NEWS FROM DIMENSION-POLYANT

SUMMER 2007 • NORTH AMERICAN EDITION

TECH SPEC

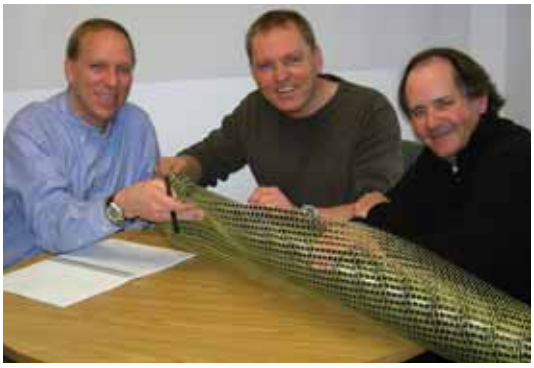
DIMENSION POLYANT
SAILCLOTH TECHNOLOGY

Tenacious, a Fontaine-designed 115-foot sloop, is powered by a full D-P GVTC inventory

New Leadership, New Horizons for D-P

By John Gluek

At DIMENSION-POLYANT Worldwide, we've had a spectacular run during the leadership tenure of Herbert Cox and Margaret Ploentges—50 years in which they've transitioned DIMENSION-POLYANT from the world of textiles and built it into the largest sailcloth manufacturer in the world. As manufacturers not in the public eye, these two may not be well known, but sailors everywhere should recognize that their creativity and development in the sailmaking community has



Kenneth Madsen, Uwe Stein, John Gluek—and FLEX Carbon

helped modernize the sailcloth industry. They will be greatly missed, and all of us at D-P—the teams in Germany, the United States, England, France, Australia, Denmark and New Zealand—who have been with the company for many, many years, understand that what we've learned under Mr. Cox and Ms. Plontges will continue to guide us in the years ahead.

With one era behind us, we start a new one as we now have a new CEO, Uwe Stein, heading up the management of DIMENSION-POLYANT. In Uwe we have a

Continued on back cover...

D-P's Big Boat Material—Setting the Pace for Modern Megayachts

By Moose McClintock

Sailing has gone through many highs and lows during the last century. Huge, grandiose yachts, the fancy of millionaires through the Great Depression, became less of an option as the world went through World War II and the turbulent 1960's and 1970's. After the recession of the early 1980's, the world economy began to grow at an unprecedented rate and the number of people with a high disposable income multiplied in an astonishing fashion. Suddenly, large custom yachts are all the rage today.

Megayachts have become one of the biggest growth markets in the marine industry. A glance at any of the superyacht magazines shows boatbuilders booking construction dates up to six years in advance of the final designs. The market for large yachts is booming, and along with it the service end of the industry—mast, rigging, hydraulic, electronics, and winch packages have become custom projects that target the precise needs of

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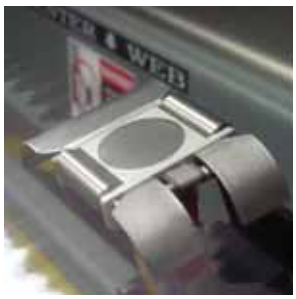
DIMENSION-POLYANT Precision Upgrades: It's All About Accuracy

By Kenneth Madsen



D-P's electronic scanner is accurate to one fifty-millionth of an inch

The unique thing about our manufacturing operation in Putnam, Connecticut—and an added value for DIMENSION-POLYANT customers—is that we have optimized all our machinery to give us direct control over every step in designing, developing, and producing high-performing laminate materials. Recently we've completed plant wide precision upgrades that give us a far higher degree of control in making light, very low-stretch laminates and membranes. Our lamination process is now 50 to 100 times more accurate compared to the methods we used just a few years ago—meaning higher quality products for our customers. And now there really is no limit to what kind of challenges we can undertake, what type of

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D-P Megayacht Materials...

The GVTC foremainsail on *Kaori*, a Paine-designed 115-foot schooner

Continued from front cover...

the owner and yacht. In step with hardware makers' new systems to handle large sails, at DIMENSION-POLYANT we've evolved our sailcloth products to work well on all types of modern megayachts.

In addition to being durable, sails for today's megayachts must be lighter and less bulky while retaining minimum stretch. The infusion of carbon into the hulls, decks, and structures of megayachts has led to carbon laminates that address the specific needs of the rig and sails. Reefing and furling systems have changed the design brief for the fabrics, in some cases placing the focus on ease of handling over that of performance. Ultimately, it's the intended usage of the yacht, either as a charter vessel or a personal sailing package, which spells out the specific requirements of the sails and sailcloth—performance may outweigh durability, or vice-versa.

DIMENSION-POLYANT, as the world leader in performance laminates, has led the way in developing fabrics that blend durability with performance and applying them to these massive projects. Tapping into our experience in laminating high-modulus fibers, we have been able to blend multiple yarns to achieve the proper performance and handling characteristics that cater to the sailor.

