



TIP SHEET

6 Benefits of Converting Metal Components to Plastic

Take Advantage of Enhanced Performance and Greater Efficiency

Historically, OEMs preferred to use metal, because conventional plastics couldn't match metal's strength and reliability. Today, plastics are increasingly popular.

Advancements in engineered thermoplastics are delivering metal-like performance in countless applications and enabling the fabrication of complex yet cost-effective components.

Here are six reasons why OEMs across industries are switching from metal to high-performance engineered thermoplastics.



1. Greater design capabilities

For thermoplastics parts, design complexity has little impact on the cost or production time. Plus, material engineers working with plastics can create custom blends to be tailored and validated for almost any application.

2. Reduced weight, not strength

From fuel efficiency to installation and maintenance, costs decrease when parts weigh less. Compared to metal, the same part made from plastic could weigh up to six times less. In addition, today's thermoplastic products can match metal in strength-to-weight and strength-to-stiffness tests.

3. Enhanced performance

Plastics excel in conditions where metal components fail due to galling, corrosion, or wear. High-performance plastics deliver excellent chemical resistance, lower friction, and increased lubricity. Today's engineered plastics can be blended or modified to enhance desirable mechanical properties, like increased tensile strength and abrasion resistance.

4. Improved reliability and efficiency in pump applications

Nonmetallic wear parts can achieve a clearance reduction of up to 50% over metal parts. Reducing ring clearance on a process pump produces efficiency gains of up to 4%, lowering power consumption and associated energy costs.

5. Faster production cycle

The plastic thermoforming and injection molding processes are less labor-intensive than metal fabrication. Also, unlike with metal parts production, the color and surface finish is completed during the molding process. OEMs benefit from greater efficiency and time savings.

6. Healthier bottom line

Cost savings is a key driver of the move from metals to plastics. Plastic components have a longer life cycle, and their lighter weight and tighter clearances increase efficiency and energy savings. When you add in a faster production cycle and lead times, the result is a better return on investment.



From prototype to production, OEMs have long appreciated the value of switching from metal to engineered thermoplastics. With custom blends that can be designed and tested to a specific application, and built to thrive in critical environments, plastics have emerged as the clear front-runner for superior performance.

Together We're Capable of Almost Anything

Drive greater efficiency and cost savings with high-performance thermoplastics.

Get Started



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About CDI Energy Products

CDI Energy Products is a Michelin Group Company headquartered in Humble, Texas with locations serving North America, Europe, and the Asia Pacific. We are a global leader in high-performance polymer products to the energy industry and beyond.

We service the oil and gas, liquid natural gas (LNG), cryogenics, wind and renewable energy, water management, fluid handling, automotive, aerospace and defense, medical and biomedical, refining and petrochemical, industrial processing, power generation, and semiconductor markets.

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