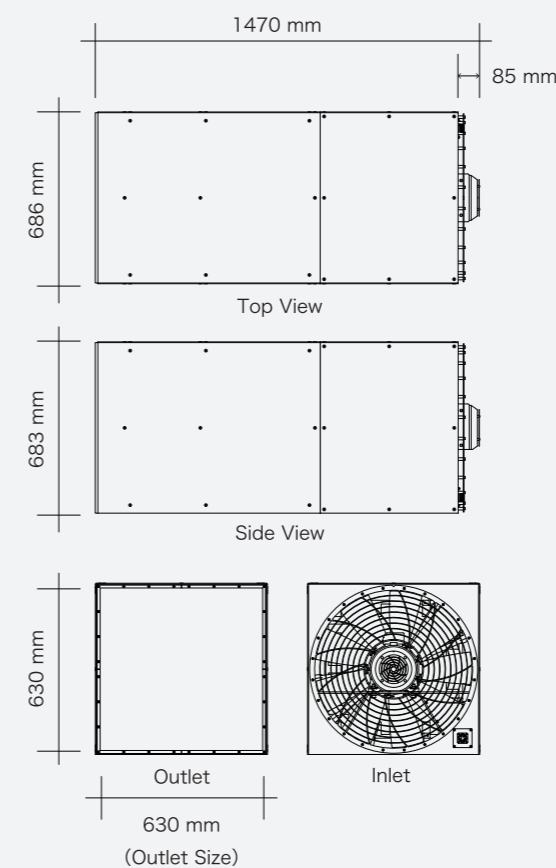
"Aero Optim" and are trademarks of JAPAN WIND TUNNEL MANUFACTURING Inc. The design of Aero Optim is pending.

Wind Speed Distribution

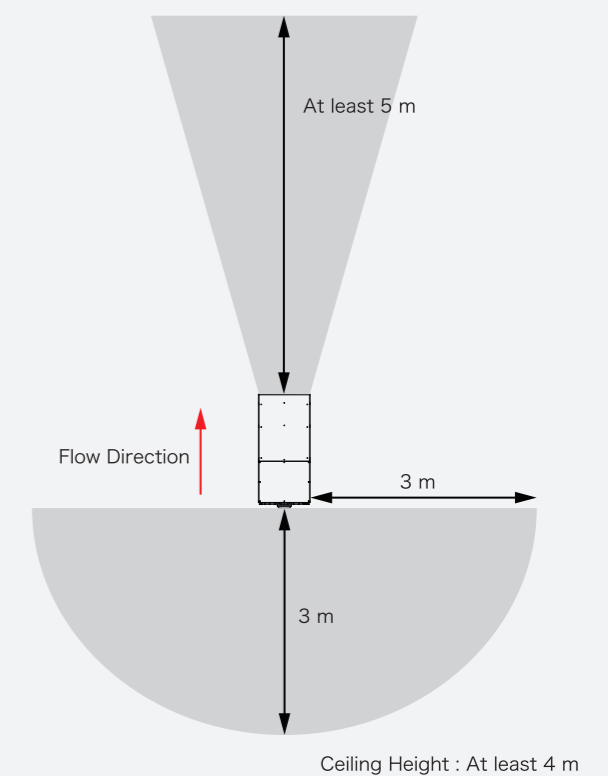
Wind Speed Distribution of Aero Optim 20J (Prototype)



Dimensions



Recommended Space



Compact

Every essential component of a wind tunnel (fan, diffuser, flow straightener, guide vanes, etc.) fit inside a compact unit 1.5 meters in length. As a result, this unit can be placed in a garage-sized space.

Portable

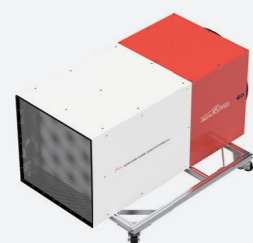
Mounted on a frame with caster jacks, the Aero Optim can be relocated for storage over office floors or other hard surfaces.

Low Cost

Under mass production, the Aero Optim will be an affordable choice for more people looking for wind tunnels. It does not require special rooms or equipment, reducing maintenance costs.

Scalable

A wide variety of optional accessories can be added to your Aero Optim to augment your wind tunnel's capabilities, including raising the max wind speed, flow quality, and changing the aspect ratio of the flow area.



Essential Components



Aero Optim Standard Unit

A standard set of the Aero Optim is one wind tunnel unit and one controller per unit.



Controller

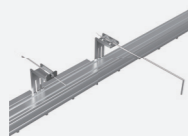
This touchscreen panel controls the fan speed. Multiple fans can be controlled with one controller.



Custom Cart

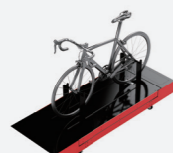
With its caster jacks, the unit can be easily moved. Size varies with the arrangement of the units.