***Perseus*, a Perini Navi 50-meter ketch, with GVTC inventory**

Several years ago, Spectra was the *de facto* fiber of choice for these applications. A durable yarn with virtually unlimited resistance to flex degradation, an incredibly high breaking strength, and exceptionally high initial stretch resistance, Spectra was the lightest, strongest product for the job. However, several detrimental issues, including creep (continued elongation under constant load) and difficult lamination of the low-crimp scrims make Spectra a less attractive fiber. However, Spectra's overall positive attributes predicate using the fiber in different ways to ensure the ultimate reliability of megayacht sails.

One DIMENSION-POLYANT style that addresses several of these problems is the DYS line. This is a Spectra/Dyneema blend, which combines increasing denier per inch (DPI) counts of woven Spectra sandwiching a light woven Spectra/Dyneema scrim. By alternating the outer taffetas, we are able to build several different weights of this fabric with increasing stretch resistance. Because the outer taffetas are very chafe resistant this is a perfect fabric for in-mast and in-boom furling systems.

While the DYS line is an incredibly rugged, low-stretch fabric, it still exhibits the tendency of Spectra to creep. Because of this, and to complement the increasingly complex megayacht market, DIMENSION-POLYANT introduced the GXLD line, which incorporates the rugged chafe- and stretch-resistant woven Spectra taffetas of the DYS line sandwiched around an Insert® of carbon fiber. The processing of the carbon yarns as an Insert®, rather than an impregnated yarn, increases the flex strength of this highly stretch-resistant yarn. The combination of the two high-modulus yarns completes a fabric that is very low stretch with very high durability. Sails built of GXLD laminate have gone on boats up to 150 feet with excellent feedback on shapeholding and long life.

Vectran, with virtually unlimited resistance to flex degradation and stretch characteristics similar to aramids, is another key fiber for megayacht sails. For paneled sails, DIMENSION-POLYANT uses Vectran either as a dedicated scrim encapsulated in UV-coated taffetas (the VC line) or in combination with a carbon Insert® (GVTC). We have also seen staggering growth of straight Vectran and Vectran/carbon blends in our D4 product, with sail designers specifying the yarn blends and placement based on the application. With a large part of the sailmaking industry moving to membranes, and the ability to increase yarn count in heavily loaded areas as well as implementing internal reef reinforcement, D4 Vectran sails are a unique performance fabric that appeals to a wide variety of sailmakers and sailors. The Vectran line shows very little degradation over time and offers excellent shape retention. With its aesthetically pleasing light cream color, Vectran sails appeal to owners of classic yachts and megayachts.

For owners of larger yachts who don't need as much performance—and prefer sails that cost a bit less—DIMENSION-POLYANT developed the HYDRA-NET® line. A Spectra/Dyneema woven product, HYDRA-NET®'s durability and ease of handling surpass that of high-tech laminates. Distinctive as a radially-cut, extremely bright white sail, HYDRA-NET® incorporates a blend of Spectra/Dyneema with polyester yarns on the warp, with a Spectra fill ripstop. The combination produces a fabric with high tensile strength, low stretch, and a soft hand, perfect for in-mast and in-boom furling systems as well as lazy jack applications. Initially designed primarily for boats up to 70 feet, DIMENSION-POLYANT introduced two heavier HYDRA-NET® styles last year to expand the upper range of applications to include boats up to 100 feet.

HYDRA-NET Radial, a strong, durable woven

D-P Precision Upgrades: It's All About Accuracy...

Continued from front cover...

solutions we can offer. For every customer who needs a low stretch, weight-efficient, durable material, whether it's for a small or large sailboat, an outdoor product, or an industrial application, DIMENSION-POLYANT can create it.

Our plant upgrades—from our new testing equipment to the way our tenter frame handles goods from .5 ounce all the way up to 32 ounces—have taken the precision of our processes to the highest level in the industry. We've customized our winding machines so that we can produce yarns to our exact specifications—new deniers and blends for sailcloth, new styles for the windsurf industry, precision fabrics for industrial projects. We've invested in new adhesive coaters and a state-of-the-art dryer to insure the accuracy of adhesive lay-downs in all of our laminate products, and we are using high-precision electronic scanning equipment to keep this accuracy consistent. New tools in our test lab are not only more accurate but are integrated worldwide throughout the D-P Group. Here's a rundown on the new equipment and processes that make better products for our customers.

D-P's new electronic fabric-scanning system in action

Super-high precision adhesive coaters. Our new rollers, which apply adhesive to film before the introduction of the fiber matrix, are 50 to 100 times more accurate than before (the total tolerances of the new rollers are one fifty-millionth of an inch). This highly precise control of adhesive application is one key to a light yet durable bond between film and fiber. This degree of accuracy is also a requirement for DIMENSION-POLYANT in producing high quality D4 membranes.

Multi-zone dryer. D-P's new extremely short profile dryer is the next step for the adhesive-coated film. The multi zones of the dryer (our old dryer had only one chamber) give us an amazing degree of temperature control—1/2 to 1 degree Fahrenheit at each stage of the drying process. The dryer's zone controls mean that we can tailor the velocity of the air coming down on the film—up to about 7,000 feet per minute. That's applying a lot of air very quickly; the dryer can exchange about 10,000 cubic feet of air per minute in the drying chamber. In the first zone, where the adhesive-coated film is still very wet, and in the final zone, where the film reaches its final cure, we use different temperatures and air velocities to create the best environment for each stage of the adhesive-curing process.

