PUSHING BOUNDARIES TOWARDS FUTURE PERFORMANCE
PEEK POLYMER SOLUTIONS FOR THE ENERGY INDUSTRY

victrex®
Deep-water drilling rates cost an average of $400,000 per day – a major concern for those facing the industry average of 5-10% downtime due to tool failures. In addition, ‘easy’ oil is gone. Global oil service companies and end-users must be able to find new oil reserves, get to it quickly and safely, and maximize recovery. For these non-conventional reserves, the industry is forced to expose valuable equipment to extreme temperatures, high pressures, and corrosive fluids and gases. Avoiding costly downtime, extending service life, operational safety, and improved recovery are at the forefront of an engineer’s mind when designing a downhole tool system. Achieving the highest level of reliability and efficiency while minimizing risk starts with cutting-edge materials. Victrex has provided best-in-class solutions for more than three decades. With our unmatched industry and technical expertise, we can work together to design equipment that will survive and thrive in the most extreme environments. In fact, our polymeric solutions are used in more than 75 million sealing systems today.

Safe, long-lasting, and efficient downhole tools comprised of proven polymeric solutions that help reduce downtime and risk – that’s future performance.
Deep-water day rates can cost nearly half of a million dollars. Leading companies rely on increased tool utilization and reduction in downtime when drilling for reserves. VICTREX® PEEK-based connector solutions offer double the power transmission capabilities of glass-ceramic systems.

Deep-water day rates can cost nearly half of a million dollars. Leading companies rely on increased tool utilization and reduction in downtime when drilling for reserves. VICTREX® PEEK-based connector solutions offer double the power transmission capabilities of glass-ceramic systems.

In the development of unconventional reserves, the operating conditions for down-hole tools are becoming more extreme. VICTREX® PEEK-based solutions provide durability even when operating in corrosive elements such as hydrocarbons, seawater, and harsh gases. Beyond chemical resistance, our polymeric solutions provide excellent erosion, creep and pressure resistance to deliver a long service life.

Vicrex has worked with leading organizations to certify that our PEEK solutions meet industry standards such as NORSOK, ISO, ASTM, and API. Quality assurance is a top priority and is backed by 50 tests on every batch to ensure consistent product performance. Our technical expertise in PEEK solutions for the Energy industry is unrivalled.

Vicrex offers a customized portfolio of products to meet your key engineering requirements. Our solutions range from materials suited for cryogenic environments to extremely high temperatures. There is no one-size-fits-all solution – that’s why we offer a portfolio.

Our investment in a 70% capacity increase, a presence in more than 30 countries, and 3-7 day lead times on standard products confirms our dedication to providing a stable supply chain for our customers. We are often able to meet just-in-time orders due to our strategically-positioned warehouses.
As the inventor of PEEK, Victrex has focused on developing high performance polymeric solutions for more than three decades. This dedication provides us with a wealth of polyaryletherketone knowledge that no other material supplier can offer. By working together, we can turn the toughest challenges into benefits.

Our collaborative approach in providing only the most innovative and highest-quality solutions enables the industry to reach new levels of performance today and tomorrow.
Victrex collaborates with industry-leading companies to turn demanding challenges into benefits. We have seen it all from maximizing uptime through innovative designs to asset protection and performance in the harshest operating conditions. Our PEEK expertise allows us to provide unmatched application development support to help in the manufacture of next-generation components.

Involve us from the beginning – we can get there together.
ANTENNA SLEEVES  BACK-UP RINGS  BEARINGS  BUSHINGS  CABLE  JACKETING
CABLE TIES  COMPOSITE WEAR RINGS  COMPRESSOR COMPONENTS
COMMUNICATION CABLES  DATA LOGGING  ELECTRICAL CONNECTORS
FLUID TRANSPORT  TUBING  FRACK BALLS  GAS SEPARATION
GEARS  IMPELLERS  INDUSTRIAL HOSES  JUMPERS  MAGNET WIRE
MARINE RISERS  PACKER SEAL STACKS  PIPE LINERS
POWER CABLES  PRESSURE VALVES  PRIMARY SEALS
PUMP HOUSINGS  RFID TAGS  SENSORS  SLICKLINE
COMPONENTS  SLOT LINERS  THRUST WASHERS
TUBULARS  VALVE SEATS  UMBILICALS
WELLHEAD SEALS AND CONNECTORS
WIRE BUNDLE CLAMPS
WIRELINE COMPONENTS
WIRE COATING
Victrex is independently assessing its PEEK polymers in even more aggressive environments than have ever been tested before. To date, the polymer has been tested in three-phase sour environments where the gas phase is 100% H₂S corresponding to more than 1% at 30,000psi (207MPa) and at temperatures of 220°C (428°F).

