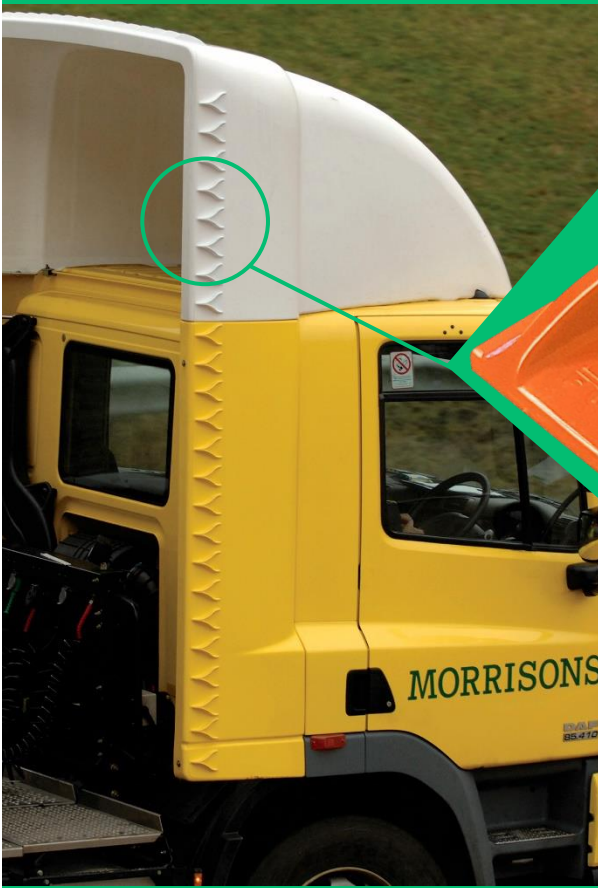


Airtab[®]

FUEL SAVERS

Installation Manual



CELERITY[®]
CDRS
DRAG REDUCTION SYSTEMS

Index

- Index of Abbreviations IV
- Index of Figures..... IV
- Index of Tables IV
- 1. Important Customer Information 5
- 2. General Information..... 6
 - 2.1. Safety Icons 6
 - 2.2. Safety Information 7
 - 2.2.1. General 7
 - 2.2.2. Installation 8
 - 2.2.3. Maintenance 8
 - 2.3. General Terms and Conditions and Guarantee 9
 - 2.4. Liability 9
 - 2.5. Disposal 9
- 3. Product Description and Specifications..... 10
 - 3.1. Appropriate Use 10
 - 3.2. In-Appropriate Use 10
 - 3.3. Function 11
 - 3.4. Structure 12
 - 3.5. Type Approval 12
- 4. Installation 13
 - 4.1. Tools – Overview 13
 - 4.2. Surface Preparation..... 14
 - 4.3. Installation Location 15
 - 4.4. Installation..... 17
 - 4.5. Painting Airtabs® 18

4.6.	Removing Airtabs [®]	19
5.	Maintenance	19

Index of Abbreviations

ADR	Accord européen relatif au transport international des marchandises Dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
ATIS	Automatic Tyre Inflation System
DRS	Drag Reduction Systems
NPT	National Pipe Thread
OEM	Original Equipment Manufacturer
PA	Polyamide
PSI	Pressure Systems International
PTFE	Polytetrafluoroethylene (Teflon)

Index of Figures

Figure 1: Function Airtab®	11
Figure 2: System Construction	11
Figure 3: Structure Airtab®	12
Figure 4: Spacing.....	18

Index of Tables

Table 1: Tools-Overview	13
-------------------------------	----

1. Important Customer Information

Dear Customer

We are happy to provide you with Airtab® from Aeroserve Technologies Ltd. The system will help you to increase the road safety, the environmental friendliness and the profitability of your vehicle.

The current manual will give you an overview about the product and proper installation. Please read this manual in full. Included is also security information and important notes for the correct handling. By observance of these notes its uptime and the lifetime also is optimised.

The manual should be accessible for the vehicle user at all times and therefore you should store it in the vehicle.

With best regards

Your Celerity DRS Team

** Information contained in this publication was in effect at the time the publication was approved for printing and is subject to change without notice or liability. Celerity DRS GmbH, reserves the right to revise the information presented or to discontinue the production of parts described at any time.*

2. General Information

This manual is designed for the user to understand the function, the structure and also how to install Airtab®. The included guide for the installation and the initial operation is limited to the use by the vehicle manufacturer or via a verified partner and by trained professionals. Celerity DRS advise, that the installation should be done by a verified partner and by trained professionals.

