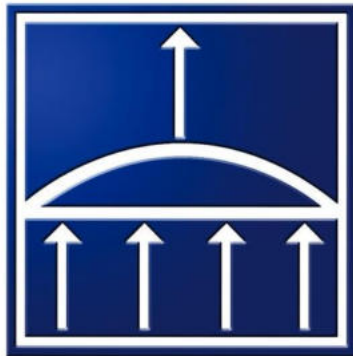


AIRTECH

INTERNATIONAL INC.

Combination Products / Custom Kitting

DISTRIBUTED BY



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COMPLETE FACTORY SET-UP TURNKEY SOLUTIONS

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Section Guide

COMBINATION PRODUCTS / CUSTOM KITTING

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Data Sheet

COMBO-TECH

Combination materials for vacuum bagging

■ DESCRIPTION

Combo-Tech is our expanded product line that bonds various vacuum bagging materials together to form a better overall product and reduce "touch labor", saving companies hours of labor expense while increasing productivity.

Any combination of peel ply, release film, breather, and flow mesh can be bonded together with a non-silicone adhesive and supplied in a variety of widths.

■ BENEFITS

- Multi-function laminate and save time with less materials to cut & apply, reducing cycle time.
- Improve part quality with simpler process & improved surface finish.
- Reduce cost with less rework and reduced Touch Labor.

■ HOW TO COMBO-TECH

STEP 1: Choose your Materials

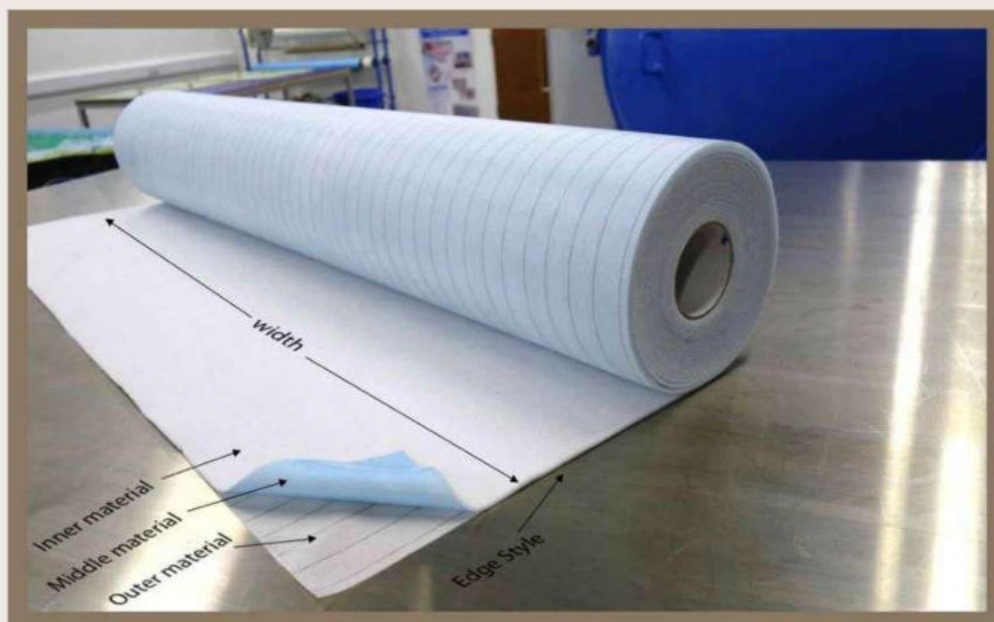
Include details for each such as, product type, weight, thickness, color, perforation, etc.

STEP 2: Choose your Combo-Tech

- Roll up orientation (which material is on outside, middle and inside)
- Edge style (untrimmed, trimmed, staggered)
- Roll width and preferred length (these will be based on standard sizes of individual rolls to minimize waste)

STEP 3: Contact Airtech

Submit your request and we will provide a quote with lead time and minimum order quantity that will apply.