D-P's state-of-the-art, multi-zone dryer just prior to installation

Electronic fabric-scanning system. Using highly accurate electronic scanning devices at three stations during the laminate manufacturing process, we first measure the film thickness prior to the application of adhesive, then the wet adhesive lay-down. When the adhesive is wet it is thicker than before the solvents are dried, so by scanning it immediately we can insure that the amount of adhesive applied to the film is cor-

There is no "good enough." We take it down to a thousandth of an inch of accuracy—and tomorrow we will dream about half a thousandth. That is our attitude. And it always leads to better products

Every piece of D-P equipment is optmized to handle D-P styles

D-P's customized winding machines give a high degree of tension control and consistency when creating super-low-stretch yarns

D-P's Precision Upgrades...

Continued from front page 3...

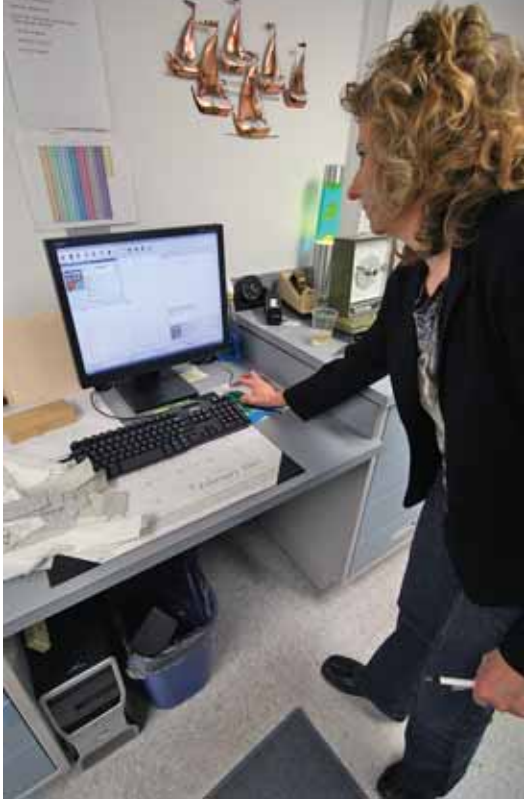
rect and consistent. Our laminating experts monitor a real-time graph on a computer screen that shows how the adhesive is being applied onto the film. This allows the operators to make extremely quick adjustments, assuring optimal and precise control of the process. Finally, we scan the material again when it has gone through the drying process to make sure the adhesive lay-down is consistent with the design specs.

D-P's inspectors check every yard of every style for finish imperfections (top); (above) jumbo rolls, ready to roll

The need for precision in the adhesive application process is huge—adhesive accuracy and control greatly increases the strength and durability of laminate materials. The electronic scanner gives us the ability to maintain our adhesive process to an unmatched accuracy. We are confident that no other laminate manufacturer is producing material to tolerances this tight.

Custom winding machines. By customizing our winding machines we're able to more accurately control yarn tension in the finished laminate. When the tension of every yarn in a laminate is correct and consistent—a factor that is particularly important when working with high modulus fibers like carbon and aramids—we get more performance from each fiber and more performance from the finished laminate.

Our custom winding machines allow us to create yarns and blends to the specifications of unique DIMENSION-POLYANT products, another benefit to a wide customer base always looking for very specific fabric properties.



Fabric testing is standardized throughout D-P Worldwide

Advanced testing equipment and integrated test standards. With all the manufacturing upgrades completed, how will it help us if we can't quantify the improvement and assure that our products do in fact bring real advantages to our customers? To address this, the D-P Worldwide group is now using the latest in electronic fabric-testing machines, the most advanced in the industry. To insure tight integration in D-P's testing standards, each machine at our worldwide locations is calibrated and operated with identical load cells, grips, software, and software settings. The result is that all D-P Worldwide labs are testing to the exact same standards, and we are generating realistic, highly accurate fabric-stretch graphs. Consistency in testing equipment and procedures is vital in measuring the quality and consistency of our products.

All of our precision upgrades at the plant come back to the DIMENSION-POLYANT philosophy of always making a product better. -There is no "good enough." We take it down to a thousandth of an inch of accuracy—and tomorrow we will dream about half a thousandth. That is our attitude, and it always leads to better products for our customers.

The Zwick electronic fabric testing machine is the most advanced in the industry

D-P & Solvent Recovery: Doing Right by the Enviroment

By separating solvents from leftover adhesive by using a solvent recovery machine, we are able to practically eliminate solvent waste. Waste adhesive goes into the machine, and out comes clean solvent that can be reused in laminate production. This not only helps to keep our cost position under control but is an environmental benefit, keeping our manufacturing process as clean as possible.

