ABCorp3D

ABCORP 3D
MATERIALS GUIDE

www.abcorp.com/3d

Why Materials Matter at ABCorp 3D

For more than two centuries, ABCorp has been entrusted with producing secure, high-integrity products where failure is not an option.

Today, that legacy extends into Additive Manufacturing.

Materials are the backbone of part performance.
The right polymer determines durability, compliance, repeatability, and cost of use. Our team, comprised of engineers, material experts, and experienced technicians, helps customers select the optimal fit for their needs.

Our AM platform is built on production-scale HP Multi Jet Fusion technology, supported by secure workflows, repeatable processes, and material inventories engineered for speed, volume, and accuracy.

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OUR MATERIAL PORTFOLIO

Our additive platform combines secure, American manufacturing with HP's industry-leading polymers to deliver performance, speed, and scalability across defense, aerospace, MedTech, robotics, automotive, consumer products, and beyond.

STRONG, GENERAL-PURPOSE PRODUCTION POLYMERS

- **HP 3D HR PA12**
- **HP 3D HR PA12 - White**
- **HP 3D HR CB PA12 - Color**
- **HP 3D HR PA12 ESD**

HIGH-DUCTILITY & HIGH-IMPACT POLYMERS

- **HP 3D HR PA11**

CHEMICAL-RESISTANT, WELDABLE POLYMERS

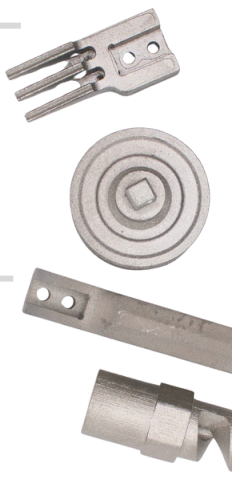
- **HP 3D HR PP (Polypropylene)**

FLEXIBLE, ELASTOMERIC POLYMERS

- **ForwardAM TPU01**

METALS FOR STRENGTH, HEAT, & STRUCTURAL PERFORMANCE

- **316L Stainless Steel**
- **17-4 PH Stainless Steel**



HP 3D HR PA12

Strong, precise, production-grade nylon for the lowest cost per part

Why Customers Choose PA12:

- High-density parts with balanced mechanical properties.
- Excellent chemical resistance to oils, greases, hydrocarbons, and alkalies.
- Ideal for complex assemblies, housings, enclosures, clips, and watertight designs.
- Biocompatible (USP Class I–VI; FDA guidance for intact skin).

Operational Advantages:

- Industry-leading material reusability (up to 80%).
- Low cost per part for both prototyping and production.
- Consistent performance across high-volume builds.
- Watertight without secondary processing.

HP 3D HR PA12 (White)

Bright-white engineering-grade nylon for functional parts

Why Customers Choose PA12, White:

- Strong, functional PA12 base material with excellent chemical resistance.
- Ideal for jigs, fixtures, labeling tools, presentation models, and coded prototypes.
- Up to 80% powder reusability.
- Added advantage of printing in bright-white.

Operational Advantages:

- Integrate white directly into the part. No painting or labeling.
- Produce white colored prototypes that match CAD intent.
- Create high-visibility aids for manufacturing, medical workflows, or training.

HP 3D HR CB PA12 (Color)

Full-color engineering-grade nylon for functional parts

Why Customers Choose PA12, Color:

- Strong, functional PA12 base material with excellent chemical resistance.
- Ideal for jigs, fixtures, labeling tools, presentation models, and coded prototypes.
- Up to 80% powder reusability.
- Added advantage of printing in full color.

Operational Advantages:

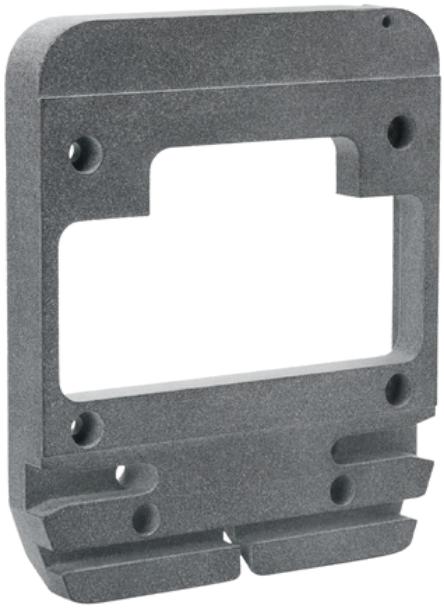
- Integrate color directly into the part. No painting or labeling.
- Produce multi-color prototypes that match CAD intent.
- Create high-visibility aids for manufacturing, medical workflows, or training.

HP 3D HR PA12 ESD (Electrostatic Dissipative)

High-performance PA12 with controlled static dissipation and a smooth, sealed finish

Why Customers Choose PA12 ESD:

- ESD-safe parts with controlled surface resistivity (10^5–10^{12} Ω/sq).
- Strong, durable PA12 base material for functional applications.
- Smooth, uniform finish with vapor smoothing.
- Ideal for housings, jigs, fixtures, and production-line components.