■ NOTES

- Some standard Combo-Tech materials are available e.g. Flashpac, Stretchlease® and Flowlease. Consult the Airtech catalog or your representative for more details.
- Combo-Tech products are bonded together with high performance hot melt adhesives in a controlled process to achieve a consistent bond interface and good material adhesion.
- Watch a video of Combo-Tech Combination Products in the "Media Center" on our website.

Last updated : 2018-10-19

Catalog position : [Combination Products / Custom Kitting](#)

Data Sheet

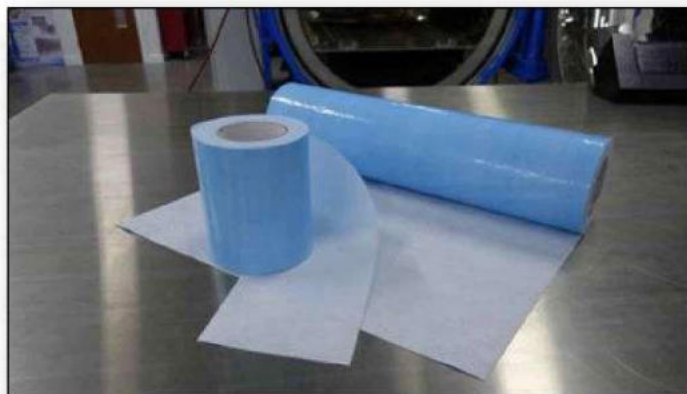
DIFFERENT COMBINATIONS

EXAMPLES OF 2 PLY COMBO-TECH

Outer Layer	Inner Layer	Application
Low cost release film	Light weight breather	Prepreg compaction & debulking
Stretch breather	High stretch bagging film	Prepreg compaction & debulking
Peel ply	Release film	Prepreg curing / Wet layup
Release film	Breather	Prepreg curing / Wet layup / Toolside breathing
Release film	Infusion mesh	Resin infusion
Peel ply	Infusion mesh	Resin infusion

EXAMPLES OF 3 PLY COMBO-TECH

Outer Layer	Middle Layer	Inner Layer	Application
Peel ply	Release film	Breather / bleeder	Curing prepreg / Wet layup
Release film (perf)	Breather / bleeder	Release film (non-perf)	Wet layup with controlled resin bleed
Peel ply	Breather / bleeder	Release film	Metal bond
Peel ply	Release film (perf)	Resin flow mesh	Resin infusion



Combo-Tech CT-12041701 (Ultraweave® 606 + Wrightlon® 5200)

Last updated : 2017-12-22

Catalog position : **Combination Products / Custom Kitting**

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Data Sheet

FLOWLEASE 75-37P16

Combined product

DESCRIPTION

Flowlease 75-37P16 combines Greenflow 75 flow mesh with a layer of our perforated release film Wrightlon® 3700 P16 and is intended to be used in resin infusion applications. The mesh is designed to efficiently distribute resin with little waste due to the low profile and tight construction. A high resin infusion flow can be achieved with most resin types. Great labor savings can be achieved by having combination of products applied in one operation as opposed to applying one layer at a time. Flowlease 75-37P16 will be applied on the top of the carbon or fiberglass fabrics or on the top of the peel ply.

TECHNICAL DATA

Maximum use temperature

250°F (121°C)

Technical data - Film

Material type

Polyolefin

Thickness

0.001 inch (25 µ)