Two years ago D-P installed a Megtec regenerative thermal oxidizer, which destroys all VOC's (volatile organic compounds) from the lamination process, surpassing EPA standards. DIMENSION-POLYANT's solvent recovery machine and the Megtec oxidizer reflect our continuing efforts to make sure that all of our processes not only meet but exceed every Environmental Protection Agency requirement.

Fast Membranes, Faster Delivery

By Moose McClintock

China Team, powered by D4 Carbon membranes, training off Valencia

It's now been three years since DIMENSION-POLYANT acquired the D4 membrane construction process, and in that time the membrane business worldwide has exploded. Many new and exotic products have been investigated and implemented by sailmakers as this exciting, diversified market has become part of mainstream sailmaking. During this time of growth, independent sailmakers have recognized the value of being able to deliver D4 membrane sails that they have designed, built, and finished to their own standards. With the growth in D4 membrane sails, at DIMENSION-POLYANT we've grown our D4 capabilities as well.

DIMENSION-POLYANT now has two full-time D4 production facilities. The original D4 production site in Sydney remains the primary producer of large D4 membranes worldwide. Membranes from this site vary from jibs for 20-foot one-design boats in .5 mil films to mains for 180-foot yachts—multi-reef sails with double taffetas for durability. The proven ability and experience to produce such varied products on short notice with dependable high quality makes Sydney the first choice for membrane sails in the Southern Hemisphere, as well as for the majority of sails in North America. The Sydney plant was given a major renovation last fall that included reconfiguring the laminating floor to accommodate larger sails while improving traffic flow to decrease handling times and space constraints. These changes were implemented in time for the spring rush of orders and to keep up with the increasing inflow of megayacht, racing and cruising sails.

The second production site for D4, at DIMENSION-POLYANT's home manufacturing plant in Kempen, Germany, went into full production last summer. Originally set up with a single yarn-laying head, a second head to double production capacity went into action last fall as interest from European sailmakers spiked. To increase the quality in both yarn lay-down and lamination, the massive 50-foot by 120-foot floor was rebuilt to reflect less than 1 millimeter of variation over the entire expanse. (The floor of the plant in Sydney was given the same treatment during their upgrade.) This commitment to D4's quality is the driving force behind DIMENSION-POLYANT's promise to deliver the highest quality laminated products to our customers.

Winning results in major offshore and one-design regattas over the last ten years, with sails built by a variety of different sailmakers, accentuates the broad appeal and availability of D4. As a membrane supplier for the Chinese America's Cup team, DPM's design engineers have worked closely with UK-Halsey Sails to develop yarn layouts and fiber blends that address the loads of these ultimate sailing machines. D4 innovations at the America's Cup, such as introducing Technora as the off-angle support yarns in conjunction with high-modulus carbon, have led various competitors to comment on the low stretch of D4 membranes. The broad use of Technora, an incredibly flex-resistant aramid, in a growing number of membranes ensures the durability of the D4 sails.

Looking forward, more D4 innovations to improve durability and reduce cost are in the works. We are investigating new yarns for their applicability to the D4 laminating process, while advances in adhesives and films are ongoing in our laminating plant in Putnam, Connecticut, where the films for D4 are created. With competition heating up in this exciting facet of the industry, only a clear vision of the future of membrane sails can ensure the best product for every sailor today.

Coming Soon: The D3 Satellite System

This spring, the DIMENSION-POLYANT plant at Putnam, Connecticut, will set up a "D3" satellite system to supply sail membranes for small- to medium-sized (40 feet and under) boats. The goal is to produce a more economical product, and deliver it faster, to customers who want all-purpose membrane sails. In the membrane marketplace, there's a gap between all-purpose race sails and Grand Prix sails.

At DIMENSION-POLYANT we've always recognized the needs of the club racer as well as the top end racer, and D3 will deliver a combination of all-purpose performance and durability for sailors who want to go fast while maintaining a tight budget. D3 will allow us to work closely with the world membrane market to provide sailmakers with a one-piece, assembled sail. The difference is that instead of supplying a membrane in the form of sections we'll be supplying it as a triangle.

Tina and Trevor Bayliss, second place at the 2006 International 14 Worlds

One-Design: Laminates Lead the Charge

By Moose McClintock

It wasn't very long ago that when we thought of one-design, we thought of white, woven sails. DIMENSION-POLYANT has been the leader in developing woven one-design styles from the beginning, offering more choices than any other supplier—with victories in everything from national, continental, and world championships to the Olympics. Innovations such as the HTP plus hard racing coatings and the unique Square Weave constructions have placed the bar high as far as shape-holding and durability.

But as in all aspects of sailing these days, woven products only partially reflect the direction one-design sailcloth is going. As laminated fabrics have become more reliable and fiber processing has improved, we've seen a growth of lightweight, class-specific styles as class rulemakers have approved the move from woven polyesters to high-modulus laminates.

As with woven sails, DIMENSION-POLYANT has been at the forefront of laminate one-design fabrics, supplying the X-PLY reinforced monofilms seen on sailboards and high-performance dinghies such as the 49er and 29er. The introduction of the Pen yarn into one-designs expanded the laminate application as many new classes (such as the Melges 24) and older classes (like the J/24) approved laminates to expand the range of the sails and increase the durability of fabrics that are repeatedly impacted, compressed, and flogged.

