

# Powertrain



## Timing-Chain Tensioner Arms

### *OEM/Vehicle*

**General Motors Co.: HFV6 Engine**

### *System Supplier*

**Cloyes**

### *Material Processor*

**Mayfair Plastics**

### *Material Supplier*

**DSM Engineering Plastics**

### *Resin*

**Stanyl® TW241F10 Black PA 4/6**

### *Tooling/Equipment Supplier*

**Mayfair Plastics**



This application features the first thermoplastic timing tensioner arms, which replaced cast aluminum. The parts were designed to meet high-performance engine dynamics and sustain chain tensions up to 3,000 N. A heat-stabilized, 50% glass-reinforced grade of nylon 4/6 provides high strength and stiffness at 140C. It also offers extremely high fatigue resistance at elevated temperatures, extreme wear resistance at pivot and tensioner piston interfaces, long-term property retention in oil, impact strength, dimensional stability, and low CLTE, plus high knitline strength at the pivot. A separate unfilled nylon 4/6 wear surface is also used. The system provides 30% cost and 20% mass savings vs. previous metal designs, eliminates the need for a hardened-metal wear pin, eliminates 5 machining operations/part, provides tooling savings of \$200,000 USD/year, and is quieter.