Color

Blue

Perforation style

P16

Technical data - Flow mesh

Material type

Polypropylene

Configuration of net

Extruded

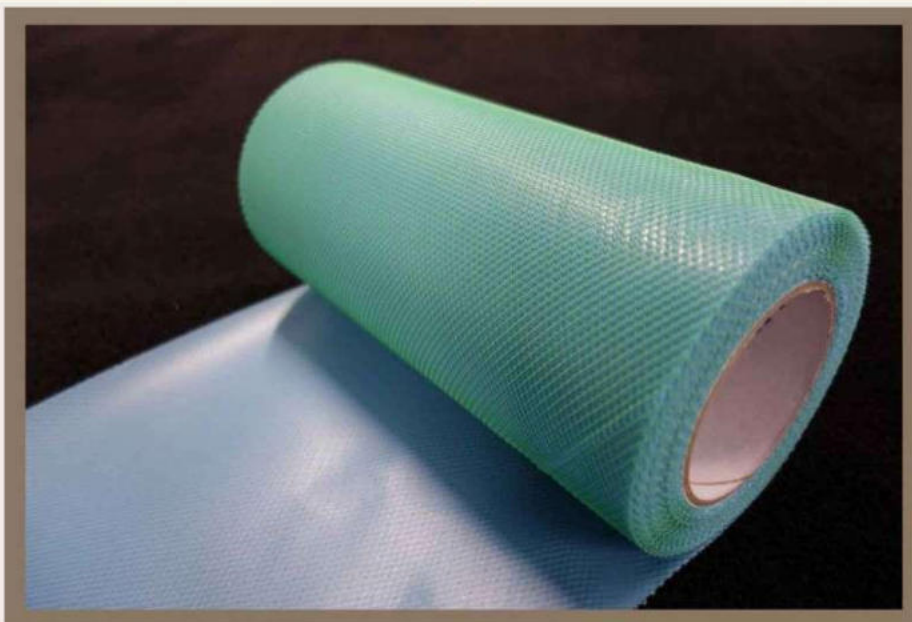
Mesh weight

4 oz/yd² (98 g/m²)

Color

Green

Width	Length
41 inches (1.04 m)	350 feet (107 m)
60 inches (1.52 m)	345 feet (105 m)



NOTES

- This product is an extruded net and does not fray when cut.
- Other combination available upon your detailed request, see Combo-Tech data sheet.
- The maximum use temperature is dependent upon the duration at maximum temperature and is process specific, Airtech recommends testing prior to use.

Last updated : 2019-01-25

Catalog position : **Combination Products / Custom Kitting**



Data Sheet

COMBO-TECH BENEFITS

Kitting & Clean Room

- Reduce kitting effort with fewer materials
- Reduce Material rack space & traffic
- Reduce packaging material waste
- Reduce kit complexity

Improve Part Quality

- Improve surface finish
- Reduce resin starvation
- Reduce placing & wrinkle related defects

Simplify Purchasing / Stores

- Reduce material count on BOM
- Reduce volume of stored product
- Reduce pick times & delivery time

Reduce Cost of Waste

- Less packaging waste
- Less adhesive usage (tapes, etc.)

Reduce Touch Labor – Vacuum Bagging

- Reduce material count in vacuum bag stack
 - for multiple compaction
 - for final cure bags
- Reduce time trimming materials
- Reduce cycle time positioning materials & bagging
- Increase productivity & throughput



Last updated : 2017-11-01

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Data Sheet

"REDUCE TOUCH LABOR" WITH AIRTECH

Advantages compared to conventional vacuum bagging

■ DESCRIPTION

Airtech provides high-value engineering services through its Custom Products Department. We offer a wide range of custom shaped vacuum bags and vacuum bagging kits for all shapes and sizes to provide "Lean Clean Room" solutions, besides our standard products. These kits contain all auxiliary materials, individually cut to size and packaged as per the specific customer request ready for use in the composite shop. Whether it is for an airplane fuselage, boat, race car or a huge wind blade, we cover all industries!

Our "Lean Clean Room" approach will Reduce Touch Labor (RTL) and to remove material waste in the fabrication process. We continue to invest in high-tech machinery, new software, personnel and additional floor space for manufacturing.

The following pages in this section will explain the various degrees of customization available. Airtech's Custom Products Department offers a full range of options from custom shaped vacuum bagging film to multi-layered kits that conform to complex contoured parts.



■ NOTES

- Watch a video of Custom Kitting in the "Media Center" on our website.

Data Sheet

CUSTOM KITTING BENEFITS

DESCRIPTION

By providing custom vacuum bags and kits for a wide variety of parts, Airtech has helped customers to Reduce Touch Labor costs significantly and allow for faster production cycle times. Savings vary depending on the complexity of the component being manufactured and the customers' internal labor rates, but cost reductions are achievable. Partnering with Airtech can make a big difference for you!