(top) Pete Melvin and Lars Guck, 2006 A-Cat North Americans; (above) Mike Martin and Jesse Falsone, 2005 505 World Championships

As Pen laminates became accepted, many classes moved up to aramid fibers for even greater strength and performance. The Melges 24 moved to aramid several years ago with excellent feedback, as sails could be designed for more power with better shape-holding in the upper wind ranges. The J/105 class wrestled with the decision for a long time before moving to aramid, but considering the loads involved in a 34-foot, 6-inch one-design, it now appears to be long overdue.

To adapt to the needs of the one-design sailor, DIMENSION-POLYANT developed several successful styles. Specifically, the

A-Cat photo by Peter Alarie; I-14 photo by underthesunphotos.com

Jonas Hoegh-Christensen, winner of the 2007 Finn Midwinters

application of Technora to one-design sails has been an unparalleled success. DIMENSION-POLYANT began developing Technora as a one-design application several years ago, using our GPL00 base scrim. Technora has the same modulus as Kevlar 29, the original aramid sailcloth fiber.

However, Technora, with its distinctive black appearance, has virtually unlimited flex capabilities as well as high tensile strength, and the black dye increases its UV resistance dramatically, making it a far more durable option. GPL00 made an immediate impact, with world championship victories in high-performance classes such as the A-Class catamaran, I-14, and 505.

With confidence in Technora as a proven fiber for one-design applications, DIMENSION-POLYANT developed the One Design Laminate (ODL) line. With the GPL00 becoming ODL06, we moved to build a heavier weight with 50 percent more fiber to address the higher loads of keelboats; this style, ODL09, saw immediate success with a victory in the 2005 Melges 24 Worlds.

DIMENSION-POLYANT also introduced a lighter weight, ODL04, for lightweight dinghies that require threadline strength to bend rigs without distorting or stretching.

This lightest style may be the most successful of the three—ODL04 has stormed the rejuvenated Finn class worldwide. With victories in the 2006 Europeans, Pre-Olympics and US Pre-Olympic trials, ODL04 is enjoying the most successful launch of any laminate ever.

What's next? At DIMENSION-POLYANT we are looking at other fibers that will provide even greater strength, along with the durability one-designs require.

With a design brief of "lighter, lighter, lighter!" we are exploring new ideas and applications daily. The next generation of fast one-design materials is already underway.

Formulon Nylon: Two Sides Are Faster Than One

By Tom D'Albora

Consistency, quality, and durability are the three words that best describe the Formulon racing nylons. DIMENSION-POLYANT engineered a unique 3-step process that utilizes high-quality nylon substrates, resin impregnation, and a UCN coating on both sides of the fabric. This results in a firm fabric with unmatched bias stability and zero porosity.

The Formulon styles are consistently flat, low stretch, and have a high breaking strength. They are also easier for sailmakers to work with–spinnakers can be taped together with very high confidence, thanks to the durable, two-sided coatings on all the Formulon styles. And the unique Formulon two-sided finish stays crispy long after other nylon styles have become soft, stretchy, and porous.

After an extensive R&D period, all the Formulon coatings have been updated to help increase tear resistance and overall durability. Call DIMENSION-POLYANT for technical data and samples. We're confident that you – and your customers – will agree that with spinnaker nylon, two sides are better, and faster, than one.

Formulon styles are 60" wide and available in dyed White, Blue, or Red.

- **F50** (.7 oz) Grand Prix running chutes.
- **F60** (.82 oz) This 30/20 style is popular with PHRF racers and good for most A/P running spinnakers.
- **F75** (.94 oz) Perfect one-design weight for classes that require a 40 g/m^2 material. The 30/30 construction is very durable with both high tears and superior tenacity numbers.
- **F95** (1.1 oz) Lighter and less stretchy than a generic 1.5 oz cloth. F95 is perfect for a heavy-air chute.

From Aquamarine to Aerospace, Innovation Guaranteed

By Hale Walcoff

One of the keys to DIMENSION-POLYANT's leadership in racing and cruising sailcloth is their dedication to innovation. When faced with a technical problem, they roll up their sleeves, research materials and procedures, conduct trials, analyze the results in their state-of-the-art lab, and get real-world feedback from the end-user. When the final field-test is positive, D-P quickly puts the new fabric into production, to meet the customer's needs.

This same dedication to innovation extends into the windsurf, outdoor, and industrial markets. At any given time, we are developing 20 to 30 new fabrics, and featured on this page are several products that, with DIMENSION-POLYANT's help, have progressed from concept to reality.

"Getting 'big air' with DIMENSION-POLYANT laminated X-PLY™ is easy," says Dan Kaseler, head of windsurfing R&D for Gaastra Sails—one of the most successful windsurf brands on the market today. After growing up racing dinghies and working in sail lofts, Dan was drawn to working in the windsurfing industry in 1992. Since then, Dan has been known for several standout innovations, and his Gaastra designs can be found on beaches all around the world.

