HiDURA® MED

Unlocking performance in medical devices with PA66

Replacement for Metals, PC, and PPSU

As medical and pharmaceutical devices evolve, so do the demands on materials. Performance, compliance, cost, and sustainability are driving OEMs to rethink material choices. Nylon 6,6 (PA66), especially medical-grade variants like Hidura® MED, offers a compelling, future-ready replacement for metals, polycarbonate (PC), and polyphenylsulfone (PPSU).

Ascend's PA66 grades provide seamless integration into existing operations: designed for compatibility with current processes and engineered to minimize requalification needs, helping OEMs transition efficiently.

Why Material Choice Matters

Selecting materials is about more than function—it impacts longevity, compliance, manufacturability, and sustainability.

Advantages of PA66 in Medical Applications:

- High mechanical strength for load-bearing applications
- Excellent chemical and sterilization resistance
- Thermal stability at high temperatures
- Fatigue and creep resistance for long-term durability
- Reliable injection molding performance with fewer defects
- Available in bio-based grades via ISCC+ certified mass balance
- Designed for compatibility: minimizes requalification needs

Material Comparisons: Where PA66 Excels

Property	PA66	PC	PPSU	Metal/Glass
Mechanical Strength	High	Moderate	High	Very High
Chemical Resistance	Excellent	Moderate	High	Excellent
Sterilization Compatibility	Very Good	Limited	Excellent	Excellent
Density/Weight	Low	Moderate	Moderate	High
Cost	Moderate	Moderate	High	High
Moldability	Excellent	Good	Moderate	Poor
Sustainability (bio-based)	Available	Limited	Limited	N/A

ASCEND® PERFORMANCE MATERIALS

Application Case Studies

Case 1: Surgical Instrument Clamps
- Before: Stainless steel, heavy, corrosion risk, expensive machining
- After: 33% glass-filled PA66 -> lightweight, corrosion-free, sterilization-compatible, lower cost
- Outcome: Reduced manufacturing cost + improved ergonomics

Case 2: Diagnostic and Lab Equipment Housings
- Before: PC housings prone to chemical stress cracking
- After: PA66 housings with better chemical and sterilization resistance
- Outcome: Longer service life + fewer failures in harsh lab environments

Case 3: Disposable Medical Components
- Before: PPSU for high performance, but costly and over-engineered
- After: PA66 as a balanced alternative (strength + sterilization at lower cost)
- Outcome: Reduced cost per unit while meeting performance and compliance needs

Securing Supply and Sustainability

Until recently, PA66 availability for medical markets was limited. Ascend, as a vertically integrated producer, now ensures:
- Full regulatory traceability (ISO 10993, USP Class VI)
- Bio-based and antimicrobial options (Hidura MED and Acteev MED)
- Reliable global supply chain
- Designed for compatibility: minimizes requalification needs

Conclusion

Medical OEMs are under pressure to reduce costs, improve performance, and achieve sustainability goals. Ascend's PA66 portfolio provides:
- Stronger, lighter, more durable alternatives to metals, PC, and PPSU
- Certified, medical-grade consistency
- Sustainable, ISCC+ certified options
- Seamless integration into existing processes with minimized requalification needs

With Ascend's technical expertise and integrated supply chain, PA66 is not just an alternative. It's the mainstream enabler of the next generation of medical innovation.

To learn more about Ascend's medical-grade PA66 solutions for intermaterial replacement, contact us at ascendmaterials.com.