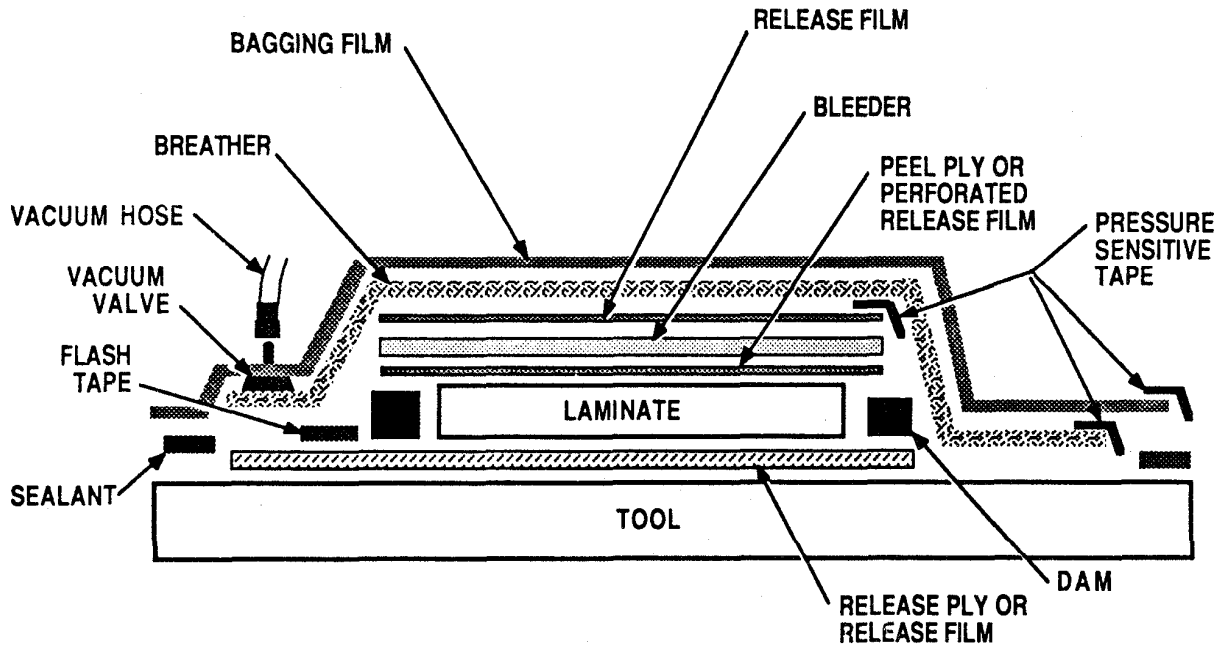




Richmond
Aerovac
umeco composites

TYPICAL LAYUP



LAYUP SEQUENCE FOR BAGGING OPERATION

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PRODUCT LINE

Richmond Aircraft Products Inc. offers VAC-PAK® Vacuum Bagging Materials and Accessories for use from room temperature to 800°F.

Bagging Films	Co-extruded VAC-PAK® nylon and other bagging materials available in roll stock and custom seamed to fit any shape and size
Release Films	Perforated and non-perforated release films for use with all commercially available resin systems
Pressure Sensitive Tapes	Pressure sensitive tapes available in polyester, nylon, polyimide, skived TFE or fiberglass substrates with fully cured silicone, acrylic or modified rubber adhesives
Sealant Tapes	Vacuum bag sealant tapes
Bleeders & Breathers	High elongation non-woven polyester, nylon, polyester/nylon blends and fiberglass bleeders and breathers
Peel Plies	Nylon, polyester and aramid fabrics
Release Fabrics	Release coated nylon, polyester and fiberglass fabrics
Valves and Hoses	Vacuum valves: aluminum, stainless steel and steel; Autoclave hoses: shop vacuum, oven and autoclave use
Cutting-Table Tops	Cut resistant, long lasting urethane tables tops
Miscellaneous	<p>Prefabricated VAC-PAK® bags for custom shapes and sizes</p> <p>Flashsorb, Tool Surface Breathing, and Vaporsorb laminated products</p> <p>Sewn construction and bonded blankets and edge breather.</p> <p>Impression Set film</p> <p>Shrink tapes</p> <p>Curepad and Curetape</p> <p>Richdam resin-containment materials</p> <p>Thermocouple wire</p> <p>RAP-PID cut hand held cutting devices and electric scissors</p> <p>Leak Finder - leak detector</p> <p>DRS – dust removal system</p>

BAGGING FILMS

VAC-PAK® DBR-6 Color: Clear	Debulk/compaction Service temperature: 120°F (49°C)
Stretch-Vac™ PRO-RAP Color: Blue	Co-Polymer, high elongation Service temperature: 250°F (121°C)
Stretch-Vac™ 250 Color: Light Blue	Co-Polymer, high elongation Service temperature: 275°F (135°C)
Stretch-Vac™ 350 Color: Clear	Co-Polymer, high elongation Service temperature: 350°F (177°C)
VAC-PAK® 400Y Color: Yellow	Economical Medium Temperature Service temperature: 310°F (155°C)
VAC-PAK® DB-65 Color: Pink	Debulk/compaction nylon film in .001" only Service temperature: 250°F (121°C)
VAC-PAK® HS-800 Color: Gold	Co-extruded, modified nylon with high elongation Service temperature: 375°F (191°C)
CAPRAN® 512 Color: Clear	Modified nylon with high elongation Service temperature: 400°F (205°C)
CAPRAN® 980 Color: Clear	Cast, modified nylon with high elongation Service temperature: 400°F (205°C)
VAC-PAK® HS-8171 Color: Green	Co-extruded, modified nylon with high elongation Service temperature: 400°F (205°C)
Quickdraw HS 8171 Color: Green	Co-extruded, Self venting High temperature Nylon Service Temperature: 400°F (205°C)
Stretch-Vac™ 2000 Color: Light Red	Soft co-extruded, modified nylon with ultra high elongation Service temperature: 400°F (205°C)
VAC-PAK® HS-8171 6/66 Color: Light Blue-green	Co-extruded, modified nylon with high elongation Service temperature: 400°F (205°C)
VAC-PAK® HS-6262 Color: Light Blue	Co-extruded modified nylon with high elongation Service temperature: 450°F (232°C)
VAC-PAK® HT-620 Color: Olive	High temperature/high elongation fluoropolymer Service temperature: 620°F (327°C)
VAC-PAK® UHT-750 Color: Amber	Ultra high temperature polyimide Service temperature: 800°F (426°C)

DBR-6 BAGGING FILM

For Debulk and Compaction Operations

DESCRIPTION:

DBR-6 is a .006" (.15mm) thick, clear LDPE film suitable for direct contact compaction applications as a release film or as a compaction or low temperature vacuum bag.

DBR-6 is also available in .004" (.10mm) as DBR-4 and .008" (.20mm) as DBR-8.

APPLICATION:

DBR-6 is an excellent selection for low temperature debulking and compaction cycles up to 120°F (49°C). **DBR-6** can be heat sealed to meet any custom shape requirements. **DBR-6** releases cleanly after compaction cycles and may be used in direct contact with the composite surface. DBR can be used as a release film or a vacuum bag.

MECHANICAL PROPERTIES	TYPICAL VALUES	
Tensile strength:	> 1,200 PSI	84 kg/cm ²
Elongation:	> 350 %	
 THERMAL PROPERTIES	°F	°C
Maximum use temperature:	120	49

DBR-6 is available in many different sizes, therefore, Please call for size and color availability.

Some sizes and colors may be available with a minimum order only.

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STRETCH-VAC™ PRO-RAP

Copolymer, Medium Temperature Range Bag Film

DESCRIPTION:

STRETCH-VAC™ PRO-RAP is a blue, opaque, copolymer, medium temperature film which can be used for cures up to 250°F (125°C) and remains soft and pliable.

APPLICATION:

STRETCH-VAC™ PRO-RAP is engineered for use with most commonly used 250°F (125°C) curing resin systems including phenolics. **STRETCH-VAC™ PRO-RAP** can be heat seamed to meet any custom shape requirements.

STRETCH-VAC™ PRO-RAP is not affected by environmental humidity levels in the storage or work place.

MECHANICAL PROPERTIES	TYPICAL VALUES	
Tensile strength:	> 5000 PSI	352 kg/cm ²
Elongation:	> 650 %	
Tensile modulus:	< 2000 PSI	
THERMAL PROPERTIES	°F	°C
Maximum use temperature:	250	121

STRETCH-VAC™ PRO-RAP is available as sheeting and v-sheeting (centerfold) in standard roll sizes at:

.003" x 54" sheeting x 1000'	.076mm x 1.34m sheeting x 304m
.003" x 54 ½" v-sheeting (centerfold) x 500'	.076mm x 1.38m v-sheeting (centerfold) x 152.4m
.003" x 60" v-sheeting (centerfold) x 500'	.076mm x 1.52m v-sheeting (centerfold) x 152.4m

Non-standard width or thickness may be available with minimum order requirements

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STRETCH-VAC™ 250

Copolymer, Medium Temperature Bagging Film

DESCRIPTION:

STRETCH-VAC™ 250 is a highly conformable, light blue tinted copolymer bagging film. **STRETCH-VAC™ 250** is designed for cures up to 250°F (121°C) and will remain soft and pliable.

APPLICATION:

STRETCH-VAC™ 250 is engineered for use with all standard 250°F (121°C) curing epoxy resin systems. It is particularly suited for debulking and hot compaction cycles where softness and elongation is essential. **STRETCH-VAC™ 250** can be heat seamed to meet any custom shape requirements.

This film is not suited for use with polyester or vinyl ester resins.

MECHANICAL PROPERTIES

Tensile strength:
Elongation:

TYPICAL VALUES

> 8000 PSI 562 kg/cm²
> 800 %

THERMAL PROPERTIES

Maximum use temperature:

°F **°C**
275 135

STRETCH-VAC™ 250 is available in sheeting and v-sheeting (centerfold) in standard roll sizes at:
 ..002" x 60" v-sheeting (centerfold opens to 120") x 470' .015mm x 1.52m v-sheeting (centerfold opens to 3.04m) x 143.3m

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STRETCH-VAC™ 350

Copolymer, Medium Temperature Bagging Film

DESCRIPTION:

STRETCH-VAC 350 is a highly conformable, clear, copolymer bagging film. **STRETCH-VAC 350** is designed for cures to 350°F and will remain soft and pliable.

APPLICATION:

STRETCH-VAC 350 is engineered for use with all standard 350°F epoxy resin systems. It is particularly suited for applications where softness and elongation are essential.

STRETCH-VAC 350 can be heat seamed to meet any custom shape requirements.

This film is not recommended for use with polyester or vinyl ester resins.

MECHANICAL PROPERTIES

Tensile strength:

TYPICAL VALUES

> 8800 PSI

619 kg/cm²

Elongation:

> 800 %

THERMAL PROPERTIES

Maximum use temperature:

°F

350

°C

177

Stretch-Vac 350 is available as sheeting in standard roll sizes at:

.003" x 60" x 700'

.076mm x 1.52m x 213m

Or v-sheeting at:

.003" x 72' (opens to 144") x 350'

.076mm x 1.83m x 107m

Non-standard widths and thickness are available with minimum order requirements

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Vac Pak® 400Y

Economical medium temperature bagging film

DESCRIPTION:

Vac Pak® 400Y is a yellow vacuum bag film, produced from a multilayer, Co-Extruded polyolefin, providing excellent chemical resistance to polyester, vinylester as well as epoxy resin systems. *Vac Pak® 400Y* conforms to complex contours and can be heat sealed to meet custom configuration requirements. *Vac Pak® 400Y* is an economical vacuum bag film designed for use in applications where high temperatures and pressures are not critical.

Vac Pak® 400Y is recommended as a bagging film for curing at medium temperatures and pressures, where a low cost, dependable vacuum bag is required. *Vac Pak® 400Y* is unique with a maximum width, without seams, spanning to 240", the widest polyolefin based vacuum bag film available to the industry. *Vac Pak® 400Y* is ideal for marine applications, wind energy blade manufacturing or other wide width vacuum bagging needs.

MECHANICAL PROPERTIES

TYPICAL VALUES

Tensile strength:	> 7500 PSI	527 kg/cm ²
Elongation:	> 400 %	

THERMAL PROPERTIES

	°F	°C
Maximum use temperature:	310	155

Vac Pak® 400Y is available in the following standard sizes:

- .002" or .003" x 60" V-sheeting (Opens to 120" wide)
 - .002" or .003" x 120" sheeting
 - .002" or .003" x 120" V-sheeting (Opens to 240" wide)
 - .0025" X 413" Gusseted (opens to 34.4' wide)
- Non-standard widths and thickness are available with minimum order requirements

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DB-65 BAGGING FILM

Nylon Film For Debulk and Compaction Operations

DESCRIPTION:

DB-65 is pink colored, translucent, modified nylon film

APPLICATION:

DB-65 is specifically designed as a bagging film for debulking and compaction operations. In addition, **DB-65** is suitable for use as a release film (perforated or non-perforated) in low temperature applications. **DB-65** can be heat sealed to meet any custom shape requirements.

MECHANICAL PROPERTIES

Tensile strength:
Elongation:

TYPICAL VALUES

> 15,000 PSI 1055 kg/cm²
> 300%

THERMAL PROPERTIES

Maximum use temperature:

°F **°C**
250 121

DB-65 is available in lay flat sheeting in standard roll sizes at:

.001" x 54" x 3711'	.025mm x 1.37m x 1131m
.001" x 60" x 3340'	.025mm x 1.52m x 1018m

Other sizes and custom bags can be fabricated to your specifications.

STORAGE AND HANDLING: RECOMMENDED USE AND STORAGE OF THIS PRODUCT IS IN RELATIVE HUMIDITY ENVIRONMENT OF 55% OR HIGHER. **VAC PAK®** IS A REGISTERED TRADE NAME OF RICHMOND AIRCRAFT PRODUCTS INC. **CAPRAN®** IS A REGISTERED TRADEMARK OF HEYWELL. **NOTE:** DATA PROVIDED IS FOR INFORMATION ONLY AND DOES NOT CONSTITUTE ANY WARRANTY FOR THE PRODUCT. AS THE CONDITIONS AND VARYING METHODS OF USE ARE BEYOND OUR CONTROL, RICHMOND AIRCRAFT PRODUCTS, INC. SHALL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION, LOST REVENUES OR LOST PROFITS, WHICH MAY RESULT FROM THE USE, OR INABILITY TO USE THESE MATERIALS. THESE MATERIALS ARE PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

VAC-PAK[®] HS 800 BAGGING FILM

Co-Extruded Nylon Film with Additives for Heat Stabilization

DESCRIPTION:

VAC-PAK[®] HS 800 co-ex is a gold-tinted, transparent, heat-stabilized, co-extruded film produced from a modified nylon resin. VAC-PAK[®] HS 800 co-ex can be used for cures up to 375°F.

APPLICATION:

VAC-PAK[®] HS 800 co-ex is recommended as a bagging film for advanced composite fabrication and adhesive bonding as well as other high-temperature / pressure applications where softness, workability, pinhole-free and defect-free films are essential. The co-extrusion process combines multiple layers of resin flow into film prior to exiting the extrusion die. This process represents the most advanced "state-of-the-art" technology in blown film production. VAC-PAK[®] HS 800 co-ex can be heat sealed to meet any custom shape requirements.

MECHANICAL PROPERTIES

	TYPICAL VALUES	
Tensile strength:	> 12,000 PSI	844 kg/cm ²
Elongation:	> 300%	
Tensile modulus:	<68,000 PSI	

THERMAL PROPERTIES

	°F	°C
Maximum use temperature:	375	191

VAC-PAK[®] HS 800 is available in standard thickness of .002 (.051mm) and .003" (.076mm) in a wide variety of sizes in lay-flat tubing, v-sheeting (centerfold) and sheeting.

Call to confirm availability.

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CAPRAN[®] 512 BAGGING FILM

Heat Stabilized Nylon Film

DESCRIPTION:

CAPRAN[®] 512 is a clear (moderate haze level), heat-stabilized, modified nylon film engineered as a vacuum bagging film.

APPLICATION:

CAPRAN[®] 512 is recommended as a bagging film for advanced composite fabrication, adhesive bonding and other high-temperature / pressure applications where softness, workability, pinhole-free and defect-free films are essential. **CAPRAN[®] 512** is suitable for cure cycles up to 400°F (205°C).

CAPRAN[®] 512 can be heat sealed to meet any custom shape requirements.

MECHANICAL PROPERTIES	TYPICAL VALUES	
Tensile strength:	> 12,000 PSI	844 kg/cm ²
Elongation:	> 320%	
Tensile modulus:	<90,000 PSI	
THERMAL PROPERTIES	°F	°C
Maximum use temperature:	400	205

CAPRAN[®] 512 is available in standard thickness of .002 (.051mm) and .003" (.076mm) in a wide variety of sizes in lay-flat tubing, v-sheeting (centerfold) and sheeting.

Call to confirm availability.

STORAGE AND HANDLING: RECOMMENDED USE AND STORAGE OF THIS PRODUCT IS IN RELATIVE HUMIDITY ENVIRONMENT OF 55% OR HIGHER. **VAC PAK[®]** IS A REGISTERED TRADE NAME OF RICHMOND AIRCRAFT PRODUCTS INC. **CAPRAN[®]** IS A REGISTERED TRADEMARK OF HEYWELL. **NOTE:** DATA PROVIDED IS FOR INFORMATION ONLY AND DOES NOT CONSTITUTE ANY WARRANTY FOR THE PRODUCT. AS THE CONDITIONS AND VARYING METHODS OF USE ARE BEYOND OUR CONTROL, RICHMOND AIRCRAFT PRODUCTS, INC. SHALL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION, LOST REVENUES OR LOST PROFITS, WHICH MAY RESULT FROM THE USE, OR INABILITY TO USE THESE MATERIALS. THESE MATERIALS ARE PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

CAPRAN[®] 980 BAGGING FILM

Heat Stabilized Nylon Film

DESCRIPTION:

CAPRAN[®] 980 is a clear (low haze level), heat-stabilized, cast film produced from a modified nylon resin.

APPLICATION:

CAPRAN[®] 980 is a cast film recommended as a bagging film for advanced composite fabrication, transparency laminating and other high-temperature applications where dimensional stability and uniform film gauge are essential. In addition, **CAPRAN[®] 980** has excellent heat stability and resistance to pin holes. **CAPRAN[®] 980** can be used in cure cycles up to 400°F (205°C). **CAPRAN[®] 980** can be heat sealed to meet any custom shape requirements.

MECHANICAL PROPERTIES	TYPICAL VALUES	
Tensile strength:	> 15,000 PSI	1055 kg/cm ²
Elongation:	> 320%	
Tensile modulus:	<90,500 PSI	
THERMAL PROPERTIES		
	°F	°C
Maximum use temperature:	400	205

CAPRAN[®] 980 is available in sheeting only at .002" (.051mm), .003" (.076mm), .004" (.10mm) and .005" (.12mm) thicknesses and widths to 88" (2.2m).

Call for availability.

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VAC-PAK® HS 8171 BAGGING FILM
Co-Extruded High Temperature Nylon 6 Film

DESCRIPTION:

VAC PAK® HS 8171 co-ex is a green-tinted, transparent, heat-stabilized, co-extruded film produced from a modified nylon resin. VAC PAK® HS 8171 co-ex is a high temperature nylon film which can be used for cures up to 400°F (205°C).

