THE FUTURE OF COMPOSITE TECHNOLOGY
Versatile Technology

XENECORE IS A REVOLUTIONARY FIBER MOLDING PROCESS WHICH ENHANCES, DIVERSIFIES IMPROVES AND REDUCES COST OF ALL FIBER PRODUCTS- Carbon, Fiberglass, Kevlar, etc.

For example CARBON is the strongest, lightest, most cost efficient substance on earth. XENECORE makes it stronger, lighter and cheaper.
Use less fiber to achieve the same strength because of the support and reinforcement Xenecore offers in the molding process. The heightened strength created by the Xenecore production process means that XēneCore based fibers, when combined with a resin matrix, offers a superior lightweight alternative to current fiber molding making Xenecore an invaluable asset to markets worldwide.

The Shock absorbant and buoyancy of Xenecore benefits number of military and commercial sectors, including aerospace, automotive and ballistics applications involving human safety. No more sunken ships, airplanes, or seats. All non-military applications utilizing fiberglass and carbon will also immediately benefit including recreation, sports and all industrial applications where fiberglass and aluminum are currently used.

Xenecore can be used with all types of composites including carbon and fiberglass, Kevlar, etc. XēneCore manufactures two kinds of fiber: Cavity based and flat panel.

XēneCore solid core capabilities include:
• Perimeter trimming and chamfering
• Doubler relief routing
• Potting and splicing
• Foam filling
• Heat forming
• Septumization
• Stabilization
• Arc expanding, heat setting, roll forming
• Part kitting
• In-house CATIA and NC programming capabilities
• 5-axis CNC machining
XeneCore™ (pronounced “zeen-core”) is a proprietary new patent-pending technology that allows Donnay to create new frames with thin beams and solid cores, unlike wider-beamed hollow conventional racquets that are cumbersome to swing and lack touch and control that most players crave.

The technology was first applied to Donnay’s initial offerings – the popular X-Series for accomplished players with long swings – and continues with the new X-Dual racquets. XeneCore is both a special manufacturing process and material that involves the use of carbon fiber, fused with a foam core to create equal density inside and out.

The solid foam core stabilizes the graphite frame and absorbs torque on ball contact. The absorption results in highly durable and maneuverable frames that are extremely comfortable on arms and shoulders.
These images show the cross-section comparison of a traditional carbon tennis racquet vs. a Donnay racquet using Xenecore technology. This allows for a lighter, stronger more durable end result while conforming to shapes and molds not possible pre-Xenecore.

XENE CORE MAKES FIBER MORE STABLE- HOLLOW
AIR INJECTION VERSUS XENECORE
Current cavity based applications of carbon include racket sports, golf shafts, fishing rods, bicycles, ski poles, bats etc. These industries currently use air injection to mold the products. There are severe limitations to air pressure molding due to the need for air to pass through the cavity in a single flow. Multiple tubes and versatile shapes are impossible to create with conventional air injection. As a result, all Conventional cavity based products are single tube, hollow core composites.

The signification example of the advantage of Xenecore in cavity based application is in the tennis industry. All rackets are molded as hollow carbon which transmits significant amount of shock to the arm causing injury to over 4 million players a year. Yet the performance demands in the sport is requiring more and more power which would otherwise increase shock to the arm.

Xenecore’s multiple core and versatility enabled Donnay to create “Shock Armour”, where cavities are closed and open to prevent the dissemination of shock to the arm. As a result, the game of tennis is able to advance to the next level of performance while gaining control, stability and safety.
Xenecore is versatile enough to solve all the problems in the tennis racket industry.

The tennis industry was plagued by 4 million cases of tennis elbow per year for 3 decades. That's 120 Million injuries because hollow rackets must have a single shaft from where the shock from the racket would flow down the shaft and into the arm.

LIMITATION ON STABILITY (loss of control) – Hollow rackets are unstable because of the hollow cavity. Torque and racket twisting is created by ball contact from off center and high speed balls. Xenecore multiple cores creates stability unachievable in tennis history.

LIMITATION ON POWER- Single hollow tubes can only achieve a limited amount of power compared to multicore rackets.

