

Crosswinds Mitigator™ Subsystem

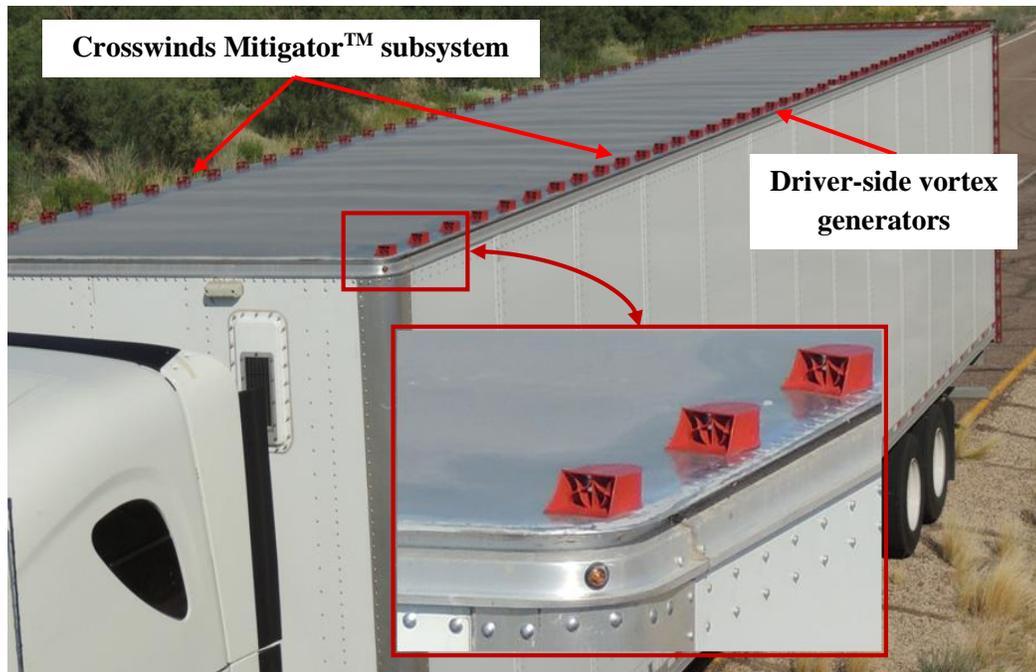
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INSTALLATION GUIDE

Please, read this Guide carefully before installation. Please note that modification of the installation pattern such as changing orientation of VorBlade™ vortex generators or placing the generators closer to each other could degrade the VorBlade™ performance or result in unexpected side-effects. Avantechs Inc. takes no responsibility for installation procedures different from the ones specifically provided for the VorBlade™ products.



Crosswinds Mitigator™ subsystem on a typical 53' trailer

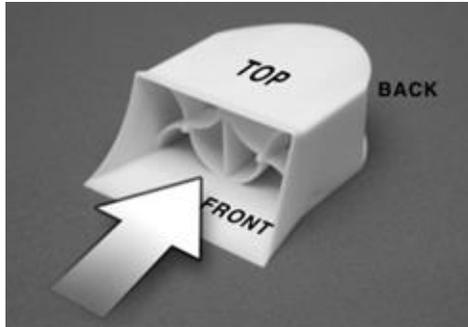
It is recommended to place the first VorBlade™ vortex generator as close to the front edge of a trailer as possible.

VorBlade™ Crosswinds Mitigator™ subsystem consists of a set of VorBlade™ vortex generators to be mounted on the driver-side and passenger-side edges of a trailer roof. The required number of generators depends on the length and configuration of your trailer, for example 70 or 72 generators are needed for 53' trailer, 52 or 54 generators for 40' trailer, and 36 or 38 generators for 28' trailer.

Installation conditions: Attaching Crosswinds Mitigator™ subsystem to a trailer must be performed from a trailer bay, scaffold, rolling ladder or other appropriate platform providing stable, non-slippery and otherwise safe support to the personnel performing the installation. Please note that the generators are to be attached to a trailer roof at the height from 12 to 14 ft above the ground.

Crosswinds Mitigator™ subsystem must be installed in dry environment at temperatures between 50°F and 110°F to guarantee the bond strength. Please let the adhesive to settle: the full bond strength of the adhesive pads occurs in 24 to 48 hours.

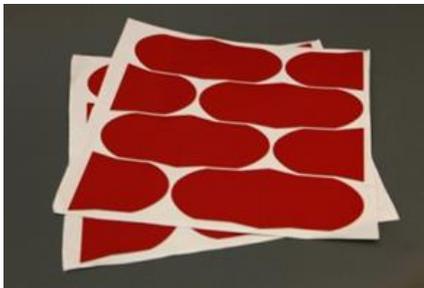
Packing list - please check received parts against the list and identify each part as it is unpacked



72 VorBlade™ vortex generators



All boxes with VorBlade™ vortex generators have circular color marks outside. A color of the mark indicates the color of the generators inside the box.