BENEFITS

- Increased operator productivity.
- Reduced product cycle times.
- De-skilling of the vacuum bagging process.
- Reduced operator motion.
- Reduction in material waste.
- Process repeatability leading to higher quality parts.
- Improved material delivery system.
- Higher transparency in material cost.



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Data Sheet

HOW DO I GET STARTED?

■ DESCRIPTION

Typically, customers begin with candidate component to validate the savings available by reducing touch labor with custom kitting. Contact your Airtech sales representative or our Customer Service to review the application with your engineering team. Our team can help determine the best materials based on your resin system, cure cycle and manufacturing techniques as well as how much customization is right for your application.

■ HOW TO CUSTOM ENGINEER VACUUM BAGGING

- Electronic flat patterns (2D drawing with format .dxf or .dwg) are provided by customers and can be used directly by our ply cutter.
- Existing material flat patterns or a used bag can be reverse engineered by our ply cutter's digitalization feature.
- With the help of our Catia V5 modeling software, our engineering team can use 3D models of the tool and the part (cat, iges or step files) to develop the flat patterns.

Features not shown in the models or patterns such as caul sheets, brackets, or pressure intensifiers should be reviewed with the sales representative and communicated to Airtech's engineering team so as to be sure that the kit will properly fit around the part.

Contact Airtech for more information or to download our RTL brochure, visit www.reducetouchlabor.com



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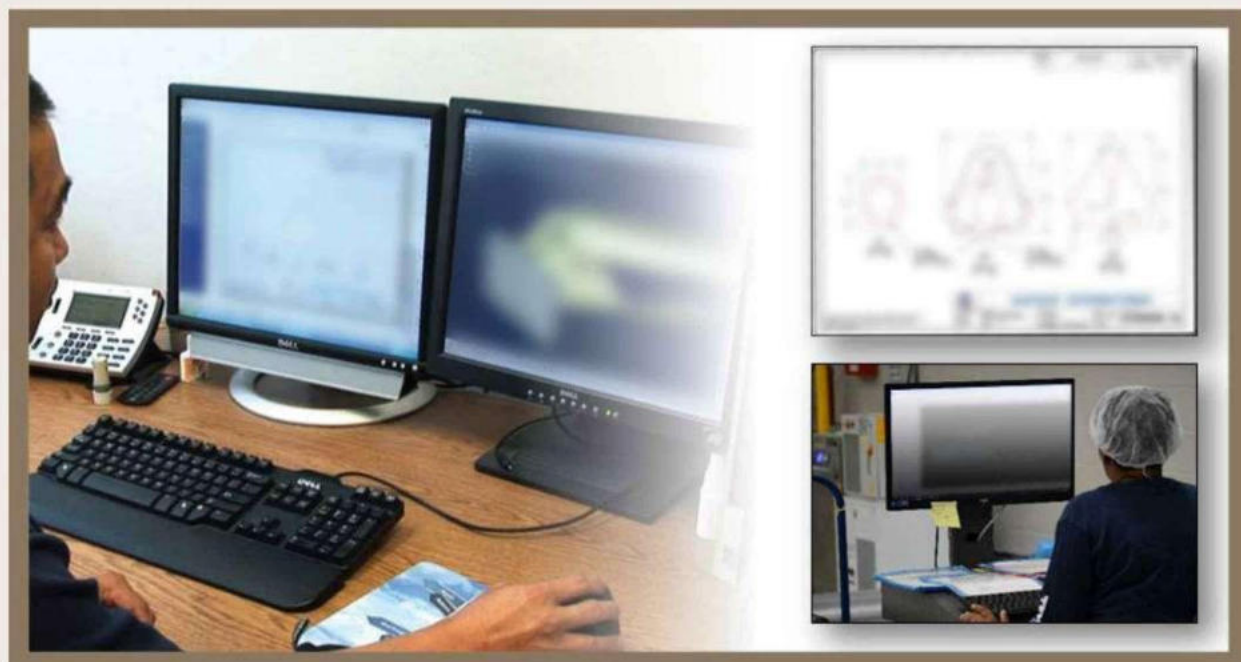
Data Sheet

ENGINEERING & DESIGN CAPABILITIES

CATIA stations

■ DESCRIPTION

We have the capability to work directly from customer engineering data with CATIA V5 modeling software. Our engineering team can extract surface data and develop flat patterns for vacuum bagging designs. Using our ply cutter's digitalization feature, we can also reverse engineer customer provided patterns and import the information into CATIA. Customers can provide iges files, CATIA files, dxf or dwg files for our engineering team. For more information or to download the RTL brochure, login to: www.reducetouchlabor.com.