"Over the last 15 years I have had an outstanding relationship with DIMENSION-POLYANT, and have used their surf-style X-PLY fabrics in nearly all of my designs." Compared to traditional monofilm, the X-PLY fabric is stronger, more durable, and lasts about three times as long. "It's been a fun run. Along the way we won numerous World Cup events, and eventually broke the outright WSSRC world speed sailing record, setting the existing mark at 48.7 knots. Without all the great cooperation from DIMENSION-POLYANT, we would not have been able to achieve these wonderful results." Today, Gaastra utilizes numerous D-P products developed specifically for the ever-evolving windsurf market.

Gaastra's Manic wavesail features D-P X-PLY™ laminates

Always fired up about getting people to spend more time on the water, Dan feels windsurfing is enjoying a resurgence with outdoor enthusiasts. "Thanks to the combination of new, stable boards, light carbon rigs, and computer-designed sails, windsurfing is easier to learn and more exciting than ever before." Dan also works hard on the color palette of the new fabrics, as windsurfing design is driven by a combination of fashion and performance. Look for Gaastra's bold new colors, like Deep Pink and Aquamarine, coming to a beach near you.

D-P is committed to providing unique technical solutions for outdoor enthusiasts on terra firma too, and has recently supplied fabrics with its patented X-PLY reinforcement to established companies like Arc'Teryx, Black Diamond, Jansport, Kathmandu, Patagonia, Mountain Hardwear and Mountainsmith. It's also fun to work with start-ups, so when Cam Brensinger, founder of NEMO Equipment, contacted D-P President John Gluek in 2005, he had a radical idea: support a backpacking tent with airbeams, instead of the traditional tent pole. His vision was for a lighter, simpler tent with fewer components that was easier to set up and stronger in adverse weather. Cam's radical idea proved practical, as NEMO Equipment's airbeam supported tent was named one of TIME Magazine's "most amazing inventions of 2005."

From working with Cam to understand NEMO's technical requirements, John started with D-P's lightweight

Hale Walcoff Joins the DIMENSION-POLYANT Team

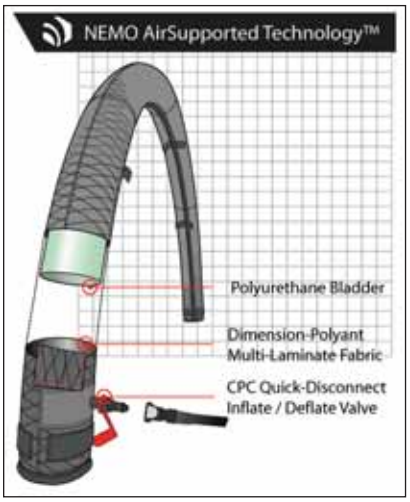
Hale Walcoff has joined the DIMENSION-POLYANT team as Sales Manager for the Windsurf, Industrial, and Sport Material product lines. With over 25 years in the marine industry and industrial fabrics and fibers, Hale has broad experience in sales, marketing, and product development. He has worked with industry leaders such as North Sails One-Design in Marblehead, North Sails Group – Fabritech, Vanguard Boats, Goetz Custom Boats, New England Ropes, and GMT Composites. In a major project with North Sails Fabritech, Hale oversaw the design and manufacture of over 3,000 giant umbrellas for the artist Christo's Umbrellas Project for Japan and the U.S.

An avid sailor, Hale has won championships in a variety of one-design and offshore classes, including the J/22, J/24, J/35, Lightning, and IMS. An occasional windsurfer, he plans to get more involved in this unique part of sailing. "I'm looking forward to trying new boards and sails, and gaining a better understanding of my customers' requirements in this progressive sport. I'm also enthusiastic about backpacking and camping with some of the latest gear that utilizes DIMENSION-POLYANT fabrics–lightweight and strong materials are just as important on the mountain as on the water."

John Gluek, president of D-P U.S., says, "Hale and I have known each other and raced together for many years, and I have always appreciated his commitment to excellence, positive attitude, and teamwork." Hale lives in Adamsville, Rhode Island, and enjoys sailing, skiing, hiking, and biking with his family. You can reach Hale via e-mail (hale.walcoff@dimension-polyant.com), in the office in Putnam (401-928-8326), or on his mobile phone (401-369-4055).

The 153-foot Aeros 40D "Skydragon," a communications platform for the 2008 Summer Olympics, features a custom D-P polyester/PET/Tedlar multi-pass laminate

PM02 laminated sailcloth, which had .5 mil of PET film, with a 500-denier polyester scrim to provide warp and fill strength. As more seam strength was needed for the inflated beams, a layer of 50 denier woven polyester taffeta was laminated to one side. Then, to meet aesthetic and fire code requirements, the material was constructed with black FR (fire retardant) adhesive, and then coated in an FR bath. The new lightweight fabric, called PM02T, initially solved NEMO's technical problem, but after a season of use it was found that the seam-holding needed to be improved. This was accomplished in the summer of 2006 with the creation of a new fabric, which incorporated a 150-denier polyester substrate, 840-denier polyester X-PLY to support off-axis loads and provide a strong rip-stop, and PET film. While the 150-denier taffeta solved the seam-holding problem, Cam came back to us in the fall and asked for the same strength, but lighter weight. After extensive R&D, and many lab and field trials (including an afternoon of "blowing up" airbeams with Cam's team in our Putnam facility!), we developed a fabric that was 30 percent lighter, yet stronger than ever before. This new Airbeam fabric, called VX-NEMO 75, is the foundation of NEMO's air-supported tent line for 2007.