LIMITATION ON SAFETY- Hollow rackets must have one single tube from which to mold with air injection. That single tube cannot be obstructed. As a result the unwanted and harmful shock cannot be obstructed. Xenecore removes that limitation. A complex construction “shock armour” is made which separates the head and shaft and places objects never before possible in between the tubes to stop the shock and unwanted torque vibrations and for the first time in tennis provide safety.

The image to the left shows a common injury known as “Tennis Elbow”. Tennis Elbow is widely thought to be caused in tennis players as a result of ball shock from (shock from ball contact) and the transfer of energy down the hollow tennis racquet down the arm and into the elbow.
Xenecore applications do not require any new molds although improved molds can be used to obtain better performance. Without the need for air during the molding process XēneCore can improve the manufacturing process by eliminating part counts because parts do not have to be molded separately then later glued together. Most parts can be molded together in a single mold. Eliminating the need to glue most parts together means less time designing, engineering, and manufacturing multiple smaller parts that then need to be glued together.
XēneCore solid core encompasses a wide range of unique processing technologies. With advanced computer-aided design and manufacturing techniques, the flat core is formed, shaped, machined and/or bonded to create high quality core details and assemblies to precise industry needs.

The expertise of our manufacturing and engineering staff, combined with extensive research and unique core processing technologies, results in profiled and precise complex shapes. With XēneCore your engineered core products will be better, stronger, more stable, safer.

You eliminate the need to invest in core processing equipment, facilities and staff. XēneCore also has the opportunity to reduce customer costs further through core block optimization for the application
Xenecore can replace fiberglass and aluminum and other metal alloys for new generations of commercial airplanes and automobiles. Weight-saving is the principal reason for this move to composites as lighter planes mean reduced operating costs. There is also lower maintenance with composites as they have better fatigue performance and no corrosion.

Although each new generation aircraft has moved increasingly to composite primary structures, a number of smaller, but complex geometry parts have been required to connect them to the various system components. In the past these parts have been machined, cast or forged from aluminum or titanium and could not be made from composites in a cost-effective way as the techniques employed for major composite structures were not appropriate.

This was until the launch of XēneCore, a new form of cost-effective carbon fiber/epoxy molding material from XēneCore that has now become baseline for a large number of primary structure parts on the new generation of commercial airplanes. XēneCore enables complex shapes to be manufactured in series production while providing weight savings that are comparable to those achieved with aerospace carbon/epoxy prepirgs.

Flat panel fiber is ideal for a range of aerospace and industrial applications. Multicore provide strength and stiffness in multiple directions, resulting in excellent handling characteristics.

XēneCore has full design, tooling and certification test capability to support XēneCore customers. We can team with customer design teams and develop XēneCore part designs starting from basic loads and envelope requirements. Currently XēneCore parts are certified by XēneCore using XēneCore molded composite parts a unique composite technology for new aerospace needs.
XENECORE SAFETY
Ballistics to Recreational Helmets

XēneCore also manufactures and markets lightweight, high-strength composite structures and assemblies for the sports and recreation industries. This part of the company was established in 2009 and since then the business has a history of documented performance for the world’s top Sports contractors, including Donnay. XēneCore engineered products demonstrate the benefits of the company’s many years of accumulated experience in outfitting sporting equipment with high-strength, lightweight applications at a cost-competitive price. XēneCore’s joint venture in Asia produces low-cost, high performance composite parts, achieved through the latest manufacturing technologies and efficiency principles. XēneCore can also coordinate and manage your international sourcing.

XēneCore’s structures include wing-to-body fairing assemblies, wing trailing edge assemblies, tail section components, radomes, dorsal and flap-track fairing assemblies, cockpit sidewall and ceiling panels and doorliners, leading edges, access doors and rotor blade components.

Due to the buoyancy of Xenecore, maritime and naval uses are beyond imagination.
XENECORE MAKES FIRST TRUE TITANIC UNSINKABLE SHIP

XENECORE BOUYANCY SAVES MILLIONS OF LIVES FROM SHIP WRECKS, PLANE CRASHES, SEAT FLOTATION

Xenecore boat hulls, will never sink even if an iceberg hits the hull because of the solid buoyant hull. There is no hull breakage was wather leaks. Airplanes will never sink or disappear. Seats will never sink. Millions of lives will be saved.