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Data Sheet

MATERIALS CUTTING & PRINTING

Automated ply cutters

■ DESCRIPTION

Our automated ply cutters have significantly increased our ability to produce accurately cut kits and custom shapes.

Materials can be cut using knives or a laser. Laser cutting of woven materials eliminates fraying. The ply cutters also have an integrated printing, which can apply part numbers, labels or work instructions directly onto the materials.

Automated material cutting also improves quality by removing the human error of hand cutting. Design changes are easily incorporated, as new cutting profiles can be exported from CATIA V5 to the ply cutter.



Springfield, TN



Differdange, Luxembourg



Springfield, TN



Chadderton, England

Last updated : 2017-11-02

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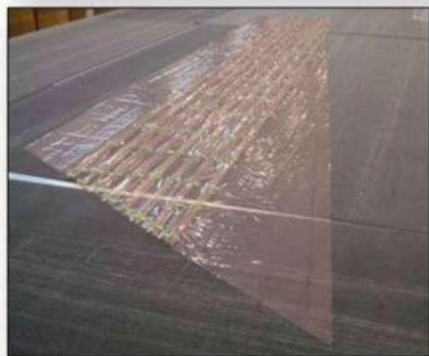
HEAT-SEAMING & SEWING CAPABILITIES

High-tech equipments

■ DESCRIPTION

Airtech is the worldwide innovator and has over 30 years of experience in heat seaming technology and in sewing constructions.

- Most of our vacuum bagging films can be welded into a complex shape and cut to size by Airtech before it is supplied to the customer, eliminating the need for bag tailoring in the mold and so greatly reducing cycle times.
- Sewn products are always made to size. They complete our product range of vacuum bagging materials. See data sheets in this section.



Last updated : 2019-10-28

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Data Sheet

CUSTOM SHAPED VACUUM BAGS

Cut to size and heat sealed bags

■ DESCRIPTION

Custom shaped bags allow for the vacuum bagging process to be greatly simplified, thereby reducing a significant amount of touch labor cost.

Placing a flat sheet of vacuum bagging film over a complex contoured part requires cutting, darting, and pleating. It is not uncommon for this process to be repeated several times. A custom shaped bag is designed to avoid bridging and can be easily placed over the part and sealed to the tooling surface. Also, the amount of rework associated with multiple bagging attempts is greatly reduced. Your bag can be heat-seamed, printed, folded in a specific shape and custom packed.

Please contact us to get a tailored solution to meet your needs.



Last updated : 2017-11-02

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Data Sheet

CUSTOM KITS

Kitting solutions for a "Lean Clean Room" environment

■ DESCRIPTION

Custom kits include non standard widths or custom cut shapes. Each layer is specifically designed to conform to the specific composite part being produced.

Kits can include:

- Peel plies
- Release films
- Breathers
- Vacuum bagging materials
- Thermocouples
- Flashbreaker® pressure sensitive tapes
- Sealant tapes

Basically, anything the composite shop operator needs to lay up a part can be included. A kit can also be a kit of kits. Frequently, several stages of debulks and cures are required as part of the manufacturing process. The kit can include all of the materials required for each step delivered together.

Each kit is developed in cooperation with the customer by Airtech's engineering staff. Airtech can work directly with CATIA V5 models to extract surface data and develop flat patterns. Features such as pleats, labeling and work instructions can also be included.



"Traditional"
Commodity Roll Stock

vs.