NEMO Airbeam with D-P's VX-NEMO 75 fabric

Cam is enthusiastic about the new fabric: "DIMENSION-POLYANT has been the model partner in the development of our specialized airbeam fabrics. Their proprietary processes have allowed us to offer our customers laminates with unmatched dimensional stability, abrasion resistance, and tear strength. The folks at DIMENSION-POLYANT have also shown a sincere interest in our business and a commitment to helping us make the best products possible. We consider them among our most important and rewarding business relationships."

Mountain Hardwear's Trance (D-P's VX21)

Also intended to operate in hard-to-reach areas, but with a spherical instead of cylindrical inflated shape, is GATR Technologies' inflatable deployable satellite communication system. Packed in a special suitcase for easy transport to remote locations and weighing only 75 pounds, the GATR system is deployable in just 30 minutes. Able to operate in winds exceeding 35 mph, the design integrates a patented, inflation-deployed radome integrated with a highly accurate antenna.

Like NEMO, the GATR requirements were for light weight, durability, and strength. In this case our TX02, for ultra-light applications, was chosen. The TX02 features a laminated sandwich of .25 mil of PET film, dyed adhesive with UV-inhibitor, 840-denier black polyester X-PLY, and a 20-denier nylon substrate. For areas where greater tear strength and abrasion resistance are needed, a 70-denier nylon ripstop is used in place of the 20 denier, with the resulting fabric called TX07.

Taking airborne communications a giant leap forward is the Aeros 40D "Skydragon," currently en-route to Beijing to serve as a communications platform for the 2008 Summer Olympics—think

Windsurf, Industrial & Sport...

Continued from front cover...

Goodyear Blimp goes to China! According to Vice-President Fred Edworthy, "Aeros is the world's leading lighter-than-air, FAA-certified aircraft manufacturing company. Not only will the 'Skydragon' serve as a great advertising and broadcasting platform, but airport communities will appreciate its clean, quiet operation."

Having worked with D-P on fabric for an unmanned aerostat in 2005, Aeros came to DIMENSION-POLYANT in July, 2006, with the request to design, test, and manufacture the envelope fabric for their new manned

GATR Technologies' satcom system, with D-P's TX02 fabric

airship in just 60 days. The fabric had to be strong, durable, balanced, abrasion- and tear-resistant, UV-resistant, and have very low helium permeability. And after passing the technical tests, FAA certification was also required. After many trials, a multi-pass laminate was chosen with layers of polyester woven in

D-P's facility in Germany, PET film, and Tedlar® film. The jumbo rolls that came off D-P's laminator were then cut into 55-yard rolls for cutting at Aeros' manufacturing plant outside of Los Angeles. The shaped gores (think 165-foot-long belly-panels for a massive spinnaker!) were then assembled into a giant cylinder, and patches, reinforcements, fins, rudders, gondola, and more were added.

Inflated in a former military hangar in San Bernardino, California, the airship measured 153 feet from nose to tail, with 100,000 cubic feet of volume. And while reminiscent of the dirigibles of old, the "Skydragon" features technologies like a fly-by-wire control system, a camera for visual display of the ballonet level indicator, and digital flight controls. Designed to carry the largest payloads in its category, the Aeros 40D is capable of carrying 26-foot by 75-foot banners, EO/IR camera systems, SAR radars, and datalink equipment. And while still flush with the successful test flight and FAA certification of the first 'Skydragon,' Fred communicated Aeros' requirements for the next generation airship fabric to D-P's R&D team: lighter, more flexible, and less helium permeability.

As you can see, the key to meeting our customers' needs in a variety of markets is continuous improvement—in other words, innovation guaranteed!

Black Diamond's new Quantum pack, with D-P's VX-21 fabric

Hale Walcoff with a Mystery Ranch backpack (D-P's V/XX-ply fabric) and a NEMO Equipment Hypno EX tent with Airbeam (D-P's VX-NEMO 75)

Bringing More Muscle, More Options to FLEX

By Tom D'Albora

This is an exciting and dynamic time in the sailmaking industry. As older patents expire, sailmakers and sailmaking groups have started using new technology with fresh ideas to produce and market sails.

A few years ago there was a renewed interest in building cross-cut performance sails. This departure from radial construction was a new challenge for DIMENSION-POLYANT since we have been producing many warp and radial fabrics for so long. After consulting with sailmakers, we decided to take on the project of creating a new line of fabrics to be used by sail lofts to produce efficient cross-cut built sails.