APPLICATION:

VAC PAK® HS 8171 co-ex is recommended as a bagging film for advanced composite fabrication and other high -temperature / pressure applications where softness, workability, pinhole-free and defect-free films are essential. The co-extrusion process combines multiple layers of resin flow into film prior to exiting the extrusion die. This process represents the most advanced "state-of-the-art" technology in blown film production. VAC-PAK® HS 8171 co-ex can be heat sealed to meet any custom shape requirements.

MECHANICAL PROPERTIES	TYPICAL VALUES	
Tensile strength:	> 14,000 PSI	984 kg/cm ²
Elongation:	> 350%	
Tensile modulus:	<75,000 PSI	
	°F	°C
THERMAL PROPERTIES		
Maximum use temperature:	400	205

VAC-PAK® HS 8171 is available in standard thicknesses of .002" (.051mm) and .003" (.076mm) in a wide variety of sizes in lay-flat tubing, v-sheeting (centerfold) and sheeting.

Call to confirm availability.

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QUICKDRAW[®] HS 8171 BAGGING FILM

Self Venting High Temperature Nylon Film

DESCRIPTION:

QuickDraw[®] HS 8171 is a self-venting, high temperature nylon bagging film designed to eliminate the need for breather and release film in general vacuum bagging processes.

APPLICATION:

QuickDraw[®] HS 8171 offers the unique opportunity to vacuum bag for pre-preg compaction cycles with out the need to use breather materials or air flow media or release films. (when used on wet lay ups, resin infusion or UV curing, a peel ply, release fabric or release film must be used as the **QuickDraw[®] HS 8171** will not release from the cure resin system). The embossing of the film provides for the air pathway to extract the under bag entrapped air and hold a positive vacuum throughout the selected process. **QuickDraw[®] HS 8171** is capable of withstanding temperatures up to 400°F (205°C) providing sufficient temperature resistance to accommodate most common resin exo-

MECHANICAL PROPERTIES

Tensile Strength:	14000PSI	984kg/cm ²
Elongation:	425%	
Yield Strength:	4600PSI	323kg/cm ²

THERMAL PROPERTIES

Maximum use temperature:	400°F	205°C
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Call for size availability

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STRETCH-VAC™ 2000

Soft Co-Extruded Nylon with Ultra High Elongation

DESCRIPTION:

STRETCH-VAC™ 2000 is a red, transparent, soft, high-elongation, heat stabilized, co-extruded, multi layered film, produced from a modified polyamide resin. **STRETCH-VAC™ 2000** easily conforms to complex contours. **STRETCH-VAC™ 2000** is formulated to be less affected by environmental changes and remain flexible in low humidity conditions.

APPLICATION:

STRETCH-VAC™ 2000 is recommended as a bagging film for advanced composite fabrication, when a dependable, conformable, soft, stretchable bag is required. With **STRETCH-VAC™ 2000**'s unique characteristics, fewer pleats are needed when vacuum bagging either complex or simple contoured parts. The co-extrusion process combines multiple layers of resin flow into film prior to exiting the extrusion die. This process represents the most advanced "state-of-the-art" technology in blown film production. **STRETCH-VAC™ 2000** can be heat sealed to meet any custom shape requirements.

MECHANICAL PROPERTIES	TYPICAL VALUES	
Tensile strength:	> 15,000 PSI	1055 kg/cm ²
Elongation:	> 500%	
Tensile modulus:	<50,000 PSI	
	°F	°C
THERMAL PROPERTIES		
Maximum use temperature:	400	205

STRETCH-VAC™ 2000 is available in standard thicknesses of .002" (.051mm) and .003" (.076mm) in a wide variety of sizes in lay-flat tubing, v-sheeting and sheeting. Call to confirm availability.

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VAC-PAK[®] HS 8171-6/66 COPOLYMER
Co-Extruded High Temperature Nylon 6/66 Film

DESCRIPTION:

VAC PAK[®] HS 8171-6/66 co-ex is a blue-green-tinted, transparent, heat-stabilized, co-extruded copolymer film produced from a modified nylon resin. **VAC-PAK[®] HS 8171-6/66** co-ex is a high temperature nylon film which can be used for cures up to 400°F (205°C) and remains pliable after extended cure cycles.

APPLICATION:

VAC PAK[®] HS 8171-6/66 co-ex is recommended as a bagging film for advanced composite fabrication and other high-temperature / pressure applications where softness, workability, pinhole-free and defect-free films are essential. The co-extrusion process combines multiple layers of resin flow into film prior to exiting the extrusion die. This process represents the most advanced "state-of-the-art" technology in blown film production. **VAC-PAK HS 8171-6/66** co-ex can be heat sealed to meet any custom shape requirements.

MECHANICAL PROPERTIES	TYPICAL VALUES	
Tensile strength:	> 15,000 PSI	1055 kg/cm ²
Elongation:	> 400%	
Tensile modulus:	<60,000 PSI	
	°F	°C
THERMAL PROPERTIES		
Maximum use temperature:	400	205

VAC-PAK[®] HS 8171 6/66 is available in standard thicknesses of .002" (.051mm) and .003" (.076mm) in a wide variety of sizes in lay-flat tubing, v-sheeting (centerfold) and sheeting.

Call to confirm availability.

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VAC-PAK[®] HS 6262 BAGGING FILM
Co-Extruded High Temperature Nylon 66 Film

DESCRIPTION:

VAC-PAK[®] HS 6262 co-ex is a blue-tinted, transparent, heat-stabilized, co-extruded film produced from a modified nylon resin. **VAC-PAK[®] HS 6262** co-ex can be used for cures up to 450°F.

APPLICATION:

VAC-PAK[®] HS 6262 co-ex is recommended as a bagging film for advanced composite fabrication and other high-temperature / pressure applications where softness, workability, pinhole-free and defect-free films are essential. **VAC-PAK[®] HS 6262** co-ex can be used with phenolic resin system. The co-extrusion process combines multiple layers of resin flow into film prior to exiting the extrusion die. This process represents the most advanced "state-of-the-art" technology in blown film production. **VAC-PAK[®] HS 6262** co-ex can be heat sealed to meet any custom shape requirements.

MECHANICAL PROPERTIES	TYPICAL VALUES	
Tensile strength:	> 12,300 PSI	864 kg/cm ²
Elongation:	> 300%	
Tensile modulus:	<90,000 PSI	
	°F	°C
THERMAL PROPERTIES		
Maximum use temperature:	450	232

VAC-PAK[®] HS 6262 is available in standard thicknesses of .002" (.051mm) and .003" (.076mm) in a wide variety of sizes in lay-flat tubing, v-sheeting and sheeting.

Call to confirm availability.

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VAC-PAK[®] HT-620 HIGH TEMPERATURE BAGGING FILM

For Phenolics, Polyimide and Bismaleimide Systems

DESCRIPTION:

VAC-PAK[®] HT-620 is an olive colored high temperature, high elongation cast film produced from "PTFE" resin. **VAC-PAK[®] HT-620** can be used in cures up to 620°F (326°C). To ensure good adhesion to our sealant tapes, one side has been chemically conditioned.

APPLICATION:

VAC-PAK[®] HT-620 is recommended as a bagging film for advanced composite fabrication and other high-temperature / pressure applications where softness, workability, conformability and defect-free films are needed.

VAC-PAK[®] HT-620 is designed for use with polyimide, bismaleimide and phenolic systems.

MECHANICAL PROPERTIES	TYPICAL VALUES	
Tensile strength:	> 4,300 PSI	302 kg/cm ²
Elongation:	> 650%	
Tensile modulus:	<55,000 PSI	
	°F	°C
THERMAL PROPERTIES		
Maximum use temperature:	620	326

VAC-PAK[®] HT 620 is available as sheeting in standard roll sizes at:
.003" x 50" x 175' .076mm x 1.27m x 53.3m

Call to confirm availability of custom fabricated shapes or wider width rolls.

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RELEASE FILMS

A-5000	Violet, Red, White or Clear high elongation FEP release film for complex contours and temperature to 500°F (260°C). Non-perforated or perforated.
Vac-Pak® A-6200	Red or Blue high elongation ETFE release film for complex contours and temperatures to 450°F (232°C). Non-perforated or perforated.
E-3760	Clear or white, modified halohydrocarbon polymer release film for mild contours and temperatures to 400°F (205°C). Non-perforated or perforated.
Vac-Pak® E-4760	Blue, economical, modified polymer release film for mild contours and temperatures to 400°F (205°C). Non-perforated or perforated.
E-2760	Red, low temperature economical release film for temperature to 250°F (121°C). Non-perforated or perforated.

NOTE: Standard perforations can be reviewed in Table 1 in this section of our catalog. Custom perforations are available by request.

A5000 RELEASE FILM

Violet, Red, White or Clear High Elongation FEP Fluorocarbon Release Films, Plain and Perforated

DESCRIPTION:

A5000 is a high performance FEP release film available in Violet, Red, White or Clear. **A5000** is a high elongation release film suitable for use in cure cycles up to 500°F (260°C).

APPLICATION:

The high elongation of **A5000** overcomes bridging in complex contour lay-ups. The high-temperature capabilities of **A5000** are compatible with most commonly used resin systems and will release easily after cure. **A5000** in violet or white is easily identifiable against the part for removal and the color will not transfer.

A5000 is available non-perforated or in the perforations shown in Table I in this section of our catalog.

MECHANICAL PROPERTIES

Tensile strength:

TYPICAL VALUES

> 3,500 PSI

246 kg/cm²

Elongation:

> 350%

Yield:

90.28 ft²/lb/mil

18.45m²/kg/25μ

THERMAL PROPERTIES

Maximum use temperature:

°F

500

°C

260

A5000 is available in standard roll sizes at:

white & clear:

.001" x 48" x 600 ft. (.025mm x 1.22m x 183m).

.002" x 48" x 300 ft. (.051mm x 1.22m x 91m).

.002" x 58" x 224 ft. (.051mm x 1.47m x 68m).

.001" x 72" x 400 ft. (.025mm x 1.83m x 122m).

.002" x 72" x 200 ft. (.051mm x 1.83m x 61m).

violet:

.001" x 50" x 500 ft. (.025mm x 1.27m x 152m).

.002" x 50" x 250 ft. (.051mm x 1.27m x 76m).

.001" x 60" x 417 ft. (.025mm x 1.52m x 127m).

.002" x 60" x 208 ft. (.051mm x 1.52m x 63m).

.001" x 72" x 347 ft. (.025mm x 1.83m x 106m).

.002" x 72" x 174 ft. (.051mm x 1.83m x 53m).

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VAC-PAK[®] A6200
ETFE/Fluoropolymer Release Film

DESCRIPTION:

VAC-PAK[®] A6200 is an ETFE/fluoropolymer release film, a low cost alternative to FEP, available in red or blue colors. **VAC-PAK[®] A6200** is a high temperature release film suitable for use up to 450°F (232°C) with good elongation properties.

APPLICATION:

VAC-PAK[®] A6200 has good elongation and can overcome bridging problems in complex contour lay-ups. The high temperature capabilities of **VAC-PAK[®] A6200** are compatible with most commonly used resin systems used in composites and adhesive bonding and will release easily after cure. **VAC-PAK[®] A6200** is blue or red and easily identifiable against the part for removal and the color will not transfer. **VAC-PAK[®] A6200** is available non-perforated or in the perforations shown in Table I in this section of our catalog.

MECHANICAL PROPERTIES	TYPICAL VALUES	
Tensile strength:	> 6000 PSI	422 kg/cm ²
Elongation:	> 200%	
Yield:	110 ft ² /lb/mil	22.48m ² /kg/25μ
THERMAL PROPERTIES	°F	°C
Maximum use temperature:	450	232

VAC-PAK[®] A6200 red or blue is available in standard roll sizes at:

.001" x 60" x 417'	.025mm x 1.52m x 127m
.001" x 50" x 500'	.025mm x 1.52m x 152m

Other sizes are available.

Custom seaming and laminations are available.

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VAC-PAK[®] E4760 RELEASE FILM

Modified Polymer Release Films

DESCRIPTION:

VAC-PAK[®] E4760 is a clear or blue tinted, modified polymer release film providing excellent release capabilities from epoxy, phenolic, polyester and other resin systems up to 400°F (205°C)

APPLICATION:

VAC-PAK[®] E4760 is specifically applicable to mild contours and flat panel applications. With 300%+ elongation and 400°F (205°) capabilities, VAC-PAK[®] E4760 is an economical alternative to our higher elongation, higher temperature use release films. Release without contamination from phenolic, epoxies, and polyesters.

VAC PAK[®] E4760 is available non-perforated or in the perforations shown in Table I in this section of our catalog.

MECHANICAL PROPERTIES	TYPICAL VALUES	
Elongation:	> 300%	
Yield:	116 ft ² /lb/mil	23.7m ² /kg/25μ
THERMAL PROPERTIES	°F	°C
Maximum use temperature:	400	205

VAC PAK[®] E4760 is available in standard roll sizes at:

.0015" x 54" x 1800'	.038mm x 1.37m x 549m
.0015" x 60" x 1251'	.038mm x 1.52m x 381m
.002" x 54" x 1500'	.051 mm x 1.37m x 457m
.002" x 60" x 1800'	.051mm x 1.52m x 549m
.002" x 72" x 825'	.051 mm x 1.83m X 252m

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E 2760 RELEASE FILM

Co-Polymer Medium Temperature, High Elongation Release Film

DESCRIPTION:

E2760 is a red tinted, economical , high elongation, low temperature release film with excellent conformability.

APPLICATION:

E2760 is an excellent release film for use on highly contoured parts for cure temperatures up to 250°F.

E2760 offers good release properties in the curing temperature range of most polyesters, vinyl esters, phenolic and some epoxies, as well as other applications where release films are required. The colored film provides for easy identification and removal from parts.

A2500R is available non-perforated or in the perforated. Please call for available perforations.

MECHANICAL PROPERTIES	TYPICAL VALUES	
Tensile modulus	< 2000	
Elongation:	> 800%	
 PHYSICAL PROPERTIES	°F	°C
Maximum use temperature:	250	121
Color	Red	

E 2760 is available as sheeting in standard roll sizes at:

.002" X 60" X 1000'	.051mm X 1.52m X 304.8m
.0012" X 60" X 2000'	0.030mm X 1.52mm X 609.6m

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<h2 style="margin: 0;">TABLE I</h2> <h1 style="margin: 0;">STANDARD PERFORATIONS</h1>

PERFORATION	Hole Size / Pattern
P	.045" diameter holes, staggered on ¼" centers. (All release films, 60" max. width)
P1	.045" diameter holes on ½" centers. (All release films, 60" max. width)
P2	Small slashes on ½" centers. (E 3760 and E4760 only, up to 54" max. width)
P3	.015" diameter holes on ¼" centers. (All release films, 72" max. width)
P4	.045" diameter holes on 2" centers. (All release films, 60" max. width)
P5	.045" diameter holes on 3 ½" centers. (All release films, 60" max. width)
P6	.015" diameter holes on 2" centers. (All release films, 60" max. width)
P3/7	.015" diameter holes on 3 ½" x 7" centers. (All release films, 60" max. width)
P8	.015" diameter holes on 8" centers. (All release films, 60" max. width)
P11	.015" diameter holes on 1/8" centers. (All release films, 72" max. width)
P31	.015" diameter holes on 1" centers. (All release films, 60" max. width)
P34	.045" diameter holes on ¾" centers. (All release films, 60" max. width)

NOTE: Other perforation patterns may be available as a special order.

PRESSURE SENSITIVE TAPES

VAC-PAK® HS 8171 PS	High temperature, high elongation nylon 6 carrier with a rubber base adhesive. Leaves no residue after 400°F cures
FLASHTAPE 1	High temperature, multi-purpose, blue 1 mil polyester substrate with a fully cured silicone adhesive. Leaves no residue after 400°F cures
FLASHTAPE 2	Same as our Flashtape 1, but with 2 mil polyester substrate
FLASHTAPE 5	Same as our Flashtape 1, but with 5 mil polyester substrate
FLASHTAPE 1R	High temperature, multi-purpose, green 1 mil polyester substrate with a high temperature rubber adhesive. Leaves no residue after 400°F cures
FLASHTAPE 2R	Same as our Flashtape 1R, but with a 2 mil polyester substrate
FLASHTAPE 5R	Same as our Flashtape 1R, but with a 5 mil polyester substrate
TOOLCOAT	Adhesive backed TFE coated fiberglass, with a fully cured silicone or acrylic adhesive for curing at temperatures up to 550°F
TOOLCOAT S/T	Skived TFE pressure sensitive tape with a fully cured silicone or acrylic adhesive for curing at temperatures up to 550°F
SERIES 6325	Polyimide pressure sensitive tape with a fully cured silicone adhesive for curing at temperatures up to 800°F
RAPHOLD 1	High temperature "double backed" tape suitable for general-purpose use for curing at temperatures up to 400°F
RAPHOLD 10	High tack "double backed" hold down tape suitable for honeycomb core or foam hold down in machining and general-purpose work

VAC-PAK[®] HS 8171-PS

**High Temperature Pressure Sensitive Rubber Base Adhesive
Nylon Tape**

DESCRIPTION:

VAC-PAK[®] HS 8171-PS is a 2 mil, high-temperature, green nylon tape, with a pressure-sensitive, rubber-base adhesive on one side for use at temperatures to 400° F (204°C).

APPLICATION:

VAC-PAK[®] HS 8171-PS is designed to remove cleanly during masking operations in applications involving high temperature and pressure. High elongation properties provide a high degree of conformability. VAC-PAK[®] HS 8171-PS The rubber-base (non-silicone) adhesive allows use on parts where subsequent painting or bonding is necessary. VAC-PAK[®] HS 8171-PS can be expected to perform satisfactorily in 400°F (204°C) cure cycles. The high stretch and thinness offer excellent conformability and clean, sharp edges.

PHYSICAL PROPERTIES:

Backing:	Nylon	
Color:	Green	
Adhesive:	Rubber base	
Thickness:	Film: .002" (.051mm)	Adhesive: .0015" (.038mm)

MECHANICAL PROPERTIES:

Tensile:	25 lbs./in. width	5Kg/25.4mm width
Adhesion to steel:	30 oz./in. width	.36kg/25.4mm width
Stretch at break:	500 %	

THERMAL PROPERTIES:

Maximum use temperature:	400°F	204°C
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VAC-PAK[®] HS 8171 PS is available in standard roll sizes at:
3/4", 1", 2" and 3" x 72 yds. 19.05mm, 25.4mm, 50.8mm and 76.2mm x 65.8m

Other sizes may be available as special order.

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FLASHTAPE 1

High Temperature Pressure Sensitive Silicone Adhesive Polyester Tape

DESCRIPTION:

FLASHTAPE 1 is a multipurpose .001" thick, blue translucent polyester film, coated with a .0015" thick fully-cured high temperature silicone adhesive.

APPLICATION:

FLASHTAPE 1 is designed for all phases of masking operations where no residue can be tolerated.

FLASHTAPE 1 is perfect for holding release films and fabrics, bleeders and breathers, metal and composite details in place during pre-fit and pre-bond operations. **FLASHTAPE 1** will release clean without leaving residue on metals and composite details. It is highly recommended for long term temperature exposures over 350°F.