Optional Components



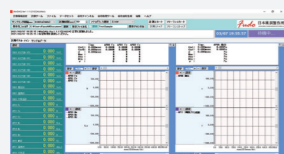
Anemometer

We offer multiple types of anemometers, including directionless hot wire probes and pitot tubes.



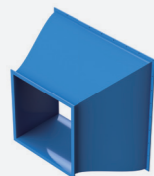
Bicycle Measuring Table

This table measures the drag force produced by the bicycle, even while the rider is pedaling.



Software

This software is essential when using anemometers or the Bicycle Measuring Table.

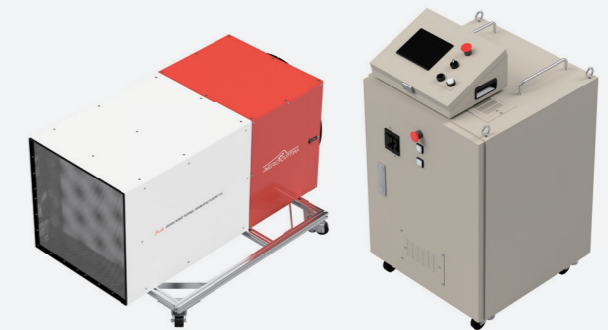
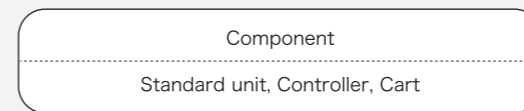


Additional Units

Contraction nozzle and flow-straightener units can be added to augment wind tunnel performance.

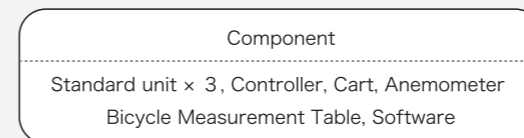
Config.1 : Basic Unit

One control unit is needed per wind tunnel unit.



Config.2 : Racing Bike

This configuration is recommended for examining the form, body and accessories of a rider, which is important in bicycle races.