72 double-sided adhesive pads (6 sheets)



The indent fronts must face the vehicle front

The indent backs must face the vehicle back

Multi-usable two-sided vinyl template (1 roll about 15 ft long)

Step 1: Attaching double-sided adhesive pads to the bottom surface of the VorBlade™ vortex generators

Please attach adhesive pads to the exact number of generators required for your trailer.

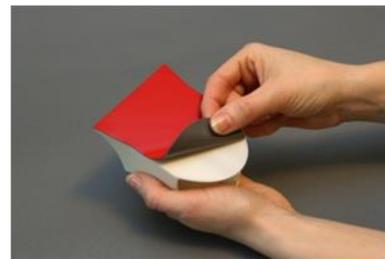
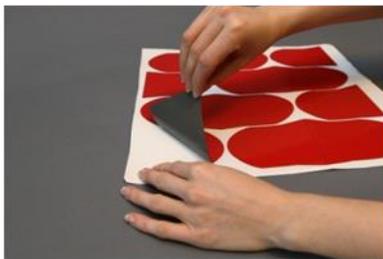


1a: Clean the bottom surface of the generators by standard cleaning solvents such as 50/50 mixture of Isopropyl Alcohol with water, wax and grease removers and the like (not included).

1b: Wipe surfaces dry with cloth or paper towels.

1c: Peel adhesive tape pad from the liner sheet.

1d: Attach firmly adhesive pad to the generator starting from the front.



1e: Set generators aside for 15 min or more to set the bond.

Step 2: Cleaning and degreasing the trailer roof near the side edges

2a: Clean a trailer roof surface near side edges for attaching the VorBlade™ vortex generators by standard cleaning solvents such as 50/50 mixture of Isopropyl Alcohol with water, wax and grease removers and the like.

2b: Wipe surfaces dry with cloth or paper towels.

Make sure that it is dry outside and a temperature is between 50 °F and 110 °F.

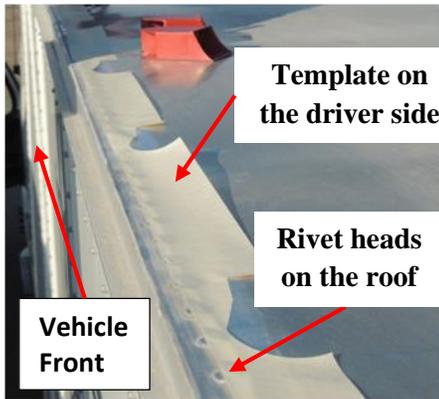
Warning: Be sure to clean and dry the surface carefully - adhesive pads do not provide strong bond on wet, greasy or otherwise dirty surfaces.

Step 3: Positioning installation template and attaching VorBlade™ generators to a trailer

3a. Unroll multi-usable two-sided vinyl template and detach it from the reel. Find the front end of the template towards which the indent fronts are facing.

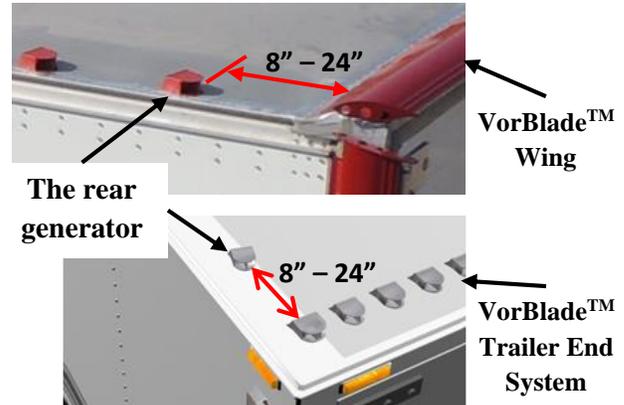
3b. Position the front end of the template as close to the front edge and the driver-side edge of a trailer roof as possible.

Make sure that indents in the template face the trailer centerline and the indent fronts face the vehicle front.

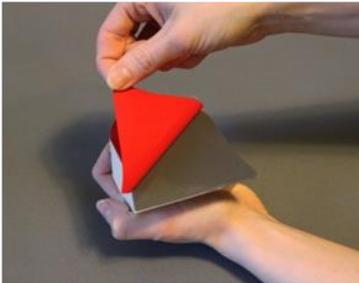


Make sure that the bottom surfaces of the VorBlade™ vortex generators are located on a flat trailer roof.