PHYSICAL PROPERTIES:

Backing:	Polyester	
Color:	Blue, translucent	
Adhesive:	Fully cured silicone	
Thickness:	Film: .001" (.025mm)	Adhesive: .0015" (.038mm)

MECHANICAL PROPERTIES:

Tensile:	25 lbs./in. width	11 kg/25.4mm width
Adhesion to steel:	31 oz./in. width	.88 kg/25.4mm width
Stretch at break:	100 %	

THERMAL PROPERTIES:

Maximum use temperature:	400°F	204°C
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Flashtape 1 is available in standard roll sizes at:

1" and 2" x 72 yds.	25.4mm and 50.8mm x 65.8m
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Other sizes may be available as special order.

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FLASHTAPE 2

High Temperature Pressure Sensitive Silicone Adhesive Polyester Tape

DESCRIPTION:

FLASHTAPE 2 is a multipurpose .002" thick, blue translucent polyester film with a .0015" thick fully cured high temperature silicone adhesive.

APPLICATION:

FLASHTAPE 2 is designed for use in areas where a thicker, stronger Flashtape is required. Like our **FLASHTAPE 2**, it will release cleanly from most surfaces, with no residue. **FLASHTAPE 2** cuts labor costs by allowing easier removal of excess resin and adhesive flash from metal and composite details. It is highly recommended for long term temperature exposure over 350°F (177°C).

PHYSICAL PROPERTIES:

Backing:	Polyester	
Color:	Blue, translucent	
Adhesive:	Fully cured silicone	
Thickness:	Film: .002" (.051mm)	Adhesive: .0015" (.038mm)

MECHANICAL PROPERTIES:

Tensile:	50 lbs./in. width	23 kg/25.4mm width
Adhesion to steel:	35 oz./in. width	.99 kg/25.4mm width
Stretch at break:	100 %	

THERMAL PROPERTIES:

Maximum use temperature:	400°F	204°C
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Flashtape 2 is available in standard roll sizes at:

1" and 2" x 72 yds. 25.4mm and 50.8mm x 65.8m

Other sizes may be available as special order.

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FLASHTAPE 5

High Temperature Pressure Sensitive Silicone Adhesive Polyester Tape

DESCRIPTION:

FLASHTAPE 5 is a multipurpose, .005" thick, blue translucent polyester tape with a .0015" thick fully cured high temperature silicone adhesive.

APPLICATION:

FLASHTAPE 5 is designed for use in areas where a thicker, stronger Flashtape is required. Like our **FLASHTAPE 5**, it releases cleanly from most surfaces, with no residue. **FLASHTAPE 5** cuts labor costs by allowing easier removal of excess resin and adhesive flash from metal and composite details. It is highly recommended for long term temperature exposure over 350°F (177°C).

PHYSICAL PROPERTIES:

Backing:	Polyester	
Color:	Blue, translucent	
Adhesive:	Fully cured silicone	
Thickness:	Film: .005" (.127mm)	Adhesive: .0015" (.038mm)

MECHANICAL PROPERTIES:

Tensile:	125 lbs./in. width	57 kg/25.4mm width
Adhesion to steel:	35 oz./in. width	.99 kg/25.4mm width
Stretch at break:	100 %	

THERMAL PROPERTIES:

Maximum use temperature:	400°F	204°C
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Flashtape 2 is available in standard roll sizes at:

1" and 2" x 72 yds. 25.4mm and 50.8mm x 65.8m

Other sizes may be available as special order.

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FLASHTAPE 1R

High Temperature Pressure Sensitive Rubber Adhesive Polyester Tape

DESCRIPTION:

FLASHTAPE 1R is a multipurpose .001" thick, green, translucent polyester film coated with a .0015" thick, high temperature rubber adhesive

APPLICATION:

FLASHTAPE 1R is designed for all phases of masking operations where no residue can be tolerated. FLASHTAPE 1R is perfect for holding release films and fabrics, bleeders and breathers, metal and composite details during pre-fit and pre-bond operations. FLASHTAPE 1R will release clean without leaving residue from metal and composite details.

PHYSICAL PROPERTIES:

Backing:	Polyester	
Color:	Green, translucent	
Adhesive:	High temperature rubber	
Thickness:	Film: .001" (.025mm)	Adhesive: .0015" (.038mm)

MECHANICAL PROPERTIES:

Tensile:	23 lbs./in. width	10 kg/25.4mm width
Adhesion to steel:	30 oz./in. width	.85 kg/25.4mm width

Maximum use temperature:	400°F	204°C
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Flashtape 1R is available in standard roll sizes at:
 1" and 2" x 72 yds. 25.4mm and 50.8mm x 65.8m

Other sizes may be available as special order

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FLASHTAPE 2R

High Temperature Pressure Sensitive Rubber Adhesive Polyester Tape

DESCRIPTION:

FLASHTAPE 2R is a multipurpose .002" thick, green, polyester tape with a .0015" thick, high temperature rubber adhesive.

APPLICATION:

FLASHTAPE 2R is designed for use in areas where a thicker, stronger flash tape is required. Like our **FLASHTAPE 1R**, it releases cleanly from most surfaces, with no residue. **FLASHTAPE 2R** cuts labor costs by allowing easier removal of excess resin and adhesive flash from metal and composite details.

PHYSICAL PROPERTIES:

Backing:	Polyester	
Color:	Green, translucent	
Adhesive:	High temperature rubber	
Thickness:	Film: .002" (.051mm)	Adhesive: .0015" (.038mm)

MECHANICAL PROPERTIES:

Tensile:	43 lbs./in. width	19 kg/25.4mm width
Adhesion to steel:	25 oz./in. width	.70 kg/25.4mm width
Stretch at break:	100 %	

THERMAL PROPERTIES:

Maximum use temperature:	400°F	204°C
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Flashtape 2R is available in standard roll sizes at:

1" and 2" x 72 yds. 25.4mm and 50.8mm x 65.8m

Other sizes may be available as special order.

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FLASHTAPE 5R

High Temperature Pressure Sensitive Rubber Adhesive Polyester Tape

DESCRIPTION:

FLASHTAPE 5R is a multipurpose, .005" thick, green, polyester tape with a .0015" thick, high temperature rubber adhesive.

APPLICATION:

FLASHTAPE 5R is designed for use in areas where a thicker, stronger Flashtape is required. Like our **FLASHTAPE 1R**, it releases cleanly from most surfaces, with no residue. **FLASHTAPE 5R** cuts labor costs by allowing easier removal of excess resin and adhesive flash from metal and composite details.

PHYSICAL PROPERTIES:

Backing:	Polyester	
Color:	Green, translucent	
Adhesive:	High temperature rubber	
Thickness:	Film: .005" (.127mm)	Adhesive: .0015" (.038mm)

MECHANICAL PROPERTIES:

Tensile:	115 lbs./in. width	52 kg/25.4mm width
Adhesion to steel:	8 oz./in. width	.23 kg/25.4mm width
Stretch at break:	100 %	

THERMAL PROPERTIES:

Maximum use temperature:	400°F	204°C
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Flashtape 5R is available in standard roll sizes at:
1" and 2" x 72 yds. 25.4mm and 50.8mm x 65.8m

Other sizes may be available as special order.

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TOOLCOAT S/T

Pressure Sensitive TFE Tape

DESCRIPTION:

TOOLCOAT S/T is a skived Tetrafluoroethylene (TFE) tape, with a high-temperature pressure sensitive, fully cured silicone adhesive or acrylic adhesive.

APPLICATION:

TOOLCOAT S/T with its high conformability allows **TOOLCOAT S/T** TFE tapes to be used on severely contoured bond jigs and lay-up molds. Its properties make it inert to almost all chemicals, corrosives and environmental factors. **TOOLCOAT S/T** eliminates the need for liquid or paste release coatings on tool surfaces that may be potential contamination problems, and is especially useful on composite tools and press platens. While **TOOLCOAT** gives optimum release, other applications are flash control, heat-sealing machines, covering of coating and drying rolls, chute lining, linings for guide rails, and any other non-stick, low friction applications.

PHYSICAL PROPERTIES	S/T-02S*	S/T-03S*	S/T-05S*
Total Thickness (in.)	.0035"(.09mm)	.0045"(.11mm)	.0065"(17mm)
Backing Thickness (in.)	.002"(.051mm)	.003"(.076mm)	.005"(.13mm)
MECHANICAL PROPERTIES:			
Tensile Strength (lbs./in. width)	30	45	60
Elongation (%)	150	175	275
Adhesion to steel - Oz./in. /wide	30	35	40
Kg/25.4mm wide	.85	1.0	1.13
THERMAL PROPERTIES:			
Maximum use temperature			
All Toolcoat S/T S items	550°F	288°C	
All Toolcoat S/TA items	350 °F (400° intermittent)	177°C (205°C intermittent)	

Standard size: 1" up to 16" x 36 yards 25.4mm up to 406mm x 32.9m

***"S" identifies silicone adhesive; "A" identifies acrylic adhesive.**

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VAC-PAK[®] SERIES 6325

Pressure Sensitive Polyimide Tape

DESCRIPTION:

VAC-PAK[®] SERIES 6325 pressure sensitive tape is a polyimide film, with a high-temperature fully cured silicone adhesive.

APPLICATION:

Its unique mechanical properties make SERIES 6325 tapes valuable in high temperature laminate processing. Our solvent-resistant acrylic adhesive is also available for lower temperature applications. SERIES 6325 tapes can be used at temperatures up to 800°F (426°C) under standard bagging operations.

PHYSICAL PROPERTIES:	6325-01	6325-02	6325-05
Total Thickness:	.0025" (.06mm)	.0035"(.09mm)	.0065" (.16mm)
Backing Thickness:	.001 (.03mm)	.002" (.05mm)	.005" (13mm)
 MECHANICAL PROPERTIES:			
Breaking strength: Lbs./in. wide:	25	50	100
Kg/25.4mm wide	11.2	22.6	45.3
Adhesive to steel: Oz./in. wide	30	30	30
Kg/25.4mm wide	.85	.85	.85
Elongation	50 %	50 %	50 %

Standard size: 1" up to 20" x 36 yards 25.4mm up to 508mm x 32.9M

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RAPHOLD 1

High Temperature Double Backed Tape

DESCRIPTION:

RAPHOLD 1 is a .001" polyester film coated on both sides with a solvent resistant acrylic adhesive. For use at temperatures up to 400°F (205°C).

APPLICATION:

RAPHOLD 1 performs excellent in resin dam hold down, inter-bagging seal or for any place where a two-sided general purpose tape is needed.

PHYSICAL PROPERTIES

Film Substrate:	Polyester
Color:	Clear
Adhesive:	Acrylic
Total Thickness	.004" (.10mm)

MECHANICAL PROPERTIES:

Tensile:	25 lbs/in. wide	11.2Kg/ 25.4mm wide
Elongation:	100%	
Adhesion:	35 oz/in. width	.99Kg/25.4mm wide

Standard size: 1" x 36 yards 25.4mm x 33m

Other widths available upon special order..

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RAPHOLD 10

High Tack Double Backed Hold Down Tape

DESCRIPTION:

RAPHOLD 10 is a general purpose, high tack, double backed hold down tape designed for use with honeycomb core and structural foam to hold the work "fast in place" when machining. **RAPHOLD 10** is a cloth tape with a two-sided non-silicone rubber adhesive that holds the work firmly and hand peels off after machining, without leaving unwanted residue.

RAPHOLD 10 is also used in pre-fitting of finished parts for final drilling and routing work.

PHYSICAL PROPERTIES

Film Substrate:	Cotton cloth
Color:	Tan
Adhesive:	Rubber
Total Thickness	.013" (.33mm)

MECHANICAL PROPERTIES:

Tensile:	30 lbs/in. wide	13.6Kg/ 25.4mm wide
Elongation:	100%	
Adhesion:	44 oz/in. width	1.25Kg/25.4mm wide

Standard size: 2" x 25 yards

50.8mm x 22.9m

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SEALANT TAPES

<u>Product</u>	<u>Color</u>	<u>Description</u>
*SM-5227	Gray	Non-curing, ambient debulk
*SM-9151	Pink	Medium consistency for 425°F (218°C) cure cycles
*SM-5144	Yellow	Industry standard to 425°F (218°C)
*SM-5127	Dark Gray	Extended cure cycles to 400°F (205°C)
*SM-5142	Light Yellow	High tack, clean release, cure cycles to 400°F (205°C)
*SM-5170	Light Beige	High tack, clean release, cure cycles to 450°F (232°C)
*SM-5126	Dark Gray	Composite curing to 450°F (232°C)
*SM-5160	Brown	Reinforced, high temperature cures to 750°F (400°C)
RS-200	Light Gray	Industry standard, general purpose to 400°F (205°C)
RS-220	Dark Gray	General purpose, cure cycles to 400°F (205°C)

*Schnee-Morehead sealant tapes distributed by Richmond Aircraft Products.

NOTE: Shelf Life may apply

SM 5227

Ambient Vacuum Bag Sealant Tape

DESCRIPTION:

SM 5227 is an economical non-curing gray-colored compound designed to be used in debulking operations at ambient temperature.

APPLICATION:

SM 5227 is ideal for room temperature debulking operations.

PHYSICAL PROPERTIES

Color:	Gray	
Solids content:	100%	
Standard sizes:		
Width:	1/2"	12.7 mm
Thickness:	1/8"	3.2 mm
Roll Length:	30'	9.1 m
Rolls/Cs.	32	
Ft./Cs.	960	292 m

Other sizes are available on special request.
Shelf life limitation may apply.

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RS 200

Vacuum Bag Sealant Tape 400°F

DESCRIPTION:

RS 200 is a gray colored compound developed for use in composite and metal bond fabrication. **RS 200** provides maximum bag sealing security on aluminum, steel, fiberglass, nickel and graphite tool surfaces. The cure temperature limit is 400°F (205°C).

APPLICATION:

RS 200 is an excellent product for bag sealing epoxies, polyesters, phenolics, and other adhesives and prepreps at temperatures ranging from 180°F to 400°F. **RS 200** strips easily and cleanly from the tool surfaces after cure.

PHYSICAL PROPERTIES

Color:	Gray	
Solids content:	100%	
Standard sizes:		
Width:	1/2"	12.7 mm
Thickness:	1/8"	3.2 mm
Roll Length:	25'	7.6 m
Rolls/Cs.	40	
Ft./Cs.	1,000	305 m

Other sizes are available on special request.
Shelf life limitations may apply.

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RS 220

Vacuum Bag Sealant Tape 400°F Extended Cure

DESCRIPTION:

RS 220 is a charcoal gray colored compound formulated for use in composite and metal bond fabrication. It exhibits maximum bag sealing security on aluminum, steel, fiberglass, nickel and graphite tool surfaces. The cure temperature limit is 400°F.

APPLICATION:

RS 220 is an excellent product for bag sealing epoxies, polyesters, phenolics, and other adhesives and prepreps at temperatures ranging from 180°F to 400°F. **RS 220** strips easily and cleanly from the tool surface after initial, or extended cool-down.

PHYSICAL PROPERTIES

Color:	Charcoal Gray	
Solids content:	100%	
Standard sizes:		
Width:	1/2"	12.7 mm
Thickness:	1/8"	3.2 mm
Roll Length:	25'	7.6 m
Rolls/Cs.	40	
Ft./Cs.	1,000	305 m

Other sizes are available on special request.
Shelf life limitations may apply.

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BREATHERS AND BLEEDERS

A 3000-4 and A 3000-4FR*	Non-woven, polyester fiber, stretchable breather/bleeder Weight: 4 oz./yd ² Pressure range: Up to 50 PSI
A 3000-7 and - 7FR*	Non-woven, polyester fiber, stretchable breather/bleeder Weight: 7 oz./yd ² Pressure range: Up to 85 PSI
RC 3000-10 and -10FR*	Non-woven, blended denier, polyester fiber, stretchable breather Weight: 10 oz./yd ² Pressure range: Up to 150 PSI
RC 3000-10A and -10AFR*	Non-woven, polyester fiber, stretchable breather/bleeder Weight: 10 oz./yd ² Pressure range: Up to 100 PSI
RC 3000- NB	Non-woven, nylon fiber, high pressure stretchable breather Weight: 6 oz./yd ² , 10 oz./yd ² , and 13 oz./yd ² . Pressure range: To over 200 PSI
RC 3000-20	Non-woven, polyester fiber, breather, may be used as an insulator Weight: 20 oz./yd ² Pressure range: Over 200 PSI
RC 3000-20A	Non-woven, polyester fiber, breather, may be used as an insulator Weight: 20 oz./yd ² Pressure range: Up to 100 PSI
RC 3500HT	Non-woven, fiberglass fiber, high temperature, stretchable breather Weight: 18 oz./yd ² Pressure range: Over 200 PSI
A-SB024	Non-woven, spun bound polyester breather Weight: 2.1 oz./yd ² Pressure range: Up to 50 PSI
Code 4819	Non-woven, polyester fiber, stretchable breather Weight: 1.8 oz./yd ² Pressure range: Up to 50 PSI

Call us for further information on blended Polyester and Nylon fibers. Breather materials custom engineered to suit specific needs.

***NOTE:** Identify as "FR" when ordering "Fire Retardant".

A 3000-4 AND FR

Stretchable Polyester Bleeder/Breather

DESCRIPTION:

A 3000-4 is stretchable non-woven polyester felt with drapeability enabling it to conform closely to the contours of your part. The multi-directional stretch, combined with a low density lightweight construction, makes **A 3000-4** a highly efficient bleeder or breather.

A 3000-4 does not contain any binders which could close off air flow and stick to parts or other components. **A-3000-4** will conduct air at 50 PSI (3.5 bars) for prolonged cure cycles and in complex contours.

APPLICATION:

A 3000-4 is not a release fabric. When used in conjunction with uncured materials, we recommend a release film be used against the detail being cured.

A 3000-4 is non-toxic, non-corrosive, non-dusting and non-allergenic.

SPECIFICATIONS:

Maximum use temperature:	400°F	205°C
Weight:	4.0 +/- 10%	135 +/- 10%
Standard roll size:	60" x 100 yards/roll	1.52m x 91.4m

A 3000-4 is available up to 120" (3.05m) on special order. Custom slitting is also available.

A 3000-4 is also available in "Fire Retardant" (Identify as FR when ordering). FR is recommended for use in non-inert curing atmosphere. **A 3000-4FR** meets vertical burn test per F.A.R. Para. 25.853 (B)

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A 3000-7 AND -7 FR

Stretchable Polyester Bleeder/Breather

DESCRIPTION:

A **3000-7** is stretchable non-woven polyester felt with drapeability enabling it to conform closely to the contours of your part. The multi-directional stretch, combined with a low density lightweight construction, makes A 3000-7 a highly efficient bleeder or breather.

A **3000-7** does not contain any binders which could close off air flow and stick to parts or other components. **A-3000-7** will conduct air at 85 PSI (5.9 bars) for prolonged cure cycles and in complex contours.

APPLICATION:

A **3000-7** is not a release fabric. When used in conjunction with uncured materials, we recommend a release film be used against the detail being cured.

A **3000-7** is non-toxic, non-corrosive, non-dusting and non-allergenic.

SPECIFICATIONS:

Maximum use temperature:	400°F	205°C
Weight:	7.0 +/- 10%	237 +/- 10%
Standard roll size:	60" x 50 yards/roll	1.52m x 45.7m

A **3000-7** is available up to 120" (3.05m) on special order. Custom slitting is also available.