Please read the manual carefully! Failure to follow the warnings and instructions may result in personal or property damages.

2.1. Safety Icons

This manual uses different icons in order to identify important information. It is necessary to read and observed this information carefully.



This icon warns for possible safety risks to both persons and property.



This icon identifies special installation requirements. Non-compliance could lead to personal and property damages and also to malfunction or damage of the system.



This icon gives important or useful information for the installation, increased efficiency and increased life-time of the system.

2.2. Safety Information



Warning:

- Please read the manual carefully! Failure to follow the warnings and instructions may result in personal and property damages.
- Save this manual for future reference!

2.2.1. General



Warning:

- Physical alteration of the Airtab® is not permitted.
- Transportation and storage should be done in the original packaging and kept cool and dry.
- For the installation of Airtab® special ladders or working platforms can be needed. For that reason, the installation should be done only via the vehicle manufacturer or via a verified partner and by trained professionals.
- Damaged or missing parts must be replaced immediately by a verified partner and by trained professionals.
- Park the vehicle on a level surface. Block the wheels to prevent the vehicle from moving. Support the vehicle with safety stands. Do not work under a vehicle supported only by jacks. Jacks can slip and cause serious injury or fatality.
- Ensure vehicle manufacturer (OEM) cleaning guidelines are followed.

2.2.2. Installation



Warning:

- **An incorrect instillation can cause to an increase fuel consumption**
- **The installation area must be cleaned properly and must be free of dirt, greases or oils.**
- **Do not install Airtab® on vinyl tarp!**

2.2.3. Maintenance



Warning:

- **Yearly optical check of the Airtab® installation required.**
- **Replace damaged or missing Airtab® immediately to ensure the optimal result.**

2.3. General Terms and Conditions and Guarantee

The current general terms and conditions and also the guarantee conditions of Celerity DRS GmbH can be downloaded from our website www.celeritydrs.com.

2.4. Liability

The Airtab® of Aeroserve Technologies is subject to the current general terms and conditions of Celerity DRS GmbH.

Celerity DRS GmbH takes over no liability by personal or property damages, which are due to the following causes:

- Use of the system which is not appropriate.
- The manual and the safety information not being observed.
- Physical alteration of the system.
- Use of damaged parts.
- In-appropriate installation of the system.
- Use of non-authorized aftermarket parts.
- Any disaster due to outside influence or an act of nature.

2.5. Disposal

To protect our environment, during the installation or maintenance intervals waste material, e. g. parts, and operating supplies must be disposed of correctly.

All recyclable waste material, free of special waste like oil and grease, must be reused where possible. All special requirements such as EU-regulations and regional regulations must be observed.

3. Product Description and Specifications

3.1. Appropriate Use

The manufacturing of the product is done with the latest state of the art equipment, whereby the primary focus is on safety. Despite this there could occur dangers for persons and property by using the product.

Airtab® by Aeroserve Technologies is only designed and approved for use on road vehicle. Depending on the road vehicle there are different possibilities for the installation of Airtabs®.

Also related to appropriate use:

- The manual and the included working steps must be observed.
- The guidelines for the installation must be followed.
- The guidelines for the checks must be followed.
- The guidelines for the environmentally sound disposal must be followed.

Only when all of the valid system settings, are observed, can a reliable use be ensured.

3.2. In-Appropriate Use

Airtab® by Aeroserve Technologies is only designed and approved for use on road vehicle.

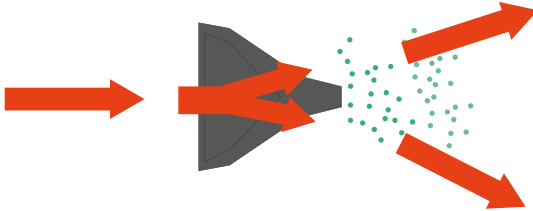
Related to the in-appropriate use counts also:

- Installation by non-authorized workshops or professionals.
- All non-recommended applications.

3.3. Function

The Airtab® is a vortex generator, which produces two counter rotating solid body vortices that rotate at approximately 3000 rpm.