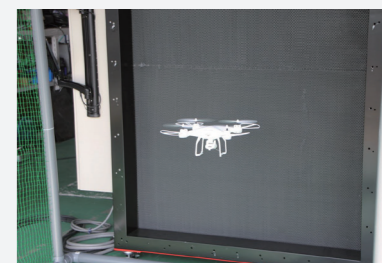
Usage



Aerodynamics of a Road Bike



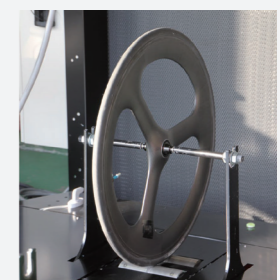
Visualizing flow around a bike



Wind test for drones



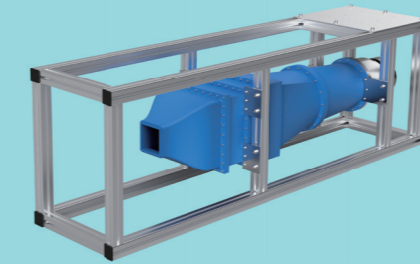
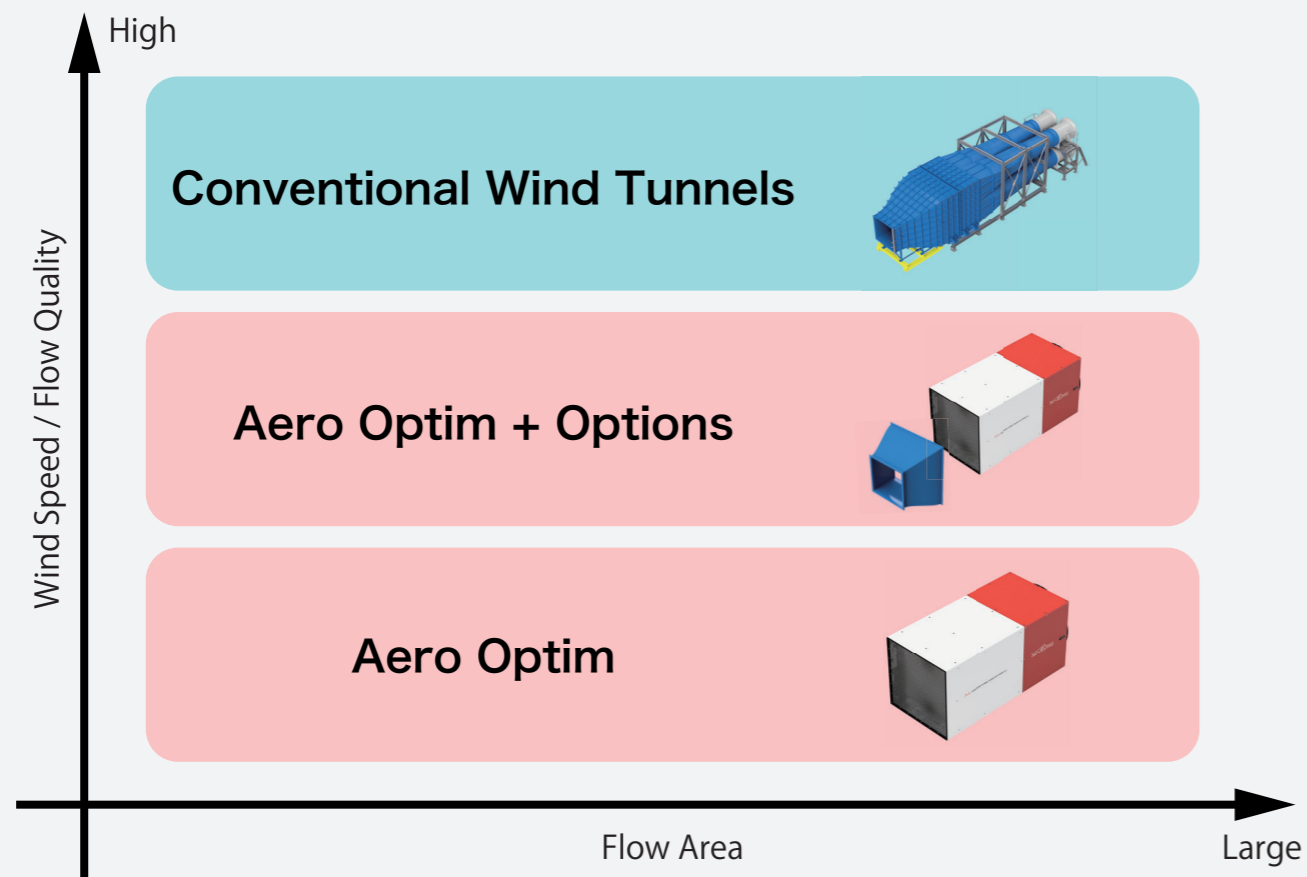
Visualizing flow around a car



Drag test of a wheel

Variety of Wind Tunnels

JAPAN WIND TUNNEL MANUFACTURING Inc. develops not only the Aero Optim, but also manufactures and offers conventional wind tunnels. That is why we can offer the most appropriate wind tunnel for your needs at a reasonable cost.

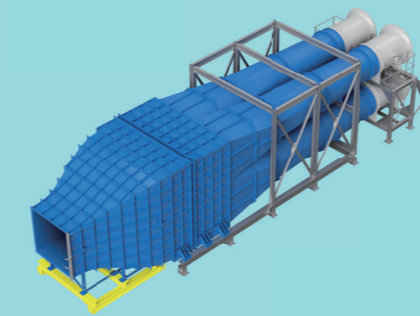


[Example] Calibration Wind Tunnel
Flow Area : 8 cm × 8 cm Max Wind Speed : 35 m/s

Conventional Small Wind Tunnels

For those who require high quality airflow over a small area, such as sensor calibration, a conventional small wind tunnel is recommended.

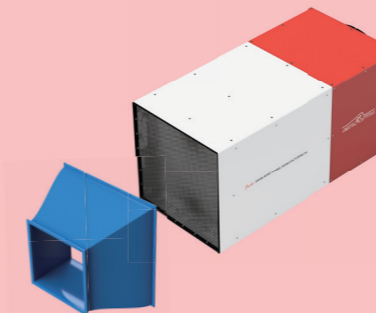
Desktop and floor-standing models are available on a custom-made basis.



[Example] Flow Area : 2 m × 2 m Max Wind Speed : 30 m/s

Conventional Large Wind Tunnels

For those who need high quality airflow over a large area, we recommend a conventional large wind tunnel. In addition to the wind tunnel itself, we can also provide balances, measurement systems and software.



Aero Optim + Options

We have a lineup of options to change the performance of Aero Optim. We can offer a reduced flow nozzle that can increase the air velocity, or add a rectification unit to improve the air velocity distribution and turbulence.



Aero Optim

This is a compact wind tunnel developed to provide a "Wind Tunnel for everyone". With a straight flow with a certain degree of control, it can be used for simple aerodynamic experiments. It is recommended for those who want to introduce a wind tunnel more easily and inexpensively.

An Example of Past Projects

- Type : Horizontal/Vertical Eiffel Wind Tunnel
- Flow Area : 2.0 m × 2.0 m
- Max. Wind Speed : 30 m/s
- Rated Power : 180 kW
- Turbulence : less than 1%
- Distribution : Horizontal : less than 1.0 %
Vertical : less than 2.0 %
- Attachments : Automatic Nozzle Switcher
Measurement Instruments