A **3000-7** is also available in "Fire Retardant" (Identify as FR when ordering). FR is recommended for use in non-inert curing atmosphere. **A3000-7FR** meets vertical burn test per F.A.R. Para. 25.853 (B).

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RC 3000-10 AND -10 FR

Stretchable Polyester Felt Breather

DESCRIPTION:

RC 3000-10 is a high denier fiber, 10 oz. per sq. yd. non-woven polyester felt. It is capable of operating at temperatures up to 400°F (205°C) and pressures up to 150 PSI (10.3 bars).

APPLICATION:

RC 3000-10 will not trap-off as many other 10 oz. breathers will during normal cure cycles.

RC 3000-10 is not a release fabric. When used in conjunction with uncured materials, we recommend release film be used against the detail being cured.

RC 3000-10 is non-toxic, non-corrosive, non-dusting and non-allergenic.

SPECIFICATIONS:

Maximum use temperature:	400°F	205°C
Weight:	10.0 +/- 10%	339 +/- 10%
Standard roll size:	60" x 50 yards/roll	1.52m x 45.7m

RC 3000-10 is available up to 120" (3.05m) on special order. Custom slitting is also available.

RC 3000-10 is also available in "Fire Retardant" (Identify as FR when ordering). FR is recommended for use in non-inert curing atmosphere. **RC-3000-10FR** meets vertical burn test per F.A.R. Para. 25.853 (B).

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RC 3000-10A AND -10A FR

Stretchable Polyester Felt Breather

DESCRIPTION:

RC 3000-10A is a 10 oz. per sq. yd. non-woven polyester felt. It is capable of operating at temperatures up to 400°F (205°C) and pressures up to 100 PSI (6.9 bars).

APPLICATION:

RC 3000-10A will not trap-off as many other 10 oz. breathers will during normal 85-100 PSI (5.9-6.9 bars) 350°F (177°C) cures.

RC 3000-10A is non-toxic, non-corrosive, non-dusting and non-allergenic.

RC-3000-10A is not a release fabric. When used in conjunction with uncured materials, we recommend a release film be used against the detail being cured.

SPECIFICATIONS:

Maximum use temperature:	400°F	205°C
Weight:	10.0 +/- 10%	339 +/- 10%
Standard roll size:	60" x 50 yards/roll	1.52m x 45.7m

RC 3000-10A is available up to 120" (3.05m) on special order. Custom slitting is also available.

RC 3000-10A is also available in "Fire Retardant" (Identify as **FR** when ordering). **FR** is recommended for use in non-inert curing atmosphere. **RC-3000-10AFR** meets vertical burn test per F.A.R. Para. 25.853 (B).

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RC 3000-NB

Stretchable High Temperature/High Pressure Synthetic Felt Breather

DESCRIPTION:

RC 3000-NB is a Nylon 66, non-woven felt with the capability of operating as a breather at temperatures up to 450°F (232°C). **RC 3000-NB** is available in 6, 10 and 13 oz./yd² for withstanding pressures to over 200 psi (13.8 bars).

APPLICATION:

The high softening point of the **RC 3000-NB** fiber allows the material to be used at operating temperatures up to 450°F (232°C) without trapping off air flow and helps resist compression and heat set as experienced by other lower temperature resistant fibers.

RC 3000-NB is non-toxic, non-corrosive, non-dusting and non-allergenic.

RC 3000-NB is not a release fabric. When used in conjunction with adhesives or preregs, we recommend use of a release film be used against the detail being cured.

SPECIFICATIONS:

Maximum use temperature:		450°F	232°C
Melt Point:		500°	260°C
Weight:	RC 3000-6NB	6 +/- 10%	225 +/- 10%
	RC 3000-10NB	10 +/- 10%	339 +/- 10%
	RC 3000-13NB	13 +/- 10%	369 +/- 10%
Standard roll size:	RC 3000-6NB	60" x 100 yds/roll	1.52m x 91.4m
	RC 3000-10NB & 13NB	60" x 50 yds/roll	1.52m x 45.7m

RC 3000-NB is available up to 120" (3.05m) on special order.
Custom slitting is also available

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RC 3000-20 AND -20FR

High Density, High Loft Breather

DESCRIPTION:

RC 3000-20 is the same high quality, denier fiber, non-woven polyester felt, as our **RC 3000-10** but weighs 20 oz. per sq. yd.

APPLICATION:

The multi-directional stretch and low density high loft construction make it an excellent breather choice for complex contour, double curvature details. During autoclave cure cycles, **RC 3000-20**, used as a breather, will remain open at pressures over 200 PSI (13.8bars) and 400°F (205°C). It is ideally suited for use as an edge breather.

RC 3000-20 is not a release fabric. When used in conjunction with uncured materials, we recommend release film be used against the detail being cured.

RC 3000-20 is non-toxic, non-corrosive, non-dusting and non-allergenic.

SPECIFICATIONS:

Maximum use temperature:	400°F	205°C
Weight:	20.0 +/- 10%	680 +/- 10%
Standard roll size:	60" x 25 yards/roll	1.52m x 23m

RC 3000-20 is available up to 120" (3.05m) on special order. Custom slitting is also available.

RC 3000-20 is also available in "Fire Retardant" (Identify as **FR** when ordering). **FR** is recommended for use in non-inert curing atmosphere. **RC 3000-20FR** meets vertical burn test per F.A.R. Para. 25.853 (B).

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RC 3000-20A AND -20A FR

Polyester Felt Breather

DESCRIPTION:

RC 3000-20A is the same high quality, denier fiber, non-woven polyester felt, as our **RC 3000-10A** but weighs 20 oz. per sq. yd.

APPLICATION:

RC 3000-20A is capable of operating at temperatures up to 400°F (205 °C) and pressures up to 100 PSI (6.9 bars).

RC 3000-20A is non-toxic, non-corrosive, non-dusting and non-allergenic.

RC 3000-20A is not a release fabric. When used in conjunction with uncured materials, we recommend a release film be used against the detail being cured.

SPECIFICATIONS:

Maximum use temperature:	400°F	205°C
Weight:	20.0 +/- 10%	680 +/- 10%
Standard roll size:	60" x 25 yards/roll	1.52m x 23m

RC 3000-20A is available up to 120" (3.05m) on special order. Custom slitting is also available.

RC 3000-20A is also available in "Fire Retardant" (Identify as **FR** when ordering). **FR** is recommended for use in non-inert curing atmosphere. **RC 3000-20AFR** meets vertical burn test per F.A.R. Para. 25.853 (B).

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RC 3500HT

Non-Woven Fiberglass, High Temperature Felt Breather

DESCRIPTION:

RC 3500HT is a non-woven fiberglass felt. It is capable of operating as a breather at temperatures above 1000°F (538°C) and pressures over 200 PSI (13.8 bars).

APPLICATION:

RC 3500HT is engineered for use on polyimide curing, thermoplastic consolidations, as well as all very high temperatures vacuum bagging applications. The high melt point of the fiberglass fiber allows the material to be used at operating temperatures above 1000°F (538°C) without taking a heat set.

RC 3500HT is also recommended for use in thermo-insulation blankets and reusable breather blanket constructions.

RC 3500HT is not a release fabric. When used in conjunction with uncured materials, we recommend a release film be used against the detail being cured.

SPECIFICATIONS:

Maximum use temperature:	1000°F	538°C
Melt Point:	2075°F	1135°C
Weight:	18 + 1.8 oz/yd ²	610 + 50 gms./m ²

Standard roll size:	46" x 50 yards/roll	1.16m x 45.4m
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A SB024

Spun Bound Polyester Bleeder/Breather

DESCRIPTION:

A **SB024** is a spun bound, polyester felt engineered to lay smoothly on flat or low contoured parts. The low-density, straight fiber, lightweight (4 dpf) spun bound construction makes a highly efficient Breather or Bleeder and does not leave mark off like other thicker Breather/Bleeders do.

APPLICATION:

A **SB024**, when used as a bleeder, is engineered for use in standard 350°F (177°C) cure cycles using low pressures on flat or mild contoured parts. When used as a bleeder, high pressures can be used. A **SB024** is not release fabric. When used in conjunction with uncured prepregs or adhesive materials, we recommend a release film be used against the detail being cured.

SPECIFICATIONS:

Maximum use temperature:	400°F	205°C
Weight:	2.1 ± .2 oz./yd ²	71 ± 7 gms/m ²
Standard roll size:	60" x 250 yards/roll	1.52m x 228m

Custom slitting is also available.

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PEEL PLIES/RELEASE FABRICS

CODE 51789/STYLE 52006	Nylon peel ply Weight: 1.85 oz./yd ² Available as a peel ply with: Natural, I.O., LP and VLP finishes Available as a release fabric with: SRB and GFR finishes
CODE 52008/STYLE 56115	Nylon peel ply Weight: 1.70 oz./yd ² Available as a peel ply with: Natural finish Available as a release fabric with: SRB finish
CODE 41661/STYLE 56137	Nylon peel ply Weight: 3.0 oz./yd ² Available as a peel ply with: Natural and I.O. finishes Available as a release fabric with: SRB and GFR finishes
CODE 40000	Nylon peel ply Weight: 3.7 oz./yd ² Available with: Natural and VLP finishes
CODE 50000	Nylon peel ply Weight: 3.0 oz./yd ² Available with: Natural
CODE 60001/STYLE 56009	Polyester peel ply Weight: 2.5 oz./yd ² Available as a peel ply with: Natural and I.O. finishes Available as a release fabric with: SRB finish
CODE 60002/STYLE 56030	Polyester peel ply with black stripes Weight: 2.5 oz./yd ² Available as a peel ply with: Natural finish Available as a release fabric with: SRB finish
CODE 60004/STYLE 56111	Polyester peel ply Weight: 2.4 oz./yd ² Available as a peel ply with: Natural, LP and VLP finishes Available as a release fabric with: SRB finish
CODE 60005/STYLE 56116	Polyester peel ply Weight: 3.2 oz./yd ² Available as a peel ply with: Natural and VLP finishes Available as a release fabric with: SRB finish
CODE 70000/STYLE 57017	Aramid peel ply, high temperature use to 800°F(427°C) Weight: 3.2 oz./yd ² Available with: Natural finish
A 100/A 100S	Economical nylon peel ply Weight: 2.2 oz./yd ² Available with: Natural finish and "S" (with stripe)
B 100	Economical nylon peel ply Weight: 1.70 oz./yd ² Available with: Natural finish

NOTE: Peel Plies and release fabrics listed in this section of our catalog are available in narrow roll widths by Hot Knife Slitting to eliminate edge fraying with the exception of Code 70000. Widths by Hot Knife Slitting to eliminate edge fraying with the exception of Code 7000

A 100 & A 100S

Nylon Peel Ply

DESCRIPTION:

A 100 is a close weave nylon fabric that has been scoured and heat set. Scouring eliminates contamination from sizing and lubricants used during the manufacturing of the fabric. Heat setting reduces the shrinkage during the cure cycle.

APPLICATION:

A 100 is ideal for use on composite and metal bond assemblies where secondary processing is required. **A 100** is not recommended for use with prepreg or adhesives that contain phenols. For these types of resin systems, the **60000** series of peel ply fabrics or fiberglass based systems should be used.

A 100S is the same product but with a black tracer. The black tracer helps identification on the part and ensures removal prior to secondary bonding or painting operations.

PHYSICAL PROPERTIES:

Color:	natural/white	
Weight:	2.2 oz/yd. ²	75 g/m ²
Thickness:	.006"	150mm
Maximum use temperature:	400°F	205°C

Standard roll size: 60" x 100 yds 1.52m x 92m

This product is available in narrow roll widths by Hot Knife Slitting to eliminate edge fraying.

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B 100

Nylon Peel Ply

DESCRIPTION:

B 100 is a close weave nylon fabric that has been scoured and heat set. Scouring eliminates contamination from sizing and lubricants used during manufacturing of the fabric, and heat setting reduces the shrinkage of the fabric during the cure cycle.

APPLICATION:

B 100 is ideal for use on composite and metal bond assemblies where secondary processing is necessary after the peel ply fabric has been removed. **B 100** is not recommended for assemblies that contain phenols. For these types of resin systems, the **60000** series of peel ply fabrics or fiberglass based systems should be used.

PHYSICAL PROPERTIES:

Color:	natural/white	
Weight:	1.7 oz/yd. ²	58 g/m ²
Thickness:	.0045"	117mm
Maximum use temperature:	400°F	205°C

Standard roll size: 58" x 100 yds 1.47m x 92m

This product is available in narrow roll widths by Hot Knife Slitting to eliminate edge fraying.

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RELEASE FABRICS

A-8888	Nylon peel ply fabric with an inert, heat stabilized, fully cross-linked, polymer finish Weight: 2.2 oz./yd ²
B-4444	Nylon peel ply fabric with an inert, heat stabilized, fully cross-linked, polymer finish Weight: 1.70 oz./yd ²
E-5555	Fiberglass fabric with an inert, heat stabilized, fully cross-linked, polymer finish Weight: 3.11 oz./yd ²
200 TFP	Porous TFE coated fiberglass fabric Weight: 1.8 oz./yd ²
200 TFNP	Non-porous TFE coated fiberglass fabric Weight: 3.2 oz./yd ²
200 TFP-1	Porous TFE coated fiberglass fabric. Weight: 1.36 oz./yd ²
1581-C	Fiberglass fabric with an inert, heat stabilized, fully cross-linked, polymer finish Weight: 9.0 Oz./yd ²

NOTE: All Release Fabrics are available in narrow roll widths by Hot Knife Slitting to eliminate edge fraying with the exception of T 3333, E 5555 & 1581-C.

A 8888

Open Weave Polyamide Release Fabric

DESCRIPTION:

A **8888** is a nylon open-weave fabric, coated with a proprietary, heat reacted release agent. A **8888** release fabric was specifically designed for use in composite and metal-bond assembly manufacturing.

APPLICATION:

A **8888** has excellent drapeability and provides excellent release capabilities. A **8888** is compatible with most epoxy and polyester resin systems. Testing is advised before using with any phenol resin system.

PHYSICAL PROPERTIES:

Color:	green	
Weight:	2.2 oz/yd. ²	75 g/m ²
Thickness:	.0045"	114 mm
Maximum use temperature:	400°F	205°C

Standard roll size:	60" x 100 yds	1.52m x 92m
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This product is available in narrow roll widths by Hot Knife Slitting to eliminate edge fraying.

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B 4444

Tight Weave Polyamide Release Fabric

DESCRIPTION:

B 4444 is a nylon tight-weave fabric, coated with a proprietary, heat reacted release agent. **B 4444** release fabric was specifically designed for use in composite and metal-bond assembly manufacturing.

APPLICATION:

B 4444 has excellent drapeability and release capabilities. With the tight weave, **B 4444** leaves a smooth finish on processed details. **B 4444** is compatible with most epoxy and polyester resin systems. Testing is advised before using with any phenol containing resin system.

PHYSICAL PROPERTIES:

Color:	blue/green	
Weight:	1.7 oz/yd. ²	58 g/m ²
Thickness:	.0045"	114 mm
Maximum use temperature:	400°F	205°C

Standard roll size: 58" x 100 yds 1.48m x 92m

This product is available in narrow roll widths by Hot Knife Slitting to eliminate edge fraying.

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E 5555

High Temperature Release Fabric

DESCRIPTION:

E 5555 is a #116 fiberglass cloth coated with a proprietary, heat re-acted release agent. **E 5555** release fabric was specifically designed for use in high temperature thermoplastic, composite and metal-bond assembly manufacture.

APPLICATION:

E 5555 may be used with phenolics, epoxies, polyesters, polyimides, bismaleimides and any commercial resin or adhesive system. The high tensile strength and tear resistance allows clean removal from all substrates. **E 5555** has been used successfully with forming all of the thermoplastics including PEEK.

PHYSICAL PROPERTIES:

Color:	green	
Weight:	3.11 oz/yd. ²	106 g/m ²
Thickness:	.005"	.127 mm
Maximum use temperature:	900°F	482°C

Standard roll size:	38" x 100 yds.	.97m x 92m
	50" x 100 yds.	1.27m x 92m

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200TFP

Porous PTFE Coated Fiberglass Fabric

DESCRIPTION:

200TFP is a porous PTFE-coated plain weave fiberglass cloth release fabric. **200TFP** is resistant to all solvents, adhesives and resin systems normally encountered in composite and metal-bond manufacture. It will release from all commercial resin systems.

APPLICATION:

200TFP is designed as a release fabric that will allow excess resin, volatiles and trapped air to bleed through the release fabric and be absorbed in the bleeder or vented out of the bag through the vacuum vent port. It can be used on metal-bond assemblies to allow the adhesive flash to be bled into the breather and removed from the assembly. **200TFP** is ideal for flat and simple contoured assemblies.

PHYSICAL PROPERTIES:

Color:	Tan	
Weight:	1.8 -2.1 oz/yd. ²	53 - 75gm/m ²
Porosity:	20-80 CFM	0.57- 2.26 CMM
Thickness	.0025" +/- 10%	0.0635mm +/- 10%
Tensile strength	Warp - 65 lbs +/- 10%	29.48 +/- 10%
	Fill - 45 +/- 10%	20.41 +/- 10%
Maximum use temperature:	550°F	288°C

Standard roll size:	38" x 100 yds.	.97m x 91m
Available up to:	80" x 100 yds.	2m x 91m

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200TFNP

Non-Porous PTFE Coated Fiberglass Fabric

DESCRIPTION:

200TFNP is a non-porous PTFE-coated plain weave fiberglass cloth release fabric. **200TFNP** is resistant to all solvents, adhesives and resin systems normally encountered in composite and metal-bond manufacture. It will contain and release from all commercial resin

APPLICATION:

200TFNP is designed as a release fabric that will prevent resin from bleeding through the release fabric and into the breather fabric. It can be used on metal-bond assemblies to promote filleting of the adhesive flash. **200TFNP** is ideal for flat and simple contoured assemblies.

PHYSICAL PROPERTIES:

Color	Tan	
Thickness:	0.003	0.076mm
Weight:	3.2 oz/yd. ²	109 g/m ²
Porosity:	~2 CFM	~.06 CMM
Basic fabric - 1080 fiberglass:	42%	
Coating material – PTFE:	58%	
Maximum use temperature:	550°F	288°C

Standard roll size:	38" x 100 yds.	.97m x 91m
Available up to:	80" x 100 yds.	2m x 91m

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200TFP-1

Porous Lightweight PTFE Coated Fiberglass Fabric

DESCRIPTION:

200TFP-1 is a very light weight PTFE-coated glass fabric. It is used as a release interface between assembly details where thickness of the release material must be minimal. **200TFP-1** will release from all commercial resin systems, and is resistant to all solvents, and cure by-products encountered in composite and metal-bond manufacturing.

APPLICATION:

200TFP-1 is designed as a release fabric that will allow excess resin, volatiles and trapped air to bleed through the release fabric and be absorbed in the bleeder or vented away from the assembly. It is especially useful where tolerances do not allow a heavier material. **200TFP-1** is ideal for flat and simple contoured assemblies.