"Lean Clean Room"
Pre-cut and Pre-Seamed Custom Multi-Layered Kit

Last updated : 2017-11-02

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Data Sheet

A21C & A21C - SILICONE FABRIC

Autoclave/oven thermal insulation blanket

DESCRIPTION

A21C insulation blankets are used over the vacuum bag when it is required to slow the rate of heat transfer from the bag side of the part. Heavy, metallic tools have slow temperature rise rates in the autoclave (or oven), which can mean through-thickness temperature gradients within the part which could result in part quality problems. **A21C** insulation blankets can help solve this problem.

A21C: standard version is made using **Bleeder Lease® C** upper and lower covers with a thermal wool inner layer. The maximum use temperature for this version is 800°F (427°C).

A21C: silicone coated version is made with more durable, silicone rubber coated fiberglass upper and lower covers with a thermal wool inner layer. The maximum use temperature for this version is 450°F (232°C).

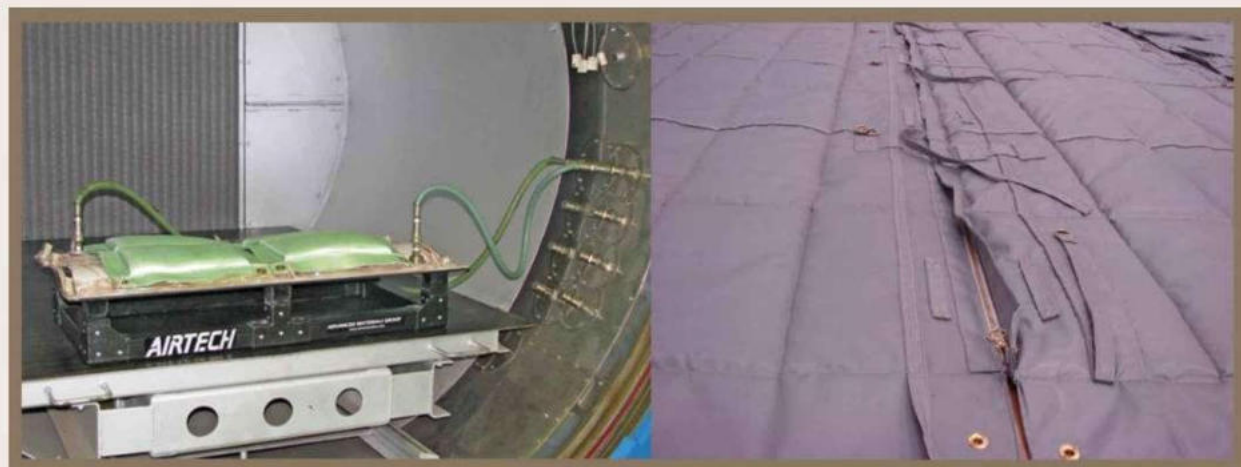
As each **A21C** is made to a specific customer configuration, robust grommets and tie down features can be built into the blankets to secure them to the tool during cure and provide a durable a reusable solution. An A21C can protect the vacuum bag from debris kicked up by autoclave or oven fans.

BENEFITS

- Slows rate of heat transfer to the bag side of the part.
- Even out thermal gradients caused by "hot spots" in the autoclave or the tool itself.
- Design to fit the part and tool to provide consistent, repeatable thermal protection.

TECHNICAL DATA

Product Reference	Configuration	Maximum Use Temperature
A21C: Standard Version	Bleederlease C / Thermal Wool Fiberglass	800°F (427°C)
A21C: Silicone Coated	Silicone Coated Fiberglass / Thermal Wool Fiberglass	450°F (232°C)



NOTES

- All **A21C** blankets are designed in CATIA to fit specific parts/tools. Other material types are possible. Contact your Airtech representative to discuss your specific design requirements.
- The maximum use temperature is dependent upon the duration at maximum temperature and is process specific, Airtech recommends testing prior to use.