Take advantage of talking to the people that invented PEEK and can reference the largest polyketone database of testing in the world. Our scientists and engineers go the extra mile to make sure that our customers have all of the information they need when designing their critical components.

We welcome the opportunity to use our three decades worth of knowledge to help speed up your application developments.

**SOUR GAS PERFORMANCE**

Victrex is independently assessing its PEEK polymers in even more aggressive environments than have ever been tested before. To date, the polymer has been tested in three-phase sour environments where the gas phase is 100% H₂S corresponding to more than 1% at 30,000psi (207MPa) and at temperatures of 220°C (428°F).

**STABILITY ACROSS BROAD TEMPERATURE RANGE**

With some applications enduring long-term exposure to high temperatures, VICTREX® PEEK is able to maintain its tensile strength with no performance loss over 5,000 hours at 260°C (500°F). VICTREX® PEEK also exhibits high mechanical properties at extremely low temperatures down to -196°C (-321°F).
VICTREX® PEEK VS. OTHER PEEK

PEEK is THE high performance polymeric solution for reliable performance in corrosive, HPHT environments. Not all PEEK is the same. VICTREX PEEK can offer up to twice the load bearing capacity compared to other brands while operating in the harshest conditions. Trust VICTREX PEEK and its more than 30 years of reliable performance in downhole tool components.

HIGH TEMPERATURE STRENGTH

VICTREX PEEK 450G™ polymer exhibits 2x less strain than Other PEEK at 200°C (392°F). This leads to enabling double the load-bearing capacity at the same temperature compared to other PEEK.

COMPRESSION STRESS STRAIN

VICTREX PEEK 450G polymer shows a distinct improvement in compressive strength at high temperatures compared to competitive PEEK. At 250°C (482°F), VICTREX PEEK 450G polymer exhibits half as much strain as other PEEK at equivalent loads. This means that parts made from other PEEK will deform at lower compressive loads than those made from VICTREX PEEK 450G polymer.

TENSILE CREEP

Other PEEK exhibits a 7x higher primary creep rate than VICTREX PEEK 450G polymer. VICTREX PEEK 450G polymer offers 15% less strain than competitive PEEK at any point in time. In a specific example, at 50MPa (7,252 psi) and 23°C (73°F), the time taken to reach a strain of 1.6% is 15 minutes for other PEEK compared to 448 hours for VICTREX PEEK 450G polymer.

HIGH TEMPERATURE CREEP

VICTREX PEEK 450G™ polymer exhibits 2x less strain than Other PEEK at 200°C (392°F). This leads to enabling double the load-bearing capacity at the same temperature compared to other PEEK.

VICTREX® PEEK VS. OTHER PEEK

PEEK is THE high performance polymeric solution for reliable performance in corrosive, HPHT environments. Not all PEEK is the same. VICTREX PEEK can offer up to twice the load bearing capacity compared to other brands while operating in the harshest conditions. Trust VICTREX PEEK and its more than 30 years of reliable performance in downhole tool components.

HIGH TEMPERATURE STRENGTH

VICTREX PEEK 450G™ polymer exhibits 2x less strain than Other PEEK at 200°C (392°F). This leads to enabling double the load-bearing capacity at the same temperature compared to other PEEK.

COMPRESSION STRESS STRAIN

VICTREX PEEK 450G polymer shows a distinct improvement in compressive strength at high temperatures compared to competitive PEEK. At 250°C (482°F), VICTREX PEEK 450G polymer exhibits half as much strain as other PEEK at equivalent loads. This means that parts made from other PEEK will deform at lower compressive loads than those made from VICTREX PEEK 450G polymer.

TENSILE CREEP

Other PEEK exhibits a 7x higher primary creep rate than VICTREX PEEK 450G polymer. VICTREX PEEK 450G polymer offers 15% less strain than competitive PEEK at any point in time. In a specific example, at 50MPa (7,252 psi) and 23°C (73°F), the time taken to reach a strain of 1.6% is 15 minutes for other PEEK compared to 448 hours for VICTREX PEEK 450G polymer.

HIGH TEMPERATURE CREEP

After 12 months at 200°C (392°F), the creep of VICTREX PEEK 450G polymer is calculated to be 45% lower than that of Other PEEK. This is at relatively low stress — the difference in creep is likely to increase with stress and temperature. For applications that require tight dimensional tolerances, parts made from VICTREX PEEK 450G polymer will exhibit less dimensional change under load.
Victrex is an innovative world leader in high performance polymer solutions with products sold under the brand names of VICTREX® PEEK, VICOTE® Coatings, APTIV® film and VICTREX Pipes™. With production facilities in the UK backed by sales and distribution centers serving more than 30 countries worldwide, our global sales and technical support services work hand-in-hand with OEMs, designers and processors offering assistance in the areas of processing, design and application development to help them achieve new levels of cost savings, quality, and performance.

www.victrex.com