PHYSICAL PROPERTIES:

Color:	light tan	
Weight:	1.36 oz/yd ²	46 g/m ²
Porosity:	~125 CFM	~3.5CMM
Basic fabric -106 fiberglass:	53%	
Coating material—PTFE:	47%	
Maximum use temperature:	550°F	288°C

Standard roll size:	38" x 100 yds.	.97m x 91m
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1581C

High Temperature Release Fabric

DESCRIPTION:

1581C is a 1581 fiberglass cloth coated with a proprietary, heat reacted release agent. **1581C** release fabric was specifically designed for use in high temperature thermoplastic, composite and metal bond assembly manufacture.

APPLICATION:

1581C may be used with phenolics, epoxies, polyesters, polyimides, bismaleimides and any commercial resin or adhesive system. The high tensile strength and tear resistance allows clean removal from all substrates. **1581C** has been used successfully with forming all of the thermoplastics including PEEK.

PHYSICAL PROPERTIES:

Color:	Green	
Weight:	9.0 oz./yd ²	304 g/m ²
Thickness:	.013"	.33mm
Maximum use temperature	>900°F	482°C

Standard roll size:	38" x 100 yds.	.97m x 114m
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VACUUM VALVES AND HOSES

5046 Vacuum Valve	Two-piece 500°F (260°C) industry standard
5255 Vacuum Valve	Three-piece 500°F (260°C) industry standard
SS5700 Stainless Steel Vacuum Valve	Three-piece 1000°F (538°C) with JIC (AN) or NPT fittings
7525 Vacuum Valve	Two-piece 500°F (260°C) with “MCE” self cutting of bag film feature.
8825 Vacuum Valve	Two piece 500° F (260°C) with positive tightening feature
Vento-Blue – Shop/Oven/Autoclave Hose	High temperature Shop or Oven-Autoclave hose
Standard - Autoclave Hose	400°F (205°C) and 200 PSI capable
Premium - Autoclave Hose	500°F (260°C) and 500 PSI capable
High Temperature Autoclave Hose	800°F (427°C) and 1000 PSI with JIC(AN) or NPT ends
Quick Disconnect Couplings	Room temperature to 600°F (316°C) and 200 PSI
Autoclave Thermocouple	Patented thermocouple assembly
Leak Finder	Handheld ultrasonic leak detector
Vac-Gauge 10	Vacuum gauge

7525 VACUUM VALVE

Quick Disconnect, 2-piece

DESCRIPTION:

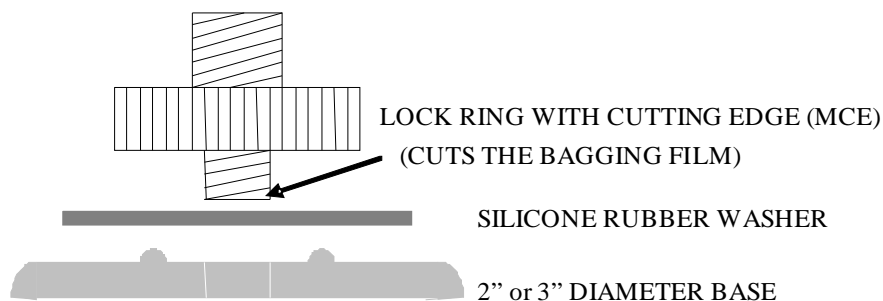
7525 Vacuum Valve is the only two-piece vacuum valve assembly with the unique “Machined Cutting Edge” (MCE). The MCE cuts the bagging film when the top section is inserted into the base plate and then hand tightened. There is no need to cut or slit the bagging film prior to inserting the top section. The 2” or 3” diameter base plate has machined breather channels that extend to the edge to help ensure sufficient airflow/evacuation.

APPLICATION:

7525 Vacuum Valve is ideal for any vacuum bagging application from room temperature up to 500⁰F (260⁰C).

PHYSICAL PROPERTIES:

Connection:	¼” I.D. with ¼” NPT standard
Alloy:	Steel top with aluminum base plate
Gasket:	Silicone rubber
Base:	2” or 3” diameter



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5046 VACUUM VALVE

Aluminum, Quick Disconnect, Two-Piece

DESCRIPTION:

5046 VACUUM VALVE is a two-piece vacuum assembly manufactured from aluminum. It can be easily locked in place with an approximate one-quarter turn of the knurled top.

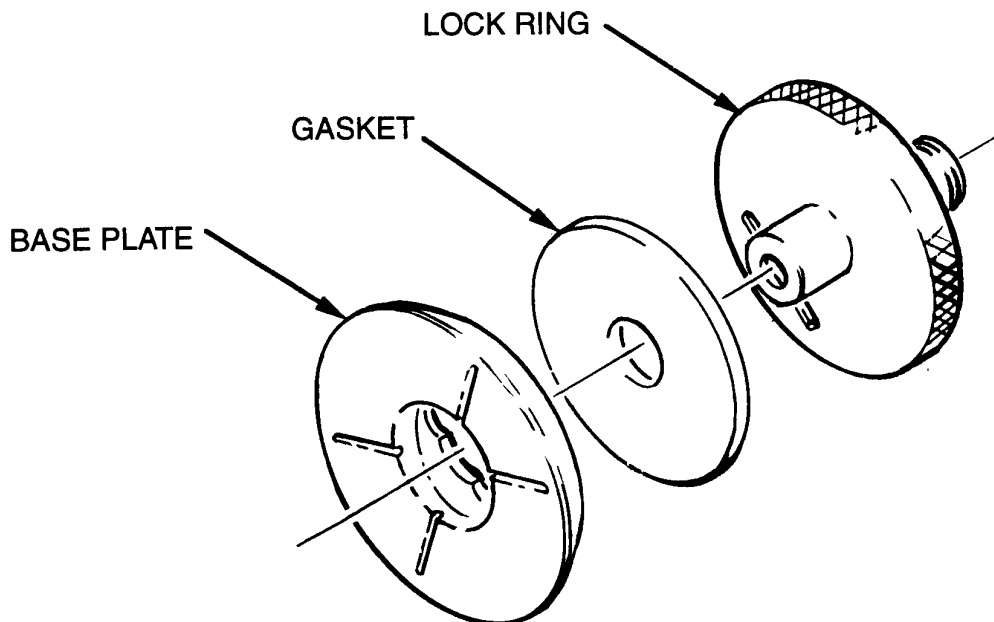
APPLICATION:

5046 VACUUM VALVE is applicable to all bagging operations and temperatures up to 500°F (260°C).

PHYSICAL PROPERTIES:

Connection:	¼" I.D. with ¼" NPT standard
Alloy:	Aluminum top and base plate
Gasket:	Silicone rubber

Other sizes and special designs can be provided on request.



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5255 VACUUM VALVE

Three Piece with Fastening Nut

DESCRIPTION:

5255 VACUUM VALVE is manufactured from 6061-T6 aluminum alloy or steel with a M1020 steel knurled fastening nut. The 2-3/4" diameter base has breather channels extended fully to the edge of the base which ensures good air evacuation. The pressure plate is held in position by a pin which prevents rotation while tightening the fastening nut.

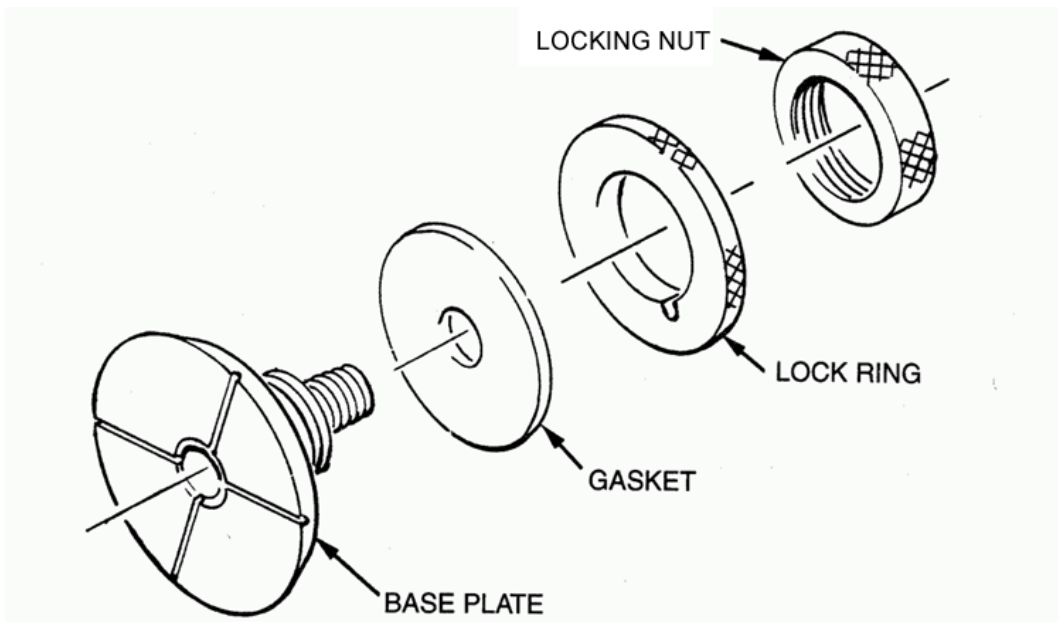
APPLICATION:

5255 VACUUM VALVE is designed to be used in all application where high pressure and high temperatures up to 500°F (260°C) will be used.

PHYSICAL PROPERTIES:

Connection:	1/4" I.D. with 1/4" NPT standard
Alloy:	Aluminum or steel base and lock ring with steel lock nut
Gasket:	Silicone rubber

Other sizes and special designs can be provided on request.



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8825 VACUUM VALVE

Two-Piece Internal Locking

DESCRIPTION:

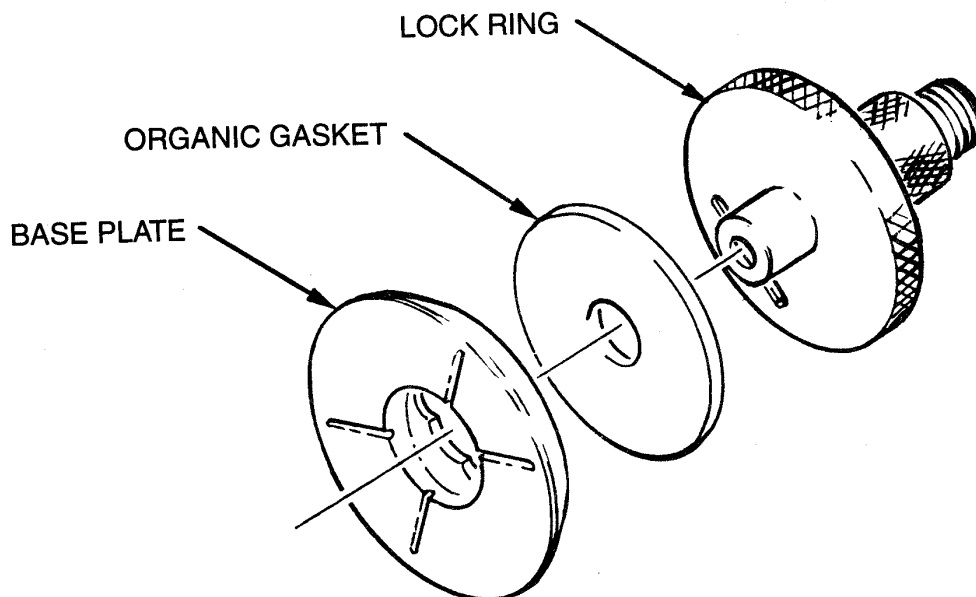
8825 VACUUM VALVE is a two-piece vacuum valve assembly. This valve is similar to the industry standard two-piece vacuum valve with an additional feature of a self-positioning threaded locking pin. This feature allows the locking pin to be tightened in any position on the locking ramp of the valve base. This eliminates any galling of the base and extends the life of the valve. It also assures maximum sealing of the bagging material. The valve has a high rise knurled locking ring which keeps the operator's hands and fingers away from the bagging material, reducing the chance of damage to the bagging material.

APPLICATION:

8825 VACUUM VALVE is ideal for any bagging use up to 500°F (260°C) with any bagging material and resin system.

PHYSICAL PROPERTIES:

Connector:	¼" I.D. with ¼" NPT standard
Alloy:	Aluminum or steel
Gasket:	Silicone rubber



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SS 5700 VACUUM VALVE

High-Temperature Stainless Steel

DESCRIPTION:

SS 5700 VACUUM VALVE is a high temperature vacuum valve having many features, including long life, positive high temperature seal, and ease of use. The basic unit alloy is a 304 stainless steel which permits use to temperatures well over 1000°F (538°C). A positive seal is made between the **SS 5700 VACUUM VALVE** with a 37° JIC (AN) fitting designed to match our **High Temperature Autoclave Hoses**. The optional copper gasket provides a positive seal and is a low cost, easily replaceable unit. A flange is provided on the valve stem for a spanner wrench to assist in holding the valve while tightening the JIC(AN) connection. The seal between the base of the valve and the vacuum bag requires our SM 5160 or RS 280 high temperature sealant tape.

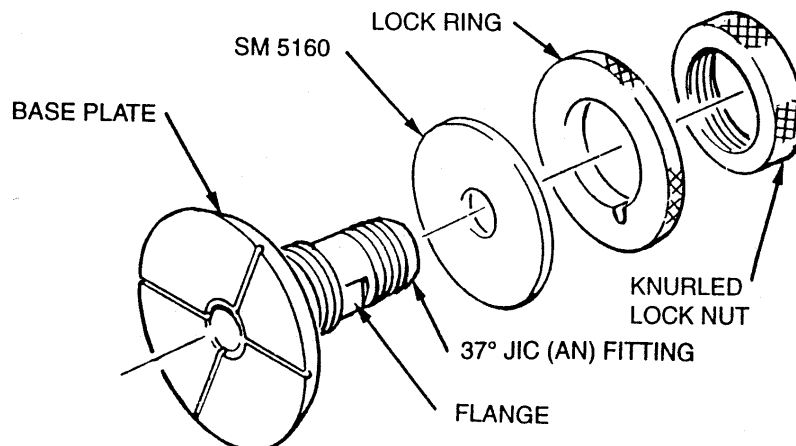
APPLICATION:

SS 5700 VACUUM VALVE is ideal for use with all high pressure and high temperature thermoplastic and thermosetting systems.

PHYSICAL PROPERTIES:

Alloy:	304 Stainless steel		
Standard size:	I.D.	VALVE	COPPER GASKET
	1/4"	SS5700-AN-4	570-AN-4
	1/2"	SS5700-AN-8	570-AN-8
	3/4"	SS5700-AN-12	570-AN-12

Other sizes and special designs can be provided on request.



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VENTO-BLUE HOSE

High Temperature “Shop” or “Oven-Autoclave” Hose

DESCRIPTION:

Vento-Blue Hose is designed and manufactured with economy in mind and offers an alternative to the high-priced vacuum hoses commonly used in the aerospace industry.

Vento-Blue “Shop” Hose is an economical, blue silicone hose (without the stainless steel internal coil as shown), available in “Made to Order” length with 1/4” NPT male ends included (clamps are optional) or in bulk form.

Vento-Blue “Oven-Autoclave” Hose is an economical, blue silicone hose with a stainless steel internal coil (as shown) and standard end-fittings (1/4” NPT ends) that are sealed and clamped for integrity.

APPLICATION:

Vento-Blue “Shop” Hose is ideal for use for general shop vacuum applications. **Vento Blue “Oven-Autoclave” Hose** is suitable for use in cure cycles at temperatures up to 400°F (205°C) and pressures up to 50 PSI (3.45 bar).

PHYSICAL PROPERTIES

Maximum use temperature:	400°F	205°C
Max exterior pressure:	50 PSI (autoclave)	3.45 bar
	15 PSI (oven)	1 bar
Standard size:	3/8”ID x 5/8”OD	6.25mm x 15.87mm
Length:	To order	
End Fittings:	1/4” NPT (when applicable)	
Color:	blue	



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STANDARD - AUTOCLAVE HOSE

Up to 200 PSI and 400°F

DESCRIPTION:

Our **STANDARD AUTOCLAVE HOSE** is a high temperature, two-ply silicone rubber hose with steel inner capillary tube and threaded end fittings. The two-ply silicone outer jacket provides a soft, highly flexible vacuum hose with no sharp protrusions that could puncture a vacuum bag. The steel inner capillary tube prevents hose collapse under autoclave pressure up to 200 PSI (13.8 bars).

APPLICATION:

Our **STANDARD AUTOCLAVE HOSE** is suitable for all autoclave, oven or localized heating operations up to 400°F (205°C) and pressures up to 200 PSI (13.8 bars).

PHYSICAL PROPERTIES:

Maximum use temperature:	400°F	205°C
Autoclave pressure rating:	200 PSI	13.8 bars
Standard sizes:	3/8" (.375") I.D.	
Length:	To order	
Standard fittings:	1/4" male NPT, other size fittings available upon request	
Color:	red silicone outer cover.	



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PREMIUM - AUTOCLAVE HOSE

Up to 400 PSI and 500°F

DESCRIPTION:

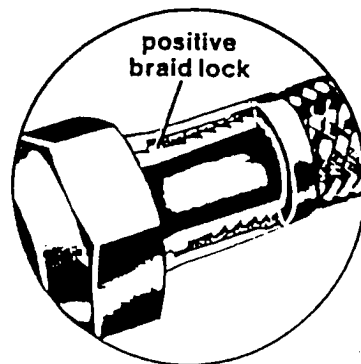
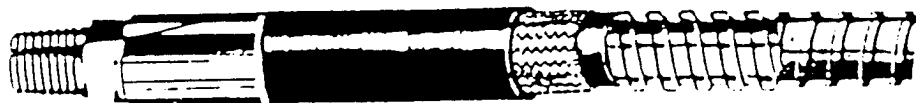
Richmond's **PREMIUM AUTOCLAVE HOSE** is a high temperature, high pressure braided stainless steel outer covering with an inner TFE core and stainless steel inner capillary tube to insure against hose collapse at pressure up to 400 psi (27.6 bars) and 500°F (260°C). The inner tube also protects the hose against accidental mechanical impacts. The hose is also available with an additional silicone rubber outer cover which gives added protection to the bagging material and the hands of the operator from burrs generated in the braided stainless steel.

APPLICATION:

Richmond's **PREMIUM AUTOCLAVE HOSE** can be used for all bagging operations from room temperature debulking, vacuum pressure and to high temperature / pressure autoclave cures.

PHYSICAL PROPERTIES:

Maximum use temperature:	500°F	260°C
Max exterior pressure:	400 PSI	27.6 bars at 260°C
Standard sizes (ID):	3/8"	9.5mm
Length:	To order	
Standard fittings:	1/4" male NPT, other size fittings available upon request	
Standard covers:	Braided stainless steel	



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HIGH TEMPERATURE AUTOCLAVE HOSE

For up to 800°F and 1000 PSI use

DESCRIPTION:

HIGH TEMPERATURE AUTOCLAVE HOSE is constructed of series 300 stainless steel and are resistant to temperature well over 800°F (427°C). The inner hose is constructed of annular corrugated stainless steel which prevents any leak path at pressures up to 1000 PSI. The exterior of the hose is a Series 300 Anamet stainless steel SL casing which provides flexibility and bag protection. All joints in the hose are brazed and all hoses are leak tested prior to acceptance.

Standard fittings are 37° JIC(AN) metal-to-metal sealing to fit our **SS 5700 Vacuum Valve**. Carbon steel NPT ends are also available.