Operational Advantages:

- No special consumables, ESD mode enabled directly on HP 5600 printers.
- Vapor smoothing improves consistency and reduces variability.
- Reliable performance for electronics, manufacturing, and industrial environments.
- Supports complex geometries without coatings or secondary treatments.

HP 3D HR PA11

Ductile, bio-based polymer for impact-resistant, high-flexibility applications

Why Customers Choose PA11:

- Superior ductility and elongation at break.
- Enhanced impact resistance for durable, load-bearing parts.
- Ideal for prosthetics, insoles, sports gear, hinges, snap fits, and critical components.
- Biocompatible (USP Class I–VI; FDA intact skin guidance).

Operational Advantages:

- Made from renewable castor oil, resulting in reduced environmental impact.
- Up to 70% surplus powder reusability.
- Smooth processing and reliable dimensional accuracy.
- Engineered for final-part production, not just prototypes.

HP 3D HR PP (Polypropylene)

Chemical-resistant, low-moisture-absorption polymer

Why Customers Choose PP:

- True PP performance. Parts match traditional injection-molded PP.
- Low moisture absorption and excellent chemical resistance.
- Weldable with molded PP components.
- Ideal for piping, reservoirs, fluid systems, automotive, and consumer goods.

Operational Advantages:

- Lowest-cost material in the HP MJF portfolio.
- Up to 100% powder reusability.
- Smooth surface finish and consistent mechanical performance.

ForwardAM TPU01

Elastomeric for flexible, functional, high-detail lattice and cushioning components

Why Customers Choose TPU01:

- High throughput and excellent surface detail.
- Durable, flexible components suitable for repeated load cycles.
- Ideal for lattice structures and energy-return applications.

Operational Advantages:

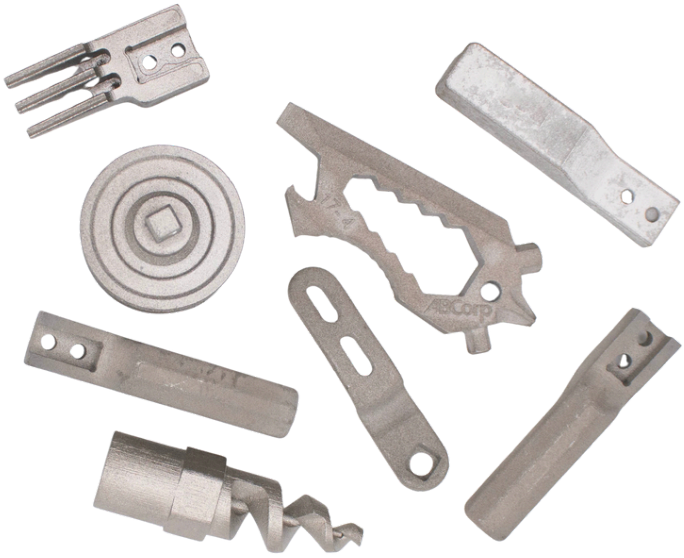
- Consistent, repeatable flexible performance across high-volume builds.
- Excellent powder flow and process stability, supporting reliable throughput.
- Enables complex lattice geometries without compromising dimensional accuracy.

316L Stainless Steel

Corrosion-resistant, medical-grade metal for high-strength components

Why Customers Choose 316L:

- Excellent corrosion resistance for harsh, wet, or chemically exposed environments.
- Consistent mechanical performance with high ductility and toughness.
- Ideal for medical devices, industrial tooling, brackets, manifolds, and more.
- Suitable for applications requiring hygiene, passivation stability, and durability.



Operational Advantages:

- Produces dense, fully fused metal parts with high dimensional accuracy.
- Supports complex geometries not possible with conventional machining.
- Reliable performance across large, repeatable production runs.
- Smooth surface finish post-processing options.
- Strong material choice for regulated environments and mission-critical components.

17-4 PH Stainless Steel

High-strength, hardened metal for demanding, load-bearing applications

Why Customers Choose 17-4 PH:

- Exceptional strength and hardness compared to standard stainless steels.
- High fatigue resistance for load-bearing, high-stress environments.
- Ideal for aerospace, defense, robotics, industrial machinery, and energy systems.
- Maintains mechanical performance across a wide operating temperature range.

Operational Advantages:

- Heat-treatable after printing to achieve tailored performance levels.
- Produces complex, high-strength geometries without tooling or long lead times.
- Highly repeatable results across production runs for critical applications.
- Supports tight tolerances and enhanced finishing options for precision components.

Your Partner in Secure, Scalable Additive Manufacturing

From production-grade polymers to engineering metals, each material we offer is selected to deliver quality, performance, repeatability, and speed.

Whether you're prototyping a new design, scaling into full production, or bridging the gap, our team is here to guide you toward the right material for your application and timeline.

Contact our team to discuss your project, request samples, or begin your next build.

• Quality Parts Start Here •

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