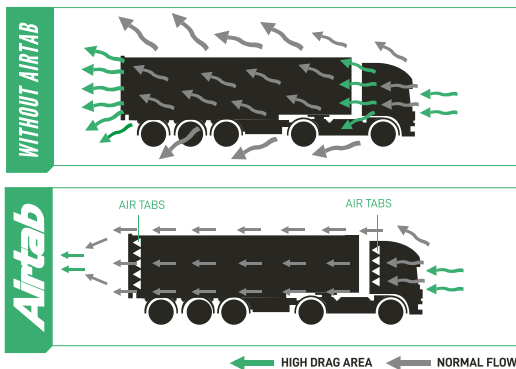
Figure 1: Function Airtab®



These vortices are about 10 to 12 cm in diameter and trail behind several meters. When they are mounted on the tractor, they help to reduce turbulence and suction drag at the tractor-trailer gap by leading the air over the gap.

When they are mounted on the trailer, they reduce the drag by changing the dominant vehicle trailing edge turbulent flow mechanisms from large vertical eddies to a horizontal array of small vigorous solid body vortices. This reduces vehicle sway, improves stability in gusty cross wind conditions. By altering the airflow in this manner, Airtabs® artificially taper the trailer and make the airflow behave as if the trailer was slightly smaller than it actually is.

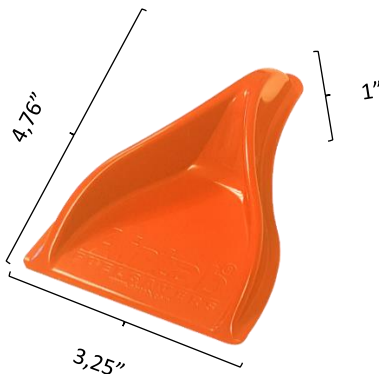
Figure 2: System Construction



3.4. Structure

The Airtab® has a length of 4.76" (≈12,06 cm), a width of 3.25" (≈8,26 cm) and a height of 1" (≈2,54 mm). It's made from automotive grade polymer and a grade A automotive adhesive tape.

Figure 3: Structure Airtab®



3.5. Type Approval



Note:

- **For more detailed information, please check the appendix 1, table 2, row 11 of the updated regulation 2019/1892.**

With regard to the latest update 2019/1892 of the EU regulation 1230/2012, all aerodynamic devices and equipment, which not exceed the maximum vehicle width of 2,60 m, can be used without a certain type approval. Airtabs® are aerodynamic devices and therefore falling under this regulation.

In case of exceeding the 2,60 m vehicle width, a special type approval is necessary for the trailer is necessary. Celerity DRS is already working on a type approval for Airtab®, to avoid a special type approval for the whole trailer.

4. Installation

The following Chapter is concerned with the installation of the Airtabs® on different applications. The described working steps must be followed and the notes must be observed. If the requested application is not mentioned in this chapter, please get in contact with Celerity DRS.



Warning:

- Please read all safety information which can be found in chapter 2.2.
- A non-compliance can lead to personal and property damages!

4.1. Tools – Overview



Note:

- If special tools and supplies are specified in this manual, please contact Celerity DRS for more information.

Table 1: Tools-Overview

Tool	Specification	Used for
Cleaner	Without ammonia!	Cleaning the surface
Ruler, measuring tape	-	-
Working ladder	-	-
Masking tape	-	-
Washable marker pen	-	-

4.2. Surface Preparation



Warning:

- Please read all safety information which can be found in chapter 2.2.
- A non-compliance can lead to personal and property damages!
- Do not use any agent containing ammonia for cleaning!
- Do not install Airtab® on vinyl tarp!



Note:

- Ensure a dry vehicle skin and an atmosphere temperature above +5°C before installing the Airtab®.
- All surfaces must be free of all contaminants.
- If water-based cleaner is used, rinse thoroughly with water until all residue is removed.
- If a degreaser is used, it must be completely removed in accordance with that cleaning agent instructions before installation.
- If allowed by regulation, a final cleaning using mineral (white) spirits or isopropyl alcohol and clean shop rags is recommended.

Procedure:

- 1) Clean the installation area of the vehicle.
- 2) Ensure a dry installation area.

4.3. Installation Location



Warning:

- Please read all safety information which can be found in chapter 2.2.
- A non-compliance can lead to personal and property damages!
- Ensure side Airtab® placement avoids possible impact damage from trailer door hinge bolts.
- Do not install on side extender rubber strips, exhaust stacks or heat shields.
- Do not cover vents or grills.