APPLICATION:

HIGH TEMPERATURE AUTOCLAVE HOSE should be used for all assembly processing where temperatures exceed 500°F (260°C).

PHYSICAL PROPERTIES:

Standard construction:	Series 300 stainless steel	
Fittings:		37° JIC (AN) standard
Maximum use temperature:	Up to 800°F	427°C
Max exterior pressure:	Up to 1000 PSI	6.89 MPa
JIC (AN) sizes and torque values:		
Identifier	I.D. size	Sealing torque (in./lbs.)
-4	1/4"	150
-8	1/2"	500
-12	3/4"	1000

Other sizes available upon request.



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QUICK DISCONNECT COUPLING

VACUUM HOSE/VALVE

DESCRIPTION:

QUICK DISCONNECT COUPLING provide a pressure tight connection between the vacuum hose and the vacuum valve as well as allowing easy removal of vacuum hoses from vacuum valves and provide a positive shut off when disconnected to preserve vacuum within the vacuum bag. **QUICK DISCONNECT COUPLING** provide a positive vacuum seal throughout cure cycle.

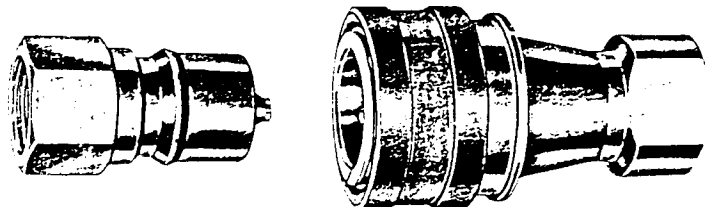
APPLICATION:

“**STANDARD**” **QUICK DISCONNECT COUPLING** is a steel construction couplings designed for use from room temperature up to 500°F (260°C) and pressures up to 200 PSI. Our “**HIGH TEMP**” **QUICK DISCONNECT COUPLING** is a steel construction quick disconnect couplings designed for use up to 200 PSI and temperatures from room temperature up to 600°F (315°C).

PHYSICAL PROPERTIES:

Standard size: 1/4"
 3/8"
 1/2"

Other sizes available upon request.



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<i>QUICK DISCONNECT "2"</i>
VACUUM VALVE

DESCRIPTION:

QUICK DISCONNECT "2" provide a pressure tight connection between the vacuum hose and the vacuum valve as well as allowing easy removal of vacuum hoses from vacuum valves and provide a positive shut off when disconnected to preserve vacuum within the vacuum bag. **QUICK DISCONNECT "2"** provide a positive vacuum seal throughout cure cycle.

APPLICATION:

Our **QUICK DISCONNECT "2"** is a anodized steel construction coupling designed for use from room temperature up to 500°F (260°C) and pressures up to 200 PSI.

PHYSICAL PROPERTIES:

Standard size: 1/4"
 3/8"
 1/2"

Other sizes available upon request.



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TE WIRE & CABLE - AUTOCLAVE THERMOCOUPLE

Fluoropolymer Insulated

Applications

- Autoclaves
- Composites
- Cryogenics
- Food and Drug
- Biotech
- Laboratory
- Automotive
- Environmental Chambers

Product Features

- Labor Saving Patented*** Thermo-
couple Assembly
- Reduced Vacuum Leakage
- Molded-on Connector Rated to
500°F (260°C)
- Small Diameter
- High Accuracy
- Small Thermal Mass
- Excellent Chemical
Resistance



Available Options

- Mini connector Rated to 250°F (121°C)
- Available as Bulk Wire
- High Temperature Braided Insulations for 950°F (510°C) to 2200°F (1204°C)
- Special Color Codes
- Certification to BAC 5621
- Calibration Test Reports

Product Specifications

Conductors:

Solid thermocouple wire per ASTM E230 & ANSI MC96.1

Insulation:

Flame Retardant extruded
Fluoropolymer FEP or PFA

Construction:

Overall insulation encapsulating parallel conductors

Operating Temperature:

FEP -328°F (-200°C) to + 400°F (+200°C) continuous

PFA -328°F (-200°C) to 500°F (+260°C) continuous

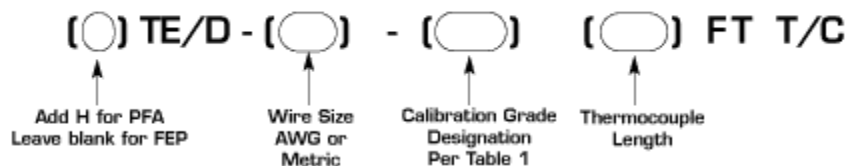
Limits of Error:

Conforms to ASTM E230, IEC 584 and ANSI MC 96.1

Color Code:

Varies with insulation type

Ordering Code



Nominal Weights and Dimensions Fluoropolymer Autoclave Thermocouple Wire							
Conductor Size		Insulation Thickness		Outer Diameter		Bulk Wire Net Weight	
AWG	(MM)	Inches	(MM)	Inches	(MM)	LB/MF	(KG/KM)
20	(0.81)	.015	(.38)	.065 x .115	(1.7 x 2.9)	10.9	(16.2)
22	(0.64)	.010	(.25)	.045 x .090	(1.1 x 2.3)	5.8	(8.6)
24	(0.51)	.010	(.25)	.040 x .080	(1.0 x 2.0)	4.4	(6.5)
26	(0.41)	.010	(.25)	.036 x .072	(.91 x 1.8)	3.2	(4.8)
28	(0.32)	.010	(.25)	.032 x .066	(.81 x 1.7)	2.5	(3.7)

These economical, ready to use, patented*** AUTOCLAVE THERMOCOUPLE have a unique design characteristics which reduce vacuum leakage during use. The key to the effectiveness of the encapsulated AUTOCLAVE THERMOCOUPLE is its unique, proprietary, single extrusion thermocouple wire with molded-on connector construction, which virtually eliminates leakage. The construction consists of special grade limits of error thermocouple wire with a welded junction and permanently molded, high temperature standard size connector (miniature molded connectors are available).

AUTOCLAVE THERMOCOUPLES are available in a wide variety of lengths, conductor sizes and insulation materials. Calibration Type J, K, T and E thermocouples are available.

Standard insulation materials, including FEP, PFA, polyimide tape, and B-Fiber/Glass (synthetic polyamide fiber blend with a fiberglass outer jacket), provide extensive operating temperature ranges to fit a wide variety of applications. Other insulations with temperature ratings up to 2200°F (1204°C) are available (molded connector is limited to lower rated operating temperature).

Every unit is tested for circuit integrity and correct polarity. In addition, AUTOCLAVE THERMOCOUPLE meets MIL-STD-105 Sampling Procedure for Inspection and MIL-I-45208A Inspection System Requirements.

The products referenced above represent the most popular constructions. Other constructions can be manufactured to meet individual specification and application requirements. Contact us for additional information.

Table 1
Initial Calibration Tolerances Per ASTM E230 and ANSI MC96.1

Thermocouple Type	Grade Designation	Tolerance-Reference Junction 32°F (0°C) Special Grade Limits °F (°C) whichever is greater
<u>Thermocouple Wire</u>		
T	TT	±0.9 (0.5) or 0.4%
J	JJ	±2 (1.1) or 0.4%
E	EE	±1.8 (1) or 0.4%
K	KK	±2 (1.1) or 0.4%
T* Cryogenic Range	TT*	±0.9 (0.5) or 0.8% **
*	Thermocouple material is normally supplied to meet tolerances above 0°C (32°F). If material is required to meet Tolerances below 0°C (32°F), the purchase order must so state. Special selection of material is required.	
**	Suggested initial calibration tolerance. Requirements should be discussed between purchaser and supplier.	
***	Patented by TE Wire and Cable.	

LEAK FINDER

Handheld Ultrasonic Leak Detector

DESCRIPTION:

LEAK FINDER is the most advanced hand-held leak detector on the market today. This battery-operated compact model uses ultrasonic detection technology to accurately pinpoint any small holes during a vacuum integrity test. The **LEAK FINDER** can be used with the included headphones to eliminate background noise along with a visual display to illuminate the source of a leak. This model also features a 3-setting sensitivity dial to locate hard-to-find leaks.



APPLICATION:

vacuum loss after a vacuum bag has been applied to your part and/or tool. If the vacuum gauge measures more than the allowable loss after a given time period (e.g. 5 inches of Hg in 5 minutes), use the **LEAK FINDER** to locate your source of vacuum loss. First, carefully sweep the entire perimeter along the edges of the bag adjacent to the sealant tape and other suspect locations. It is recommended that sufficient time is allowed to fully evacuate the air from your vacuum bag prior to performing a leak check test. It is highly recommended to ensure the vacuum integrity of the tool prior to placing a part on the surface. This can easily be achieved by bagging your tool prior to placement of part on its surface and perform your standard leak check.

PHYSICAL PROPERTIES

Size:	½" x 2.5" x 6"	1.27 cm x 6.35 cm x 15 cm
Weight	5.6 oz	160 grams
Ultrasonic frequency range	35Khz-45Khz	35Khz-45Khz
Battery type	9-volt	
Casing:	ABS	

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VAC-GAUGE 10

Vacuum Monitoring Gauge

DESCRIPTION:

Vac-Gauge 10 is a glycerin filled, shock resistant vacuum monitoring gauge with a black rubber protective collar. Reads vacuum pressure in US measurements in "Hg" and metric in "bar".

APPLICATION:

Vac-Gauge 10 is recommended for use in vacuum bag leak checking operations to verify vacuum system integrity. The **Vac-Gauge 10** comes with a 1/4" NPT base mount connection that is compatible with our 1/4" **Quick Disconnect Couplings** for easy attachment and removal from the vacuum source. **Vac-Gauge 10** is not recommended for use in environments over 150°F (66°C).

PHYSICAL PROPERTIES

Dial size:	2"	50.8 mm
Connector:	1/4" NPT base mount	
Color:	black rubber protective collar	
	White face with black US scale and red metric scale	



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VACUUM INFUSION PROCESS (VIP) MATERIALS

Bagging Films	Room temperature up to 400°F (205°C) in widths up to 240 inches wide (6.1M)
Release Films	Room temperature up to 400°F (205°C) perforated or non-perforated
Peel Plies/Release Fabrics	Nylon, Polyester and Release Coated
Sealant Tapes	Room Temperature to 400°F (205°C)
Pressure Sensitive Tapes	Room Temperature to 400°F (205°C)
Infusion Flow Media	Polyethylene and Nylon 2D mesh Resin flow enhancements
Flow Media Accessories	3D Knit Products, VIP Braiding, Resin Break
Feeder Lines	Omega Channel, PE or Nylon Tubing, Spiral Wrap and Connectors
Infusion and Vacuum Ports	Si-Al Reusable Resin Ports, Vacuum Ports and 7525 Vacuum Valve
Vacuum System Accessories Gauges and Vacuum Hose	Resin Trap, Hose Clamps, Tubing Quick Disconnects, Flow Meter, Vacuum
Miscellaneous products	Electric Scissors, Leak Finder and InfuZene
VIP Starter Kit	All process materials needed to start vacuum infusing

VIP BAGGING FILMS

Sheeting, Tubing and Custom-made Bags

DESCRIPTION:

HS-8171 Co-Ex is a green-tinted, transparent, heat-stabilized, co-extruded film produced from a modified nylon 6 resin suitable for room temperature to 400°F (205°C) curing applications. Also available embossed for increased airflow as **QuickDraw HS 8171**.

Stretch-Vac 2000 is a red, transparent, soft, high elongation (>500%), heat stabilized, co-extruded film, produced from a modified polyamide resin suitable for room temperature to 400°F (205°C) curing applications. Also available embossed for increased airflow as **QuickDraw 2000**.

Vento 514 Bag Film is a clear vacuum bag film, produced from a modified nylon resin suitable for room temperature to 350°F (176°C) curing applications.

Refer to the “**Bagging Films**” section in our main catalog at www.richmondaircraft.com for other suitable vacuum bagging films.

The above listed bagging films are available in .002” and .003” thickness and available in tubing from 2” to 120” and sheeting from 2” to 240”.

APPLICATION:

VIP Bagging Films are suggested for use in Vacuum Infusion Process manufacturing where softness, workability, pinhole-free and defect-free films are essential. Customized preformed vacuum bags offer huge labor savings over conventional sheeting.

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VIP RELEASE FILM

Plain and Perforated

DESCRIPTION:

E-1760 is a red tinted release film with a P160 perforation pattern. It exhibits excellent release properties from most polyester, vinyl-ester, phenolic and some epoxy resins (up to 250°F curing). The red color of **E-1760** provides for easy identification and removal from parts.

E-2760R release film is a red, medium temperature (room temperature to 300°F/148°C), high elongation (800%), low modulus (<5000 PSI) release film suitable for use with common VIP resin systems. **E2760R** is ideally suited for highly contoured parts where conformability is essential. **E2760R** is available in roll sizes of .002" x 60" x 500'. Perforations are available as shown in table below.

E-4760 release film is a light blue, high temperature (Room Temperature to 400°F/205°C), low elongation (200%) release film suitable for use with common VIP resin systems. **E-4760** is ideally suitable for flat and mildly contoured part fabrication. **E-4760** is available in roll sizes of .0015" x 54" x 2000', .002" x 54" x 1500', .0015" x 72" x 1100' and .002" x 72" x 825'. Perforations are available as shown in table below.

Refer to our **Release Film** section in our main catalog at www.richmondaircraft.com for other suitable Release Films.

APPLICATION:

Vacuum Infusion Release Films may be used on the tool or bag side.

PERFORATION PATTERNS:

P	.045" diameter holes, staggered on ¼" centers (All release films, 60" max. width)
P1	.045" diameter holes on ½" centers (All release films, 60" max. width)
P2	Small slashes on ½" centers (E2760R and E4670 only, up to 54" max. width)
P3	.015" diameter holes on ¼" centers (All release films, 72" max. width)
P160	.015" diameter holes 160 perforations per sq. inch (E-1760R only, 60" max. width)

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VP PEEL PLIES & RELEASE FABRICS

Nylon & Polyester

DESCRIPTION:

PEEL PLIES:

VP100 series nylon peel plies are engineered for use in VIP and hand lay up applications, **VP200** series polyester are engineered for use in VIP and hand lay up applications. Both **VP100** and **VP200** series are available with Stripe woven into the fabric for easy identification on the cured part. **VP100** is not recommended for use with Phenolic resin systems. For use with Phenolic resin systems, we recommend **VP200** series be used. **VP100** series and **VP200** series Peel Plies are available in 60" x 100 yd. rolls. Slitting to specific widths is available upon request.

56199 is a heavy-duty 3.15-oz./sq. yd. polyester peel ply suitable for use with commonly used resin systems. **56199** is available in 60" x 200 yd. rolls. Slitting is available upon request.

RELEASE FABRICS:

56199 SRL is a heavy-duty 3.15-oz./sq. yd. polyester release fabric with a "**Super Release Lavender**" coating. **56199 SRL** is suitable for use with commonly used resin systems. **56199 SRL** is available in 60" x 100 yd. rolls. Slitting is available upon request.

Green Release Fabric is a tightly woven 2.0-oz./sq. yd. nylon fabric with a blue/green release coating, and is not

APPLICATION:

Peel Plies are ideal for use on composite parts where secondary bonding or painting is required without the need for sanding and solvent wiping.

Release Fabrics are ideally used when easy removal is essential and where sanding and solvent wiping prior to secondary bonding or painting is acceptable.

Refer to our main catalog "**Peel Plies**" and "**Release Fabrics**" sections at www.richmondaircraft.com for other suitable products.

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VIP SEALANT TAPES

Room Temp to 400°F (205°C) Sealant Tapes

DESCRIPTION:

SM-5229 is a gray colored, low temperature (room temperature to 150°F/65°C maximum use), non-curing, medium tack sealant tape suitable for use on most VIP applications. **SM-5229** is suitable for use on metal and composite tooling or envelope bagging applications. Available in cases of 32 rolls (1/2" x 1/8" x 30'/roll).

SM-5142 is a yellow high temperature (room temperature to 400°F/205°C maximum use) capable, high tack sealant tape suitable for VIP applications. **SM-5142** removes easily from metallic or composite tooling. **SM-5142** is also suitable for use in envelope bagging applications. Available in cases of 32 rolls (1/2" x 1/8" x 30'/roll).

SM-5601 is a black colored, low temperature (room temperature to 150°F/65°C maximum use), non-curing, high tack sealant tape for VIP applications. It is suitable for use on metallic, composite tooling or envelope bagging applications. Available in cases of 32 rolls (1/2" x 1/8" x 30'/roll) and 56 rolls (1/4" bead x 20').

APPLICATION:

Sealant tapes are used to create a vacuum tight seal between the tool and the bagging film or bag film to bag film in envelope bagging applications. For proper adhesion, sealant tapes should be applied to clean, dry surfaces.

Refer to our **Sealant Tape** section of our main catalog at www.richmondaircraft.com for other suitable sealant tape selections.

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VIP PRESSURE SENSITIVE TAPE

General-Purpose Tape

DESCRIPTION:

VIP PS Tape is multipurpose .001” thick Blue polyester tape with .001” thick, high temperature silicone rubber adhesive. Custom sizes are available upon request.

APPLICATION:

VIP PS Tape is designed for use in areas where a general purpose tape is required for holding products in place until vacuum can be applied.

VIP PS Tape releases cleanly from most surfaces, with no residue.

Refer to the “Pressure Sensitive Tapes” section in our main catalog at www.richmondaircraft.com for other suitable pressure sensitive tape products that can also be used in VIP applications.

PHYSICAL PROPERTIES:

Backing:	Polyester	
Color:	Blue	
Thickness:	Film: .001”	.13 mm
Adhesive:	.001”	.025 mm
Standard roll size:	1” or 2” x 73 yds	25.4 mm or 50.8 mm x 65.8m
Adhesive:	Silicone Rubber	
Tensile Strength:	50 lb./in. width	22.7 Kg/25.4 mm width
Adhesion to Steel:	30 oz./in. width	1.4 Kg/25.4 mm width
Elongation:	100%	
Temperature Range:	400°F	205°C

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VIP LAMITAPE

Double-Backed Adhesive-Coated Fiberglass Tape

DESCRIPTION:

VIP Lamitape is an open weave, fiberglass tape, coated on both sides with a proprietary pressure sensitive adhesive.

APPLICATION:

Useful in holding fiberglass reinforcement plies, infusion media and other materials together during lay-up. May be used in place of "Spray Tack" adhesives.



Standard roll size:

1" x 110 yards

25.4mm x 100.5m

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VIP INFUSION FLOW “R91”

Resin Flow Media

DESCRIPTION:

VIP INFUSION FLOW R91 is a open mesh polyethylene net suitable for vacuum infusion processing. The open, 1/8” diamond mesh allows for easy flow of resin to ensure complete substrate saturation during the infusion process.

VIP INFUSION FLOW R91 is compatible with most commonly used infusion resins.

VIP INFUSION FLOW R91 will not fray when cut and lays flat on tooling and part surfaces.



PHYSICAL PROPERTIES:

Color:	Red	
Thickness:	.040”	1.02 mm
Roll size:	60” X 350’	1.5m x 106.7m
Material:	LDPE/HDPE blend	

Other sizes may be available on special order.

