Custom-Made High Performance Fasteners

OPTIMAS

Our range of standard fasteners is produced in Nylon 6,6 and Polypropylene which are suitable for the majority of applications. With advances in technology we recognise that a specialist demand exists for non-metallic fasteners capable of withstanding higher temperatures, higher loadings and providing resistance to harsh environments; requirements which Nylon 6,6 or Polypropylene cannot meet. To satisfy this demand we are able to offer products in a wide variety of higher performance materials including:

- Glass Filled Nylon
- PEEK™
- Halar®
- Isoplast™
- IXEF®
- PVDF
- RADEL®
- Ryton®
- Teflon®
- Torlon®
- ULTEM®
- UHMW®

TYPICAL APPLICATIONS:

- Microwave transmission
- Integrated Circuits
- Aerospace
- Semi-Conductor
- Manufacturing Chemical
- Processing Petroleum
- Industry Computers
- Communications

PRODUCTION QUANTITES:

Quantities as small as 20 pieces can be supplied. Parts are manufactured either by injection moulding or auto-turning depending upon the quantity and material. Tooling costs may be incurred.

Engage® - Ethylene alpha-olefin copolymer bridges the gap between plastics and rubber properties. Key performance benefits include toughness, flexibility, light weight, high clarity, and UV stability. It resists low temperature brittleness and can be engineered to offer specific levels of flexibility to meet a range of technical requirements.

Glass Filled Nylon - is a glass fibre reinforced material combining high strength with the basic nylon properties of low friction, toughness and good abrasion resistance. It is resistant to alkalis and some organic chemicals. This material exhibits high fatigue endurance, low deformation under load and good impact strength. Glass filled nylon has greater tensile strength, improved creep resistance and greater dimensional stability than unfilled nylon.

Halar® (ECTFE) - Ethylene-Chlorotrifluorethylene copolymer exhibits better mechanical properties than many other fluoroplastics. But like other fluoroplastics, its flame retardance, chemical resistance and low dielectric constant remain constant over a wide temperature range. These qualities make it suitable for use in such products as electrical insulation, monofilament, tank linings, housings, and electrical components. It may be usefully employed at temperatures from the cryogenic range to about 165°C.

Isoplast™ - Isoplast urethane resins are high tensile strength, chemically resistant resins originally developed for medical use. They are available in long glass fiber-filled grades. Isoplast combines the toughness and dimensional stability of amorphous resins with the chemical resistance of crystalline materials. The long fiber reinforced grades are strong enough to replace some metals in load bearing applications.

IXEF®-1521 - is a 50% glass-fibre reinforced, flame retardant polyarylaminde which exhibits high strength and stiffness, outstanding surface gloss, and excellent creep resistance. The compounds in this family are characterized by creep resistance at high stress levels, high flow, low and slow moisture pickup and excellent dimensional stability. IXEF 1521's glass transition temperature of approximately 85° C offers remarkable rigidity for a polymeric material and its combination of properties makes the material an excellent candidate for metal replacement in many market areas.

PVDF - Polyvinylidene fluorides has a useful temperature range of -100°C to 150°C. It has good strength, creep resistance and weatherability. Like some other chlorinated engineering plastics, it will not support combustion in air.

LCP - Vectra® Liquid Crystal Polymer (LCP) grades offer advantages over metal, thermosets and other thermoplastics materials. Advantages include excellent chemical and hydrolytic stability, corrosion resistance, thermal stability, dimensional stability and precision moldability. Additional good properties include creep resistance at elevated temperatures, high strength and high continuous use temperatures, very high abrasion resistance and excellent electrical insulation properties. All grades have UL94V-0 flammability ratings and most grades have low smoke ratings.

Noryl® (PPE) - Modified polyphenylene ether is one of the more widely known engineering plastics and has gained UL and FDA approval for a broad spectrum of moldable and foamable grades. It has good impact strength at low temperatures and is resistant to many agents, including steam. It may be furnished in either unreinforced or reinforced grades and remains stable when processed. Yield strength of reinforced grades is comparable to aluminum. Typical end uses include computer and electric housings, automotive body parts, and piping.

Nylon 4,6 - Bridges the price-performance gap between traditional nylons and high performance materials. Suitable for both extrusion and injection molding, Nylon 4,6 offers a range of functionality including extensive UL classifications and specialized wear and bearing grades.

PCTFE - Polychlorotrifluoroethylene is highly transparent. It also exhibits good electrical properties, and is resistant to most common solvents at room temperature. PCTFE is less permeable to gasses and water vapor than any other transparent film.

PEEK® - Polyetheretherketone is a material which has excellent chemical resistance and is rated for continuous service to 240°C. It is tough and strong, with low creep, and has the best fire safety rating of all thermoplastics. It tolerates radiation to 1100 M rads without undergoing significant change. Applications include engine parts, aerospace components and other uses which require PEEK's unique qualities. Other PEEK products include PEEK, 30%Glass-Filled, PEEK Ultra-High Purity, PEEK-High Temperature and PEEK, 30% Carbon-Filled.