Note:

- Please contact CDRS for more detailed information.

Airtabs® are installed as close as possible to the rear (trailing) edges of the vehicle and with the wide leading-edge vertical. In case the Airtabs® needs to be moved forward to avoid rivet heads, obstacles, awning bars etc., keep the wide ends of the Airtabs® within 30,48 - 45,72 cm (12 - 18") of the back for optimum performance.

Truck: Install Airtabs® on flat surfaces. Slightly curved surfaces are possible, but only if the leading edge is absolutely flush and the majority of the adhesive tape is in contact with the surface. If the tip is slightly raised, it poses no performance degradation.

Figure 4: Truck



Trailer: Install Airtabs® on the top and the sides of the rear end of the trailer for optimum performance.



Caravan: Install Airtabs® normally, if the awning bars are 45,72 cm (18”) or more from the back of the caravan. If the bar is closer than 45,72 cm (18”) from the back, mount Airtabs® 12,70 – 15,74 cm (5 - 6”) forward of the bar.



4.4. Installation



Warning:

- Please read all safety information which can be found in chapter 2.2.
- A non-compliance can lead to personal and property damages!
- Do not decrease the space less than 10 cm (4") between the center of the Airtab®, which will decrease the performance.
- Do not let the backing papers accumulate underfoot as they are very slippery and hazardous!
- Do not power wash for 2-3 days!



Attention:

- "Staggering" of the Airtabs to accommodate body curvature is fine as long as the spacing remains consistent.
- Full setting of the tape takes 24 hours, but the vehicle will be operational after 15 min after installation.



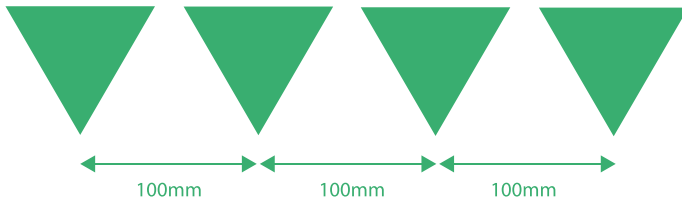
Note:

- Please contact CDRS for more detailed information.

Procedure:

- 1) Use the tape measure and marker for placement guidance.
- 2) Space Airtabs® no closer than 10 cm (4") on center (see figure 4) and increasing spacing to avoid rivet heads, lights, grab bars etc.
- 3) Mount Airtabs® in a straight vertical line.

Figure 5: Spacing



4.5. Painting Airtabs®



Warning:

- Please read all safety information which can be found in chapter 2.2.
- A non-compliance can lead to personal and property damages!



Note:

- CDRS recommends to consult your paint supplier, to identify the best paint.

Airtabs® are made of the Acrylonitrile Styrene Acrylate (ASA) Centrex®. For this material the following paints are recommend:

- Akzo`s Sikkens Autocryl® with Plastoflex® primer
- BASF`s Glasurit® Base coat and Acrlic Urethane paint system
- BASF`s Glassomax® with Glassodur® Urethane Clear Coat
- DuPont Centari® Imron® Chroma base with Uro® Clear
- Sherwin-Williams Polane® (mono coat)
- Sherwin-Williams Ultra Base 7® with Ultra Base Clear®

4.6. Removing Airtabs®



Warning:

- Please read all safety information which can be found in chapter 2.2.
- A non-compliance can lead to personal and property damages!



Note:

- Removed Airtabs® are not reusable.

Procedure:

- 1) Use some dental floss under the narrow portion (tip) of the Airtab® to get enough clearance for an insulated (to protect the finish).
- 2) Heat the Airtab® using a hair dryer and run the wire along underneath to remove.
- 3) Use WD-40 to remove tape residue.

5. Maintenance



Warning:

- Please read all safety information which can be found in chapter 2.2.
- A non-compliance can lead to personal and property damages!

Procedure:

- 1) Incorporated in driver's walk round they must check for damages or missing Airtabs®.
- 2) Replace damaged or missing Airtabs® immediately to ensure optimum performance.

Overview revision changes		
Revision	Reason	Date
Rev. 1	First version	29.07.2020

Let`s reduce your Drag...

For all further support, please contact us:

Celerity DRS GmbH

Lise-Meitner-Straße 40

45659 Recklinghausen

Germany

Tel: +49 (0) 2361 306849-14

General email: info@celeritydrs.com