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VIP INFUSION FLOW “R750”

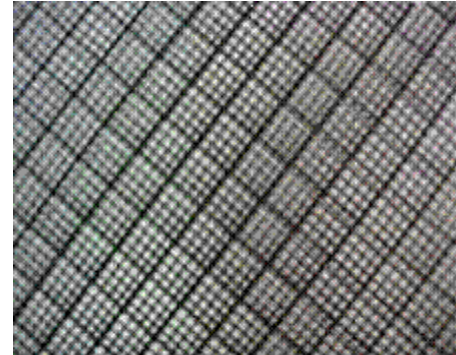
Resin Flow Medium

DESCRIPTION:

VIP INFUSION FLOW R750 is a open mesh polyethylene net suitable for resin infusion processing. The open, 1/16” diamond mesh allows for easy flow of resin to ensure complete substrate saturation during the infusion process.

VIP INFUSION FLOW R750 is compatible with most commonly used infusion resins.

VIP INFUSION FLOW R750 does not fray when cut and lays flat on the tool or part surface.



PHYSICAL PROPERTIES:

Color:	Black	
Thickness:	.035”	.89 mm
Roll Width/Length:	48” X 50’	1.2m x 15.2m
Material:	LDPE/HDPE blend	

Other sizes may be available on special order.

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VIP INFUSION FLOW “N1000”

High Temp Resin Flow Medium

DESCRIPTION:

INFUSION FLOW “N1000” is an open mesh Nylon 6 net suitable for resin infusion processing up to 400°F. The open mesh allows for easy flow of resin to ensure complete saturation during your infusing process. The Nylon 6 construction allows for easy removal when the infusion process is complete. **INFUSION FLOW “N1000”** is compatible with most commonly used resin infusion systems with the exception of Phenolic systems.



PHYSICAL PROPERTIES:

Color:	Clear	
Thickness(at the intersection):	.020"	.508 mm
Maximum temperature use:	400°F	205°C
Roll Width:	44" (Std)	1.14 m

Other sizes may be available on special order.

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VIP FLOW MEDIA ACCESSORIES

3D PE Knit Products, Braided Products and Resin Breaks

DESCRIPTION:

3D PE Knit products are available in sewn construction for Spiral Wrap feeder lines or as flat knit cloth for increased resin flow.

APPLICATION:

With some resin systems, it may be desirable to increase the resin flow from the feeder lines and across the surface of the part. **3D PE Knits** are designed to assist in this increased flow requirement.

VIP Braided Sleeves are available as Spiral Wrap covers or self-made resin break vacuum lines. Braided products are available in Polyester and in sizes from ½" to ¾".

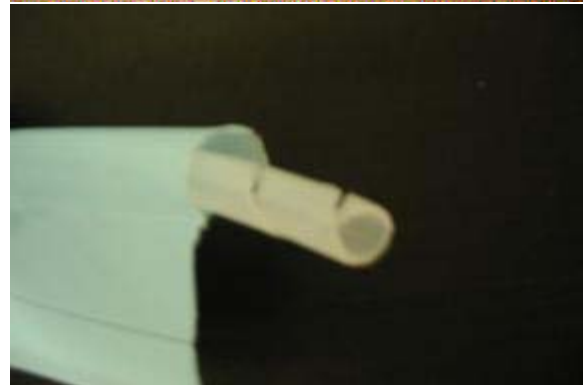
APPLICATION:

With some resin systems, it may be desirable to increase the resin flow from the feeder lines and across the surface of the part. Braided Sleeves are designed to assist in this increased flow requirement.

VIP Resin-Break -Spiral Wrap Tubing sewn into our Green Release Fabric.

APPLICATION:

To control the flow of resin towards the vacuum source to ensure uniform resin distribution.



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VIP FEEDER LINE ACCESSORIES

Spiral Wrap, Tubing and Connectors

DESCRIPTION:

Our VIP Feeder line Accessories products include **Tubing, Spiral Wrap,** and various **Connectors.** These products are available in either “Low temperature” (<120°F/50°C) or “High temperature” (up to 400°F/205°C) materials and compatible with commonly used resin systems.

APPLICATION:

Tubing: For resin feeder lines or vacuum lines

Connectors: Used to join tubing and/or spiral wrap; available in male/male connectors, “T” intersections, and 90° elbows.

Spiral Wrap: Used in conjunction with VIP Omega Channel and VIP Si-Al Reusable Connectors facilitates migration/flow of resin throughout part, can also be used in resin breaks.

Please designate “Low temperature” or “High temperature” designation when ordering:

“Low temperature” properties:

Melt Point:	150°F	66°C
Maximum use temperature:	125°F	52°C
Chemical Compatibility:	Most resins	
Color:	Clear translucent	
Maximum interior pressure (except spiral wrap):	100 PSI	488 Kg/m ²

“High temperature” properties:

Melt Point:	400°F	204°C
Maximum use temperature:	350°F	177°C
Chemical Compatibility:	Most resins expect phenols	
Color:	Clear translucent	
Maximum interior pressure (except spiral wrap):	100 PSI	488 Kg/m ²

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VIP FEEDER LINE ACCESSORIES

Spiral Wrap, Tubing and Connectors

Available in either low or high temperature materials.

TUBING:

1/2" x 100 FEET
5/8" x 100 FEET
3/4" x 100 FEET
1" x 100 FEET



MALE/MALE CONNECTORS:

1/2" x 1/2" BAG OF 50
5/8" x 5/8" BAG OF 50
3/4" x 3/4" BAG OF 50
1" x 1" BAG OF 50



"T" CONNECTORS:

1/2" x 1/2" x 1/2" BAG OF 50
5/8" x 5/8" x 5/8" BAG OF 50
3/4" x 3/4" x 3/4" BAG OF 50
1" x 1" x 1" BAG OF 50



ELBOW CONNECTORS:

1/2" x 1/2" BAG OF 50
5/8" x 5/8" BAG OF 50
3/4" x 3/4" BAG OF 50
1" x 1" BAG OF 50



SPIRAL WRAP:

1/2" x 100 FEET
5/8" x 100 FEET
3/4" x 100 FEET
1" x 100 FEET



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VIP Si-AL REUSABLE CONNECTORS

Resin and Vacuum Ports

DESCRIPTION:

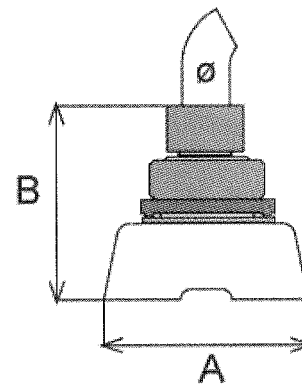
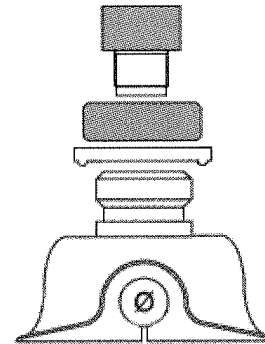
VIP Si-Al Reusable Connectors are available as a **Resin** or a **Vacuum Port**. The **Resin Port** (upper right) has molded channels to allow attachment to VIP Omega Channel tubing or consumable tubing. The **Vacuum Port** (lower right) has recessed channels on the base to allow for even vacuum distribution through the VIP Resin Break.

VIP Si-Al Reusable Connectors are attached to resin or vacuum tubes through the outer bag in order to provide leak-proof flow of resin or vacuum. The **VIP Si-Al Reusable Connectors** consist of a silicone rubber base with threaded aluminum inserts for added strength and vacuum integrity. The **VIP Si-Al Reusable Connectors** are designed for use with consumable tubing (high temp or low temp) also offered by Richmond Aircraft.

The inherent release properties of silicone rubber allow easy removal of most cured resin systems from the VIP Si-Al Reusable Connectors.

APPLICATION:

Attach collar to 1/2" tubing and thread into base. Tighten until tubing will not release with a slight pulling motion. When using **VIP Si-Al Reusable Connectors**, a strip of peel ply or flow media should be placed under **VIP Si-Al Reusable Connectors** to enhance resin or vacuum flow.



DIMENSION:

	I.D.	A	B
VIP Si-Al Reusable Connectors			
Vacuum or Resin Port	.50"	2.35"	2.40"

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7525 VACUUM PORT

Resin and Vacuum Ports

DESCRIPTION:

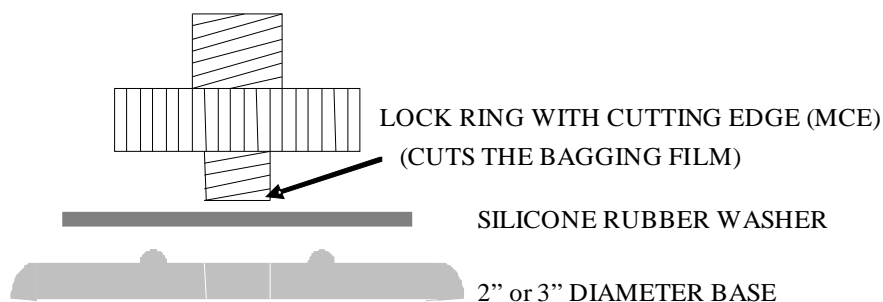
7525 Vacuum Valve is the only two-piece vacuum valve assembly with the unique “Machined Cutting Edge” (MCE). The MCE cuts the bagging film when the top section is inserted into the base plate and then hand tightened. There is no need to cut or slit the bagging film prior to inserting the top section. The 2” or 3” diameter base plate has machined breather channels that extend to the edge to help ensure sufficient airflow/evacuation.

APPLICATION:

7525 Vacuum Valve is ideal for any vacuum bagging application from room temperature up to 500⁰F (260⁰C).

PHYSICAL PROPERTIES:

Connection:	¼” I.D. with ¼” NPT standard
Alloy:	Steel top with aluminum base plate
Gasket:	Silicone rubber
Base:	2” or 3” diameter



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VIP RESIN TRAP

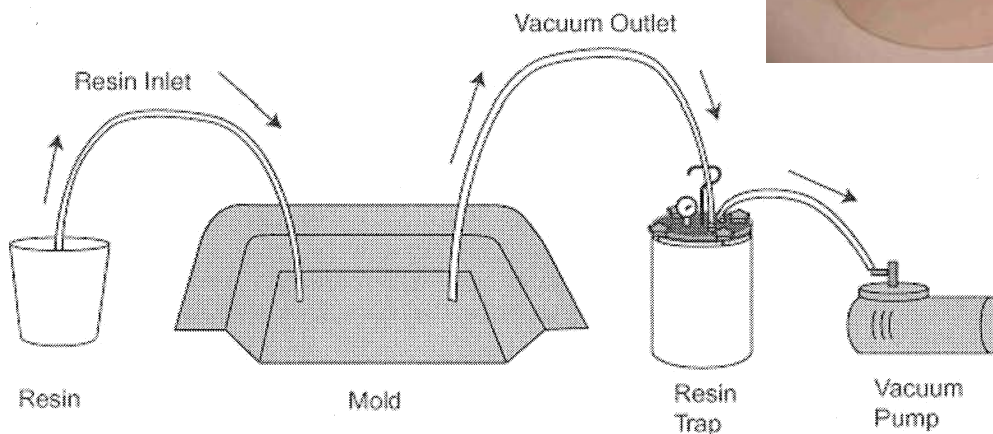
In-Line Resin Trap

DESCRIPTION:

The **VIP Resin Trap** is designed to protect your expensive vacuum pump during VIP processing. Our 2 1/2 gallon vacuum-sealed tank is designed to be used between the mold/part and the vacuum pump to capture any excess resin that may enter the vacuum line. More than one can be used in-line for larger parts.

Included with a precision vacuum gauge and available with either our standard 1/4" Male or Female quick disconnects or our new Tubing Quick Disconnects.

APPLICATION:



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VIP HOSE CLAMPS & QUICK DISCONNECTS

DESCRIPTION:

VIP Hose Clamps are lightweight and impact resistant.

They are available as individual clamps:

3" spring clamps

2" spring clamps

1" spring clamps

3/4" spring clamps



APPLICATION:

Useful for holding resin lines in place and clamping off hoses to regulate vacuum and resin flow.

DESCRIPTION:

VIP Tubing Quick Disconnects (QD'S) are available to fit 3/8" OD and 1/2" OD tubing.

APPLICATION:

VIP Tubing Quick Disconnects (QD'S) offer an alternative method of attaching your vacuum lines to your vacuum source with a simple one-handed operation.



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VIP FLOW METER AND VAC-GAUGE 10

Vacuum Flow and Pressure Measuring Devices

DESCRIPTION:

VIP Flow Meter is used to monitor vacuum flow and the integrity of the vacuum bag prior to infusion.

APPLICATION:

Use in-line with the **VIP Resin Trap** to monitor vacuum integrity and vacuum flow.



DESCRIPTION:

VIP Vac-Gauge 10 is used to determine what the vacuum pressure is under the vacuum bag. It is shock resistant and features a heavy blue rubber protective collar. The **VIP Vac-Gauge 10** comes with 1/4" NPT male fittings.

APPLICATION:

Recommended for verifying integrity of vacuum bags. Ideally, attach gauge to one end of the bag and pull vacuum from the other end for at least 5 minutes. Gauge needle should remain steady indicating no loss in vacuum pressure



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VENTO-BLUE VACUUM HOSE

High Temperature Shop/Oven/Autoclave Hose

DESCRIPTION:

Vento-Blue Vacuum Hose is an economical silicone hose with or without a stainless steel internal coil (as shown) and standard end-fittings (1/4" NPT ends). **Vento-Blue Vacuum Hose** is designed and manufactured with economy in mind and offers an alternative to the high-priced autoclave hoses commonly used in the aerospace industry.

APPLICATION:

Vento-Blue Vacuum Hose is ideal for use as a shop vacuum hose as well as oven or autoclave (with stainless steel internal coil) hose at temperatures up to 400°F (205°C) and pressures up to 50 PSI (3.4 bar).

PHYSICAL PROPERTIES

Maximum use temperature:	400°F	205°C
Max exterior pressure:	50 PSI (autoclave)	3.4 bar
	15 PSI (oven)	1 bar
Standard size:	1/4"ID x 5/8"OD	6.25mm x 15.87mm
Length:	To order	
End Fittings:	1/4" NPT	
Color:	blue	

End fitting "Clamp Kit" is available upon request



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ELECTRIC SCISSORS KIT

Fabric and Film cutting system

DESCRIPTION:

Electric Scissors is a hand held, lightweight, ergonomically designed, multi-use cutting tool.

Electric Scissors Kit includes the electric scissors handle, standard blade set, blade set with shoe, rechargeable battery, battery charger, AC adaptor and a 110V transformer.

Electric Scissors features a lightweight, ergonomically design for comfort and easy use, changeable and replaceable blades, rechargeable battery with holder. **Electric Scissors** are safe and easy to operate.

APPLICATION:

Electric Scissors easily cuts fabrics (Fiberglass, Graphite, Kevlar, Polyester, Nylons etc.) with minimal fiber orientation disturbance, cuts breather materials, films, foil and fiber mat materials.

Electric Scissors are not recommended for cutting prepreg materials, as resin buildup will affect the operating performance of the blades.

REPLACEMENT PARTS:

Standard blade set
Blade set with shoe
Rechargeable battery
Battery charger
AC adaptor
110V transformer



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LEAK FINDER

Handheld Ultrasonic Leak Detector

DESCRIPTION:

LEAK FINDER is the most advanced hand-held leak detector on the market today. This battery-operated compact model uses ultrasonic detection technology to accurately pinpoint any small holes during a vacuum integrity test. The **LEAK FINDER** can be used with the included headphones to eliminate background noise along with a visual display to illuminate the source of a leak. This model also features a 3-setting sensitivity dial to locate hard-to-find leaks.



APPLICATION:

vacuum loss after a vacuum bag has been applied to your part and/or tool. If the vacuum gauge measures more than the allowable loss after a given time period (e.g. 5 inches of Hg in 5 minutes), use the **LEAK FINDER** to locate your source of vacuum loss. First, carefully sweep the entire perimeter along the edges of the bag adjacent to the sealant tape and other suspect locations. It is recommended that sufficient time is allowed to fully evacuate the air from your vacuum bag prior to performing a leak check test. It is highly recommended to ensure the vacuum integrity of the tool prior to placing a part on the surface. This can easily be achieved by bagging your tool prior to placement of part on its surface and perform your standard leak check.

PHYSICAL PROPERTIES

Size:	½" x 2.5" x 6"	1.27 cm x 6.35 cm x 15 cm
Weight	5.6 oz	160 grams
Ultrasonic frequency range	35Khz-45Khz	35Khz-45Khz
Battery type	9-volt	
Casing:	ABS	

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INFUZENE

Dry Material Tackifier

DESCRIPTION:

INFUZENE “Vacuum Infusion Enabler” is designed to hold dry materials together or tack dry materials to core materials prior to infusion. Unlike other spray tack adhesives, **INFUZENE** will not inhibit cure of polyester, vinyl ester or styrene resins. **INFUZENE** crosslink's and cures with the ester or styrene to form an integrated structure. **INFUZENE** is supplied in an easy to use 13-ounce spray can.

Note: INFUZENE is not compatible with epoxy resins.

APPLICATION:

Shake can well before using, recommended application temperature range is from 60°F to 100°F. Hold the can 6”-8” away from the surface to be sprayed and apply a uniform coat. Push surfaces together while **INFUZENE** is still tacky. For extra strength, spray both surfaces and allow a minimum of two minutes drying time before assembly.



PHYSICAL PROPERTIES:

Color:	Clear	
VOC:	<55% (organic solvent odor)	
Application temperature:	60°F to 100°F	15.5°C to 37.7°C
Can size:	13 ounces	384cc

DUE TO ITS HAZARDOUS NATURE, THIS PRODUCT CANNOT BE SHIPPED VIA AIR

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MISCELLANEOUS

IMPRESSION SET-V	Impression film for prefit
SHRINK TAPE I	Polyvinyl fluoride (PVF) release tape
SHRINK TAPE II	Orientated polyester tape
SHRINK TAPE III	Polyvinyl alcohol (PVA) tape
CUREPAD	Non-silicone uncured tooling rubber
CURETAPE-127	Non-silicone "B" staged tooling rubber, tape
RICHDAM SE	Silicone rubber resin dam
RICHDAM 27	Non-silicone rubber resin dam tape
FLASHSORB	Adhesive and resin absorption material
T.S.B. SYSTEM	Tool Surface Breathing
RICHCAST TABLE TOPS	Moca cured polyurethane cutting table top with high durability
PRE-FABRICATED VAC-PAK® VACUUM BAGS and ASSEMBLIES	Custom bags for complex or simple bagging requirements and laminated bag assemblies
RAD-PID CUT	Cut hand held cutting tools
ELECTRIC SCISSORS	Hand held battery powered electric scissors
LATEX RUBBER	High elongation rubber sheet with 350°F temperature resistance
DRS	Dust collection system
SEWN CONSTRUCTION BLANKETS	Insulating (reusable) blankets or edge breathers made to Customer's specifications

IMPRESSION SET "V"

Pre-fit Verification Film

DESCRIPTION:

IMPRESSION SET "V" is a multipurpose .012" (.3mm) thick Fluorescent vinyl based film designed to take and set the imprint of metallic and non-metallic details during pre-fit of sub-assemblies, including face sheets to structural foam core and honeycomb core. **IMPRESSION SET "V"** is intended to be used where other pre-fit inspections cannot be accomplished or easily verified.