PES® - Crystal clear polyethersulfone has truly outstanding creep resistance, dimensional stability, and excellent mechanical properties. It can withstand continuous use in air and water at temperatures to above 175°C. It has low flammability and minimal smoke emission during burning. Its weatherability and solvent resistance are also good. Since PES is sterilizable, it has a wide variety of medical applications. Other applications include electronic components of all types, and structural parts.

PFA® - Perfluoroalkoxy resins, which are marketed under the Teflon® trademark, have properties similar to FEP and PTFE. However, unlike FEP, PFA may be used to temperatures of approximately 260°C. While PFA shares PTFE's chemical resistance and low coefficient of friction, it is also a moldable, and extrudable material. Some applications include packing and seals, cable sheathing, and fire-retardant insulation.

Polycarbonate - This material exhibits the highest impact strength over a range of temperatures from -50°C to 130°C. It is fine for all precision parts, or where transparency is desired. Its water-clear transmittance (89%) makes it excellent for visors or guards. It shows good creep resistance and has a temperature-independent dielectric constant, as well as good insulating properties.

Polysulfone (PSO) - is a naturally transparent, true engineering plastic whose electrical and mechanical properties are constant up to temperatures above 160°C. It is also rated for continuous service in steam to 145°C. It shows excellent resistance to alkalies, acids and salts, as well as to many hydrocarbons. PSO is suited for microwave use, and may also be plated or glass-filled. Amongst its varied uses are many medical, automotive, and electronic applications.

RADEL® A-200 - is a polyethersulfone resin offering high heat deflection temperatures, excellent toughness and dimensional stability, and superior resistance to steam, boiling water, and mineral acids. Other desirable properties include thermal stability, creep resistance, and inherent flame resistance. Grade A-200 is a medium viscosity grade that can be used for either extrusion or injection molding. It is transparent and injection-moldable to close tolerances.

RADEL® AG-330 - is a 30% glass fibre reinforced polyethersulfone compound. Adding glass fibre to Radel A-300 polyethersulfone substantially increases the rigidity, tensile strength, creep resistance, dimensional stability, and chemical resistance of the material, while maintaining most of its other basic characteristics. The combination of structural properties and cost effectiveness makes this resin an attractive alternative to metals in many engineering applications. Radel AG-330 is an opaque, grayish material in its natural form and may be readily coloured.

RADEL® R-5000, R-5100 NT15, R-5500 - are polyphenylsulfone resins offering exceptional hydrolytic stability, and toughness that is superior to other commercially-available, high-temperature engineering resins. They offer high deflection temperatures and outstanding resistance to environmental stress cracking. The polymer is inherently flame retardant, and also has excellent thermal stability and good electrical properties. Radel R-5000 resin is a transparent injection molding grade. R-5100 NT15 is an opaque general purpose injection molding grade and R-5500 is a transparent extrusion grade.

Ryton® (PPS) - This exceptionally strong, thermally stable, corrosion resistant engineering thermoplastic retains structural integrity under the most demanding conditions of temperature and physical abuse. In continuous-service applications, Ryton® PPS boasts UL temperature indices up to 240°C with outstanding dimensional stability, and it can withstand short-term exposures to temperatures greater than 260°C. It is inherently flame retardant and exhibits low smoke emission and nontoxic gas generation. Ryton® PPS is resistant to a broad spectrum of solvents, organic acids and alkalies.

Teflon® (PTFE) - An extremely low coefficient of friction makes Polytetrafluoroethylene the ideal choice where surface wear might otherwise be a problem. PTFE also exhibits a useful service life from below-70°C, to temperatures of over 260°C. Its resistance to solvents is also excellent throughout a wide range of temperatures. Its low dielectric constant and electrical resistance also remain constant throughout this range.

Tefzel® (ETFE) - Ethylene-tetrafluoroethylene copolymer is a high impact material with properties similar to ECTFE. It is commonly used to manufacture pumps, valves, computer housings, and other electrical components.

Torlon® (PAI) - Polyamide-imide possesses a combination of great mechanical strength, the ability to withstand radiation, usability from approximately -180°C to 260°C, and resistance to most chemicals at room temperature. It is also flame retardant and gives off almost no smoke when burned. It is available in unreinforced and reinforced grades and is readily machinable. This combination of assets makes it a good metal substitute for aerospace and electronic applications. It is commonly used for bushings, seals, and distributors in engines and machinery.

ULTEM - Unreinforced ULTEM® (polyetherimide) keeps its hardness, and mechanical properties from -40°C, up to temperatures of 180°C. It is radiation-resistant, microwave transparent and is naturally flame-retardant. Reinforced grades have even higher mechanical strength. Because of its unequaled properties, ULTEM® is the ideal replacement for steel and other metals. It also has a wide range of electronic and medical applications.

UHMW® - While Ultra-High Molecular Weight Polyethylene retains the inherent qualities of low-density polyethylene, its increased toughness allows its use in a wide variety of rugged applications. It is commonly employed to provide rollers, cams, impellers and bumper guards. Because of its high lubricity, it is also used to coat conveyer-belts, ramps and hoppers. UHMW's imperviousness to attack by steam and chemicals, and its continued good performance at low temperatures, has also enabled it to gain FDA approval for a variety of applications within the food and drug industries.

OTHER MATERIALS ARE ALSO AVAILABLE.