

MATERIALS BUYER'S GUIDE

Accelerate Your Business with 3D Printing Materials for Prototyping and Production Applications



Contents

- 03** Introduction
- 05** General Purpose
 - 06** Rubber-Like
 - 07** Prototyping Elastomer
 - 08** Rigid, Flexible
 - 10** Ultra-Tough Plastic
 - 11** Rigid Plastic
- 14** High-Temperature
- 16** Tough & Durable
 - 17** Tough
 - 18** Ceramic-Reinforced Composite
 - 19** High Performance Composite
 - 20** Nylon 11
 - 21** Nylon 12
 - 22** Aluminum-Filled Nylon 12
 - 23** Flame-Retardant
 - 24** Glass-Filled Nylon 12 Composite
 - 25** High Temperature Nylon 12
- 26** Transparent
 - 27** High Clarity Resin
 - 28** Clear, Multi-Purpose Resin
 - 29** Transparent Thermal Resistant Resin
- 30** Dental Materials
 - 31** Digital Dentistry
- 33** Biocompatible
 - 34** Biocompatible & Rigid Plastic
- 35** Full Color
 - 36** Full-Color Capable
- 37** Castable Materials
 - 38** Castable Wax
 - 39** Clear Castable Resins
 - 40** Castable Resins for Jewelry
 - 41** Jewelry Master Patterns & Prototypes
 - 42** General Purpose Castable Plastic
 - 42** Break-Away Plastic for Silicone Molding
 - 43** Styrene-Based Casting
- 44** Contact us
- 45** Appendix

Materials Buyer's Guide - Plastics

3D printing is developing fast. With ever-evolving technologies and materials, the range of addressable applications across industries has never been so varied or offered such huge opportunities. Outsourcing costs can be cut, iterations sped up, production and prototyping optimized. Thanks to innovations in 3D printing and materials development, entirely new business models are being unlocked.

Plastic printing materials are particularly versatile. A wide array of specialist engineering polymers, elastomers and composites are now available to deliver desirable parts in terms of flexibility, durability, stiffness, toughness, stability, clarity and look and feel.

And it doesn't stop there. Technical innovations in plastics offer bio-compatibility, temperature and water resistance among other sought-after qualities.

However, no one material can do everything. As the world of 3D printing expands and precision solutions emerge, there's an ever greater need to understand how materials and their associated printing technologies work.

This guide offers a general introduction to 3D printing plastics and their particular characteristics and applications. Transparent plastics, nylon, rigid and durable materials, high-temperature, composites, bio-compatible and more.

With ever-evolving technologies and materials, the range of addressable applications across industries has never been so varied or offered such huge opportunities.

Use this guide to help navigate through your material choices and help you decide which material is ideal for your project, whether it's concept modeling, functional testing, rapid tooling or direct 3D parts manufacturing.



Before diving in, it may be helpful to familiarize yourself with the available 3D printing processes for prototyping and production. Accordingly, below you will find a brief summary to help you navigate this technology and related terms.

STEREOLITHOGRAPHY (SLA) printing works by curing resin with light in a process called photopolymerization. It is one of the most accurate forms of 3D printing.

Closely related is **FIGURE 4**

TECHNOLOGY, which works with projection, rather than lasers.

Our **ENTRY-LEVEL INDUSTRIAL** printing is also a projection-based technology.

Particularly good for rapid prototyping and small runs of production parts, are additive manufacturing (AM) techniques like **SELECTIVE LASER SINTERING (SLS)**.

SLS uses lasers as a power source to sinter plastic powder, binding material to create a solid structure.

MULTIJET PRINTING (MJP) uses similar technology to inkjet printing, but deposits photo-curable resin or castable wax layer-by-layer to build up parts and molds with fine feature details.

COLORJET PRINTING (CJP) is an AM technology for full color parts and uses a two stage process with a core and a binder to create a full color three-dimensional model.

Finally, this guide will show you how particular materials and technologies can be used for prototyping with short runs and production with longer runs and more complex finishes.

For information on printer-material compatibility, please refer to the appendix at the end of this guide.

The Materials - How They're Organized



This guide takes a practical approach and groups plastic materials by their defining characteristic and conventional base of comparison.

Property and use categories include casting, composites, full-color, general purpose, tough and durable, high temperature, transparent, and biocompatible.

Different materials in each use category rely on different printing processes and can deliver different strengths and advantages for prototyping and production. There are also many materials that are suitable for both prototyping and production applications.

The adjacent icons are used throughout the guide to denote which applications they are suitable for.



PRODUCTION

Indicates materials compatible with production processes, including: direct parts production, indirect production, and production tools.