APPLICATION:

IMPRESSION SET "V" can be applied to the sub-assemblies to simulate a bond line or mating joint and will take on the same configuration as the simulated bond line or mating surfaces. The **IMPRESSION SET "V"** can then be inspected to determine if additional steps need to be taken to ensure proper bond lines or fitting.

IMPRESSION SET "V" can be processed at temperatures from 150° F (65°C) up to 200°F (93°C) and minimal pressure will provide adequate imprints for analysis.

PHYSICAL PROPERTIES:

Film color:	Fluorescent Red	
Film thickness:	.012	.3 mm
Width:	56"	1.42 m
Roll length:	50 yards	45.7 m
Elongation:	250%	
Tensile strength:	3600 PSI	24.8MPa
Softening Point:	150°F	65°C

Other colors and thicknesses may be available.

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<i>SHRINK TAPE II</i>
Oriented Polyester Tape

DESCRIPTION:

SHRINK TAPE II is an oriented polyester tape designed to shrink during the cure cycle and apply pressure to the composite lay-up or adhesive bond.

APPLICATION:

SHRINK TAPE II is normally wrapped over the laminate on the mold with pressure sensitive tape put in place to prevent movement during cure. The assembly is then exposed to heat and the **SHRINK TAPE II** begins applying pressure (onset of shrink) at 175°F (79°C) with maximum shrinkage at 400°F (205°C). **SHRINK TAPE II** is available with or without perforations or release agent coating.

PHYSICAL PROPERTIES:

Roll width:	1.25" and 2.50"	3.17 cm & 6.33 cm
Roll length:	100 yards.	91.4 m
Shrinkage:	20 % maximum	
Onset	175°F	79°C
Maximum use temperature:	400°F	205°C

Other widths are available.

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SHRINK TAPE III

PVA Shrink Tape

DESCRIPTION:

SHRINK TAPE III is an oriented PVA tape designed to shrink during the cure cycle and apply pressure to the composite lay-up or adhesive bond.

APPLICATION:

SHRINK TAPE III is normally wrapped over the laminate on the mold with pressure sensitive tape put in place to prevent movement during cure. The assembly is then exposed to heat and the **SHRINK TAPE III** begins applying pressure (onset of shrink) at 190°F (88°C) with maximum shrinkage at 300°F (149°C).

PHYSICAL PROPERTIES:

Roll width:	1.25" and 2.50"	3.17 cm & 6.33 cm
Roll length:	100 yards.	91.4 m
Shrinkage:	<15 % maximum	
Onset	190°F	88°C
Maximum use temperature:	300°F	149°C

Other widths are available.

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CUREPAD

Non-Silicone Tooling Rubber

DESCRIPTION:

CUREPAD is a "B-staged" non-silicone rubber that can be formed into complex shapes to assist in the even application of pressure on assemblies. **CUREPAD** should be used where normal bagging procedures cause difficulty in preventing bridged conditions. **CUREPAD** can also be used where normal bagging procedure could cause unwanted mark off on the assembly.

CUREPAD is not a silicone product and requires a release media between the rubber and the assembly being cured. Normal mold release products work well with Curepad.

APPLICATION:

CUREPAD should be used where it can assist in the even distribution of cure pressure and where a high quality surface is necessary. **CUREPAD** can be used many times after the material has been formed to the desired shape during the initial cure of the **CUREPAD** assembly. **CUREPAD** can be used as pads for tooling pins, sharp edges, etc. Interleaving with a fiberglass cloth during the initial **CUREPAD** forming cure can increase the durability of **CUREPAD** as well as reduce the effects of shrinkage during subsequent cures.

PHYSICAL PROPERTIES:

Standard thickness:	0.062" and .125"	1.57mm and 3.17mm
Standard widths:	40" and 54"	1.02m and 1.37m
Roll length:	50'	15.2 m
Standard cure temperature:	350°F	177°C) for 1 hr.
Standard cure pressure:	>25 PSI.	175 MPa
Standard cure duration:	60 minutes at temperature	
Maximum use temperature:	400°F	205°C

NOTE: Shelf life limitations apply.

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CURETAPE-127

Non-Silicone Tooling Rubber

DESCRIPTION:

CURETAPE 127 is a "B-staged" non-silicone rubber that can be formed into complex shapes to assist in the even application of pressure on assemblies. **CURETAPE 127** should be used where normal bagging procedures cause difficulty in preventing bridged conditions.

CURETAPE 127 is not a silicone product and requires a release film between the rubber and the assembly being cured.

APPLICATION:

CURETAPE 127 should be used to minimize bridging problems and provide even distribution of cure pressure where a high quality surface is necessary. **CURETAPE 127** is not intended to be a reusable system. **CURETAPE 127** can be used as pads for tooling pins, sharp edges, etc.

PHYSICAL PROPERTIES:

Standard thickness:	.125"	3.17mm
Standard widths:	.750" and 1.00"	19 mm and 25.4 mm
Roll length:	25'/rl.	7.6 m
Maximum cure temperature	>175°F	49°C

NOTE: Shelf life limitations apply.

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RICH DAM SE

Silicone Rubber Resin Dam

DESCRIPTION:

RICH DAM SE is a fully-cured silicone rubber damming material with a fully cured Silicone or Acrylic adhesive backing.

APPLICATION:

RICH DAM SE controls the outward resin flow from a composite lay up or metal bond assembly. It also prevents the resin from flowing into vacuum valves potentially causing failure of the vacuum system. **RICH DAM SE** can be used with all resin, adhesive and prepreg systems for control of resin flow up to 550°F (287°C). Being fully cured silicone, **RICH DAM SE** removes easily for the finished part.

PHYSICAL PROPERTIES:

Standard width:	1/2" and 3/4"	12.7mm and 19.5mm
Standard thickness:	1/4" and 1/2"	6.35mm and 12.7mm
Durometer:	50 + 5 "Shore D"	
Color:	Red	
Maximum use temperature:	550°F	288°C

When ordering **RICH DAM SE** with Silicone adhesive, refer to **RICH DAM SE –S**. When ordering **RICH DAM SE** with Acrylic adhesive, refer to **RICH DAM SE –A**.

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RICHDAM - 27

Non-Silicone Resin Dam Tape

DESCRIPTION:

RICHDAM-27 is an uncured "B" staged non-silicone rubber that is designed to be used as a highly conformable resin dam tape. **RICHDAM-27** has good tack which makes applying to complex curves easy.

APPLICATION:

RICHDAM-27 controls the outward resin flow from a composite lay up or metal bond assembly.

PHYSICAL PROPERTIES:

Standard thickness:	.125"	3.17mm
Standard width:	.50"	12.7mm
Roll length:	30' roll.	9.1 m)
Maximum use temperature:	400°F	205°C
Rolls/case:	32 rolls	

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FLASHSORB

Excess Flash Absorbent Composite

DESCRIPTION:

FLASHSORB is a high temperature (400°F / 205°C) material suitable for most adhesive bond and co-cure assembly applications. **FLASHSORB** is a composite of Richmond's peel-ply, breather/bleeder and release film. Flash-sorb is custom constructed to the customers needs and is normally used in 2 inch to 6 inch wide tapes however, wide width **FLASHSORB** is available.

APPLICATION:

FLASHSORB is a multi-layered composite material designed to absorb excess adhesive/resin flash from flash line areas or assemblies and when stripped, leaves a virtually "clean-up free" flash line area.

CONSTRUCTION:

All **FLASHSORB** is custom made to customers needs. **FLASHSORB** ordering as follows:

(Example)	61	07	E	6	15
	Peel-Ply	Breather	Release Film	Width in Inch	Length in Feet

MATERIAL IDENTIFIERS:

Peel Plies: **59** = 51789
 61 = 60001
 62 =60002

Breather: **04** = A3000 4
 07 = A3000 7
 10 = RC-3000-10
 10B = RC-3000-10B
 02 = 4819

Release film: **E** = E3760 or **EP** = E3760 perforated
 A = A5000 or **AP** = A5000 perforated
 E4 = E4760 or **E4P** = E4760 perforated
 A6 = A6200 or **A6P** = A6200 perforated

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T. S. B. SYSTEM
(Tool Surface Breathing)

DESCRIPTION:

T.S.B. is a high temperature (400°F / 205°C) material, suitable for use with most adhesive and resin systems, used in the manufacture of fabric reinforced plastic (FRP) laminates or co-curing of FRP sandwich construction assemblies in a single stage.

T.S.B. is a product consisting of a specially designed breather/bleeder and a vapor permeable release film.

T.S.B. can be furnished in roll form or custom constructed to meet the customers needs.

APPLICATION:

T.S.B. is designed to provide a passage for volatiles and gases generated during the curing of the laminates to escape from the tool surface of the assembly. This results in producing an improved porosity free surface, suitable for finishing. Reduces needs for additional glazing and filling needed to produce a cosmetically acceptable surface.

CONSTRUCTION:

All **T.S.B.** is custom-made to customers needs. Order as follows:

(Example)	5819	T	54	12
	Breather	Vapor Permeable Release Film	Width in Inches	Length in Feet

MATERIAL IDENTIFIERS:

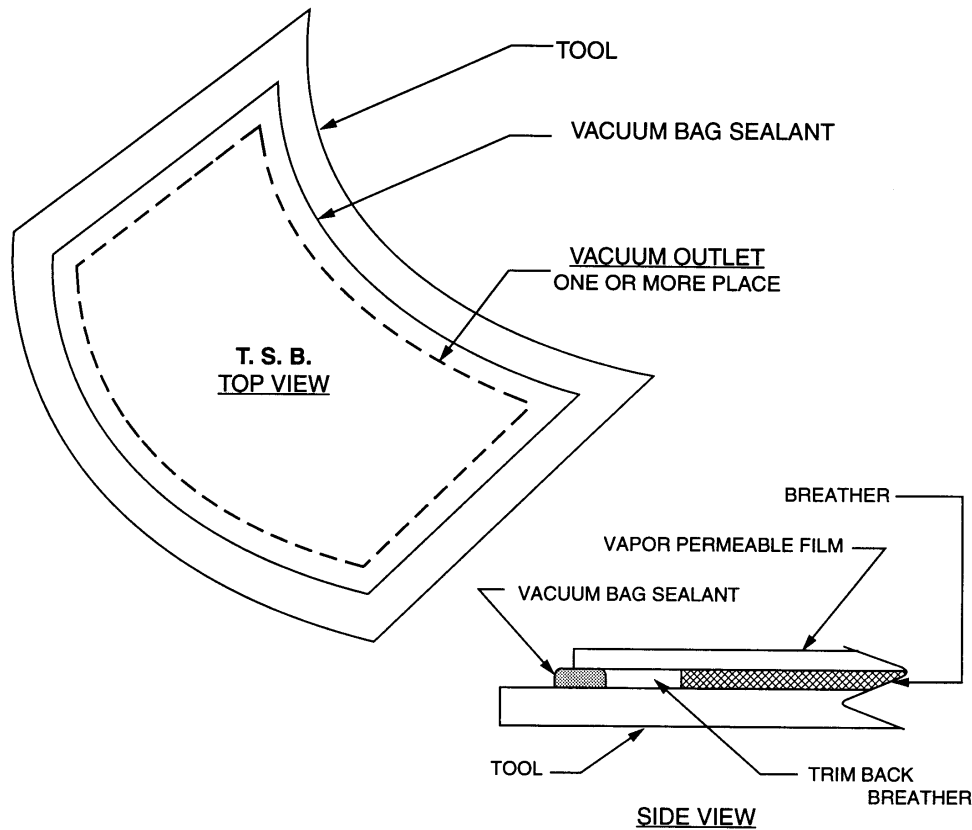
Breather: Code 5819

Vapor permeable release film:
T - E3760
P - E4760
F - A5000
A - A6200

Other combinations are available

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T. S. B. SYSTEM APPLICATIONS



STEPS

1. Place vacuum bag sealant around periphery of tool (outside edge of laminate).
2. Locate and seal edge of vapor permeable film to sealant. Stretch film slightly, so that when vacuum is applied, the T.S.B. will conform to the tool surface (some hand forming may be required to remove any wrinkles that may form).
3. Insert vacuum probe, apply vacuum.
4. Perform lay up procedures in normal manner (do not cut on bag surface).

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RICHCAST

Cast Polyurethane Table Tops

DESCRIPTION:

RICHCAST is a cast polyurethane tabletop with a moca curing additive that provides a tougher, more durable cutting surface. **RICHCAST** is designed for use as cutting table and workbench tops in the composite shop fabrication area. **RICHCAST** tabletops are available in a variety of colors. Please specify your color preference when inquiring.

APPLICATION:

RICHCAST tabletops are primarily used for composite prepregs and adhesive film cutting tables. **RICHCAST** have a self-healing characteristic that prevents cutting blade deflection from scarred working surfaces or from flaking or chipping that would potentially be a concern of contamination with prepregs, adhesives or other materials coming in contact with the tabletop. **RICHCAST** is suitable for use with ultrasonic cutting devices and forceful methods of cutting.

RICHCAST tabletops are easy to clean with conventional cleaning solutions.

PHYSICAL PROPERTIES:

Standard sizes:	Richcast table tops are made to order. Sizes is to be determined by the customer.
Standard hardness:	90 Shore A (standard)
Color:	To order as specified by the customer.

Other hardness and thickness available.

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PRE-FABRICATED VAC-PAK[®] BAGS AND ASSEMBLIES

Custom Bags for Complex Assemblies

Richmond Aircraft Products Inc. is the industry leader in the manufacture of pre-fabricated vacuum bags or sheets of any shape or size. We can fabricate the bag to customer's specification and can also provide engineering to design a bag for the customer.

With the demand for larger composite structures and metal bonded assemblies, the use of pre-fabricated, pre-shaped vacuum bags become more essential to the vacuum bagging process. Richmond Aircraft Products Inc. has developed new technologies to laminate multiple components of vacuum bagging process materials (i.e. Release Film, Breather and Bag film) into one assembly. This allows the customer to simply un-roll the vacuum bag assembly then simply sealant tape the edges to the tool eliminating many single step operations.

Richmond Aircraft Products Inc. has the finest state-of-art equipment and many years of expertise in the manufacture of prefabricated bags.

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RAP-PID CUT

Rotary Cutting System and Cutting Devices

DESCRIPTION:

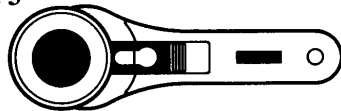
RAP-PID CUT is a heavy duty, hand held rotary wheel cutting system with a built-in adjustable brake for easy control cutting depth, as well as an automatic safety to cover the cutting wheel when not in use.

APPLICATION:

RAP-PID CUT is designed as a manual method to safely and easily cut prepregs, adhesive, bag film, peel plies, breather materials and other film and cloth materials used in composite industry. **RAP-PID CUT** is simple to operate and requires only light downward pressure on the cutting wheel to provide a quick and easy cut.

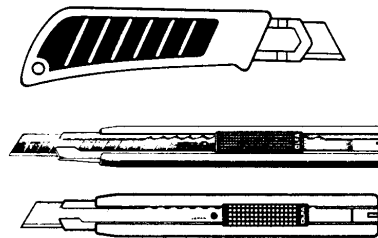
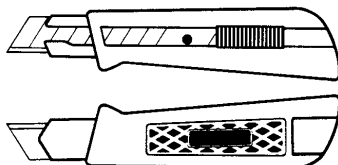
Also available are other **SPECIALTY CUTTING DEVICES** such as: Kevlar Shears, Snap Off Blade Cutters, Compass Cutters, Panel Cutters and many different configurations of **WORK KNIVES**.

RT-1,2, & 3



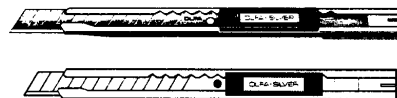
L-2

AL



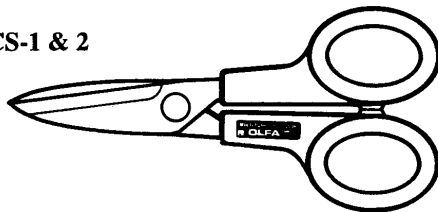
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180



SVR-1

SCS-1 & 2



NOTE: Replacement cutting wheels and blades are available upon request.

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ELECTRIC SCISSORS KIT

Fabric and Film cutting system

DESCRIPTION:

Electric Scissors is a hand held, lightweight, ergonomically designed, multi-use cutting tool.

Electric Scissors Kit includes the electric scissors handle, standard blade set, blade set with shoe, rechargeable battery, battery charger, AC adaptor and a 110V transformer.

Electric Scissors features a lightweight, ergonomically design for comfort and easy use, changeable and replaceable blades, rechargeable battery with holder. **Electric Scissors** are safe and easy to operate.

APPLICATION:

Electric Scissors easily cuts fabrics (Fiberglass, Graphite, Kevlar, Polyester, Nylons etc.) with minimal fiber orientation disturbance, cuts breather materials, films, foil and fiber mat materials.

Electric Scissors are not recommended for cutting prepreg materials, as resin buildup will affect the operating performance of the blades.

REPLACEMENT PARTS:

Standard blade set
Blade set with shoe
Rechargeable battery
Battery charger
AC adaptor
110V transformer



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LATEX RUBBER SHEET

High Elongation, High Temperature Non-Silicone

DESCRIPTION:

Our **Latex Rubber** Sheet is a specially formulated high elongation and high temperature (up to 350°F) for short periods of time. This material also exhibits good tensile strength as well as excellent tear and abrasion resistance.

APPLICATION:

In a sheet form **Latex Rubber** Sheet can be used as a debulk bag and oven cures. The material will not take a “set” and will return to its natural flat shape even after multiple cycles. The **Latex Rubber** can also be formed into complicated shapes for internal pressure bladders or be used as conformal vacuum bags.

PHYSICAL PROPERTIES:

Color:	Beige	
Thickness:	.012” - .048”	.3mm – 1.2mm
Tensile strength:	4177 PSI	28.8 MPa
Elongation:	900%	
Maximum use temperature:	350°F	177°C

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DRS – DUST COLLECTING PADS

DESCRIPTION:

DRS Dust Removal System is a hand held tacky cleaning rollers and cleaning pads. The **DRS** dust removal system is the ultimate tool for cleaning particulate contaminant. Unwanted particles as small as one micron are readily removed from the substrate.

APPLICATION:

The **DRS** Dust Removal System cleans by passing the **DRS** roller over a flat surface. The tacky polymer of the roller lifts particulate matter from the surface without liquids or sprays. The roller can be cleaned by passing it directly onto the **DRS** Cleaning Pad surface
Great for removing dust and particulate contaminates
Ideal for use in clean rooms, glass lamination facilities
Completely reusable for numerous cycles



ORDERING GUIDE:

Roller width: 6", 12" or 18"
Handle angle: Straight, 30°, 90° or straight-double handle
Weight: Standard or Light
Tack level: Low, Medium or High

Start-up kit: 1 Hand Roller.
5 Cleaning Pads.
1 Cleaning Pad Holder.

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SEWN CONSTRUCTION BLANKETS

Dedicated Insulation and Breather Blankets

DESCRIPTION:

RICHMOND AIRCRAFT PRODUCTS can fabricate blankets for internal or external use on bagged assemblies. These blankets are intended to provide insulation and/or breathing for the assembly being manufactured.

A variety of materials can be used in the fabrication of the blankets including release treated covers to prevent adherence of the blanket to the resin from the assembly.

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