Last updated : 2018-04-18

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Data Sheet

A22C

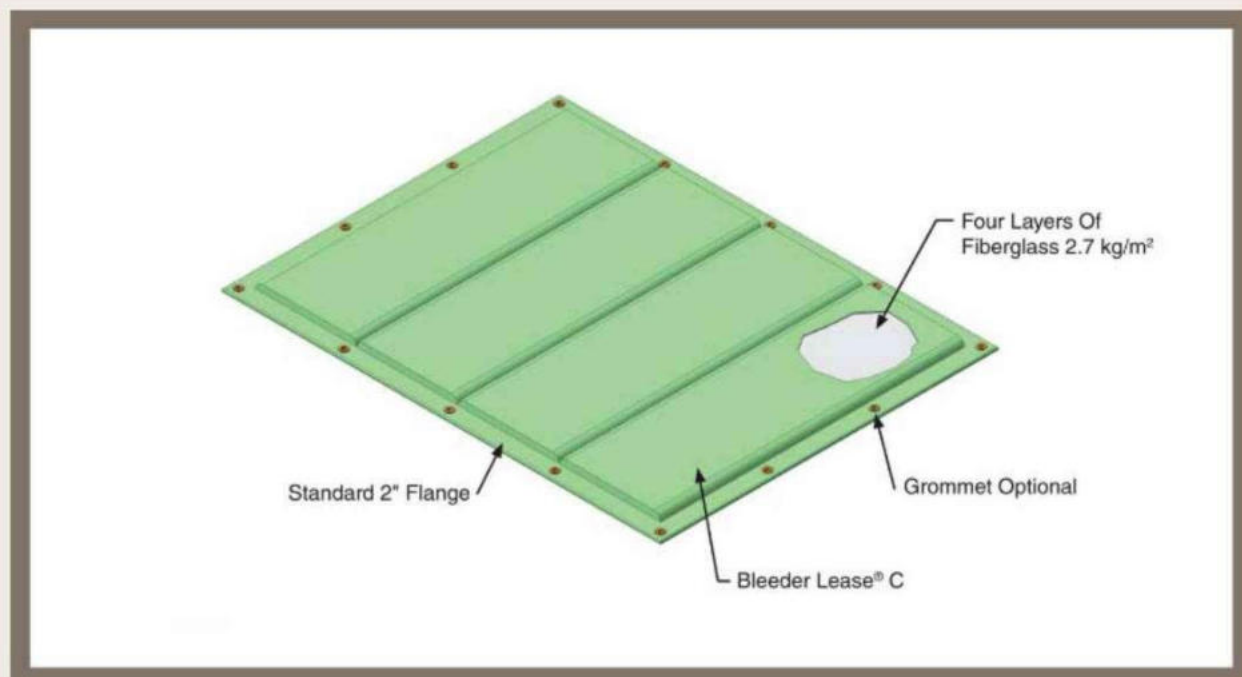
Reusable breather/ bleeder blankets

■ DESCRIPTION

We custom make the A22C reusable blankets to your specifications. These blankets are placed under the vacuum bag, made to conform to the part, and channel air and volatiles out the vacuum system. These blankets can be reused many times in oven or autoclave cures. The A22C blankets are made from fiberglass, they can channel air up to 900°F (482°C).

■ SIZES

The insulation blankets are custom made to size.



Last updated : 2017-11-02

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Data Sheet

A2750

Fiberglass edge bleeder & breather tape

■ DESCRIPTION

A2750 is four plies of heavy duty fiberglass sewn together with fiberglass thread. This product provides an air channel and will not compact at pressures up to 200 psi (14 bars) and temperatures up to 900°F (482°C). A2750 has enough mass to absorb excess resin and allow venting during an extended cure cycle. An edge bleeder and breather must function throughout the cure or there will be porosity (entrapped gas) in the laminate.

■ SIZES

Thickness	Width	Length	Remarks
0.035 inch (0.09 mm)	3 inches (7.62 cm)	25 yards (22.9 m)	4 plies



■ NOTES

- Other sizes and ply layers available on request.

Last updated : 2017-11-02

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Data Sheet

AIRSTRIP PM

Reusable edge breather

■ DESCRIPTION

Airstrip PM is a reusable edge breather reinforced with a metal mesh that conducts airflow and volatiles removable at pressures exceeding 200 psi (14 bars). Airstrip PM will operate continuously up to 400°F (204°C).

■ SIZES

Thickness	Width	Length
1/8 inch (3.17 mm)	2 inches (5 cm)	100 feet (30.5 m)



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