While the cloth was going to be slightly more expensive, sailmakers would save through a reduction in material waste and labor hours needed to produce a sail. After almost nine months of trials, DIMENSION-POLYANT introduced FLEX in late summer of 2004.

Making FLEX: Our Hit List

- **FLEX styles needed to be symmetrical** to simplify construction and help make the cloth more stable.
- **More off-threadline fiber** was important. After months of careful R&D, we incorporated yarn in 90º, 30º, 20º, 0º directions.
- **Progressive base scrims** were needed. DIMENSION-POLYANT developed four unique base scrims to be used with these new X-patterns.
- **More options.** DIMENSION-POLYANT offers FLEX styles in Aramid, PEN, PEN Optic, PEN Cruise, Aramid Cruise, and Carbon. Several weights from FLX08 to our new FLX24 assure sailmakers of getting a fabric that is ideal for any application.

2007 rollout: John Gluek, president of D-P USA, with new FLEX Carbon

An In-House Challenge: How We Developed FLEX

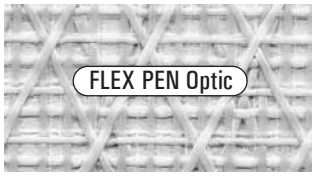
The common goal between DIMENSION-POLYANT and sailmakers is to reduce costs. That's why we developed FLEX, a fabric that reduces a given sail from 40 panels (in tri-radial configuration) to nine panels, dramatically cutting labor costs. We made FLEX work by configuring the fabric yarn orientation to a triradial sail's load path.

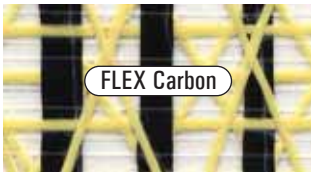
We have our own manufacturing equipment to work out the challenges–an advantage our competitors do not have. For example, in laminates it is easy to tension a warp yarn but it is tricky to keep a fill yarn straight. We have developed several techniques in our production process to get our fill yarns straight. And because we have all our machines right here we can spend the time in the plant to figure out how to do it. That makes a difference.

With FLEX, rather than come up with an idea and put the product into the market, we started with testing fabric prototypes on the water with our team, and developing what was needed in yarn direction and yarn tension. Then we fine-tuned the fabric with initial production runs. Now success over the last year in major championships has progressed the product line. We now know that FLEX works for all kinds of sails, from cruising to one-design to grand prix, and with fibers such as PEN, aramid, and carbon. Developing FLEX has been both fun and challenging, and the process illustrates that, as with all sail materials, the goal is to hit the right tradeoffs between ultra-high performance and long-term durability.

FLEX is actually a very expensive fabric to make, per square unit, but the sailmaker gains a lot in the reduced labor time. The crosscut shaping of a FLEX sail is traditional–a straight edge to a curved edge–and it is very easy to control. It's also easier, as a sail designer, to see what's needed to optimize the shape–as opposed to radial-cut gores with vertical shaping. The horizontal shaping of a FLEX sail is more akin to how membrane sails, such as D4, are put together.

At DIMENSION-POLYANT our mission is to be the best in each field at providing the right balance of performance and durability. We've found that there are ways of using high-tech fiber, making them more durable. And by having our own equipment we can tweak everything, from twisting and coating the yarns to monitoring the lamination process, to get the results we want. And that's allowed us to create FLEX.





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New Leadership, New Goals at D-P...

Continued from front cover...

different leader in terms of team management and product innovation—someone who will keep us at the top of the game.

Here at DIMENSION-POLYANT U.S., in Putnam, Connecticut, we are coming off one of our best years ever. Our team has been together for at least 10 years, and we continue to develop our group. Last fall, Hale Walcoff joined the Putnam staff to manage our Windsurf, Industrial and Sport Materials division, and Hale has fit in perfectly, proving to be a key addition to our sales force. DIMENSION-POLYANT's reputation outside of the sailcloth industry is also growing—we are particularly recognized for the depth and breadth of our in-house laminating and finishing capabilities and our innovative product development. Our range of highly technical industrial projects ranges from fabric for a mammoth airship to material for musical drumheads and athletic shoes for the Olympics.

I am more excited about DIMENSION-POLYANT's future over the next five years than I have ever been. We have gone through some exceptional highs in this company, but even so, the goals of DIMENSION-POLYANT Worldwide are for larger targets than we have aimed at before, and I am sure that we have them in our reach. The precision and expertise of our lamination today go beyond that of any other laminating company doing sailcloth work, and what we are undertaking at DIMENSION-POLYANT is as big as any transformation of the company since we built this building. Our goal is not to maintain our business; our goal is to grow our business and increase our commitment to our customers.

Recent upgrades at D-P's Putnam, CT, plant have resulted in an industry-leading level of precision

D-P's Fastest Fabrics Ever!

While most "soft water" sailors get a thrill from hitting 10 or 20 knots, iceboaters sail at five to six times wind speed—whether a modern DN or a venerable sternsteerer, D-P is there. Yeeee-ha!