Do not place the bottom surfaces of the generators over rivet heads or other obstacles.

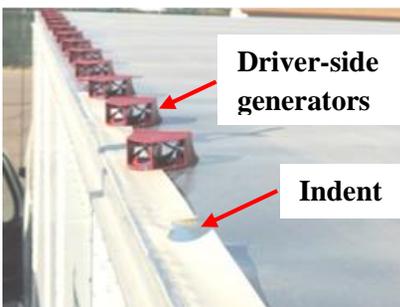


3c. Attach the template front end to the roof by any easy detachable adhesive means such as a packing tape, a mounting tape, Scotch Magic tape and the like (not included). Continue positioning the template along the roof edge towards the trailer back and attach the rear end by the detachable adhesive means. If installed in windy conditions use 2 or 3 extra pieces of adhesive to hold the template down.



3d. Attach VorBlade™ generators to a trailer in all the indents in the template as illustrated below.

- Peel the liner from the adhesive pad on the bottom of VorBlade generators.
- Align each individual VorBlade™ generator in the indents in the installation template.
- Lower the generator and push firmly to the roof surface.



VorBlade™ vortex generators must be positioned at 17 degrees to the roof side edges and the front of each generator must be oriented towards the trailer center line.

For installation video and additional information please visit www.vorblade.com, click on “How it works?” then click further on “How many do I need? Where do they go?” and watch the provided video if needed.

3e. Detach the template from the roof and move it along the driver-side edge towards the trailer back until the front indent in the template coincides with the rear one of the previously attached VorBlade™ generators. Attach the template to the trailer roof in a new position as described in Step 3c.

3f. Repeat Step 3d for the new template position.

3g. Repeat Steps 3e and 3f until the rear generator is distanced 8” – 24” from the front of the VorBlade™ Wing or the VorBlade™ Trailer End System generators on the vehicle roof tail as illustrated in the right pictures at Step 3b.

Please flip template over for the passenger side installation. Make sure that the indents in the template face the trailer centerline. Generators on the passenger side are mirror images of the driver-side generators.

3h. Repeat Steps 3b – 3g for the passenger-side of the trailer roof.

Step 4: Finishing the installation



4a: Remove installation template from the trailer.

4b: Do not drive a vehicle or trailer for several hours allowing the adhesive to build-up the bond strength.

The full bond strength of adhesive pads occurs in 24 to 48 hours.



4c: In case there are several extra vortex generators and adhesive pads left unused, store them in a dry place at a room temperature. If one or few VorBlade™ vortex generators are torn off your trailer due to the improper installation or an impact-related occurrence, the extra ones may be used for a replacement.

Please note: The Crosswinds Mitigator™ subsystem does not require a periodic maintenance. Nevertheless, due to deviations from the installation procedures, harsh vibrations, unforeseen mechanical impacts, extended exposure to adverse weather conditions, or any misuse of the VorBlade™ vortex generators, adhesives might lose bond strength. The subsystem must be inspected visually every 2 months for the adhesives that might be losing the strength or any mechanical damage and the detected problems must be fixed. It is the sole responsibility of the user to maintain the VorBlade™ products in safe and fully operational condition.

DISCLAIMERS

The enclosed double-sided adhesive pads will adhere well to most clean and dry vehicle surfaces. However, the pads may not be the best option for some surfaces such as raw rough-textured fiberglass or non-flat surface. Please contact our customer support for specific instructions.

Any installation of VorBlade™ product is subject to the terms and conditions of use posted on the company’s website. The Buyer/ Installer understands and agrees that these terms and conditions shall apply to any and all orders/installations of VorBlade™ products placed or performed at any time by the Buyer and/or Installer.

Avantechs Inc. does not warrant that products are suitable for all uses and operations on all truck, trailer, or vehicle models. It is the sole responsibility of the buyer and/or installer to determine product compatibility and ensure usage safety. Avantechs Inc. is not responsible for any injuries, damages to trucks, trailers or other vehicles including third party vehicles due to installation and/or use of the product. Avantechs Inc. is not liable for non-compliance with any local or state regulations. It is the sole responsibility of the buyer to establish his vehicle(s) or fleet compliance.

Avantechs Inc. is not responsible for traumas or injuries occurred during the installation due to the use of unstable, slippery or otherwise inappropriate platform, unskillful or otherwise inappropriate use of installation tools, violation of safety instructions for the applied manual or powered tools, or other violations of the standard safety rules and instructions.

Modification of the installation procedures may result in the VorBlade™ vortex generators being torn from a trailer which in turn may lead to serious crushing injuries. Avantechs, Inc. takes no responsibility for installation procedures different from the ones specifically provided for the VorBlade™ products.