PROTOTYPING

Indicates materials compatible with prototyping, including concept and visualization models, functional prototypes, and test parts.



General Purpose





Rubber-Like

High tear strength, malleable parts



PRODUCTION



PROTOTYPING



SLS

DuraForm® TPU Elastomer
DuraForm® Flex

FIGURE 4

Figure 4® RUBBER-BLK 10
Figure 4® RUBBER-65A BLK

PROPERTIES:



Durable



Abrasion and tear resistance







Excellent detail and surface finish



Good recovery memory

GOOD FOR:

- Functional prototypes with rubber-like properties
 - Gaskets
 - Hoses
 - Seals
- Low to mid-volume direct manufacturing of end-use parts
- Strain-relief applications

	DuraForm® TPU Elastomer	A rubber-like thermoplastic elastomer for use on the sPro™ 60 HD-HS.
	DuraForm® Flex	A durable elastomer for use on the sPro™ 60 HD-HS.
	Figure 4® RUBBER-BLK 10	A malleable material with high tear strength for hard, rubber-like parts. For use with Figure 4 technology.
	Figure 4® RUBBER-65A BLK	A mid-tear strength, production-grade rubber combined with Shore 65A hardness and a high elongation at break.



Prototyping Elastomer

Design and prototyping elastomer



PROTOTYPING

MJP

VisiJet® M2E-BK70

VisiJet® M2 ENT

VisiJet® M2 EBK

VisiJet® CE-NT

VisiJet® CE-BK



PROPERTIES:



Rubber-like



Excellent compressive characteristics








High elongation

GOOD FOR:

- Design verification and testing of:
 - Overmolds
 - Weather stripping
 - Seals and gaskets
 - Grommets
 - Bumpers
 - Treads
 - Grips and handles
- Rubber-like and elastomeric products for industrial and consumer goods applications

Delivers best-in-industry elastomeric material performance to meet demanding engineering and design applications.

	VisiJet® M2E-BK70	A tough, black elastomer with a high Shore A hardness of 70 and excellent rebound after compression for use with the ProJet MJP 2500 Plus.
	VisiJet® M2 ENT	A translucent, natural color elastomeric material for use with the ProJet MJP 2500 Plus.
	VisiJet® M2 EBK	An opaque black material for use with the ProJet MJP 2500 Plus.
	VisiJet® CE-NT	A translucent, natural color elastomeric material for use with the ProJet MJP 5600 that can be used for life-like models of human anatomy and medical modeling.
	VisiJet® CE-BK	A high contrast, opaque black material for use with the ProJet MJP 5600.



Rigid, Flexible

Look and feel of polypropylene-molded parts



PRODUCTION



PROTOTYPING

SLA

Accura® 25

FIGURE 4

Figure 4® FLEX-BLK 10

Figure 4® FLEX-BLK 20



PROPERTIES:



Accurate






Durable and highly flexible



Excellent shape retention

GOOD FOR:

- Prototyping
- Functional testing
- Low-volume production
- Master patterns for RTV/silicone molding
- Snap-fit assemblies

	Accura® 25	A general purpose flexible plastic for use with 3D Systems' SLA printers.
	Figure 4® FLEX-BLK 10	A flexible and durable black material for use with Figure 4 technology.
	Figure 4® FLEX-BLK 20	A flexible, high impact, black material for use with Figure 4 technology.



Rigid, Flexible

Look and feel of polypropylene-molded parts



PRODUCTION



PROTOTYPING

SLA

Accura® PP White

MJP

Visijet® ProFlex (M2G-DUR)

PROPERTIES:



Tough



Flexible



Abrasion resistance

GOOD FOR:

- Prototyping
- Rapid tooling
- Snap-fit assemblies
- Living hinges
- Master patterns for vacuum casting

Simulate and replace CNC-machined polypropylene articles.

	Accura® PP White	A white material for use with 3D Systems ProX 800 and ProX® 950 machines.
	Visijet® ProFlex (M2G-DUR)	A rigid clear plastic for use with the Projet MJP 2500 Series.



Ultra-Tough Plastic

Look and feel of durable molded plastic



PRODUCTION



PROTOTYPING



PROPERTIES:



Accurate



Durable



Impact resistance



Thermal resistance



Moisture resistance

GOOD FOR:

- Rapid prototyping
- Functional assemblies
- Snap-fit components
- Consumer electronic components
- Drill/tap applications
- Master patterns for vacuum casting









SLA

Accura® AMX™ Rigid Black
 Accura® Xtreme
 Accura® Xtreme White 200

FIGURE 4

Figure 4® PRO-BLK 10
 Figure 4® Rigid White
 Figure 4® Rigid Gray
 Figure 4® Tough 60C White
 Figure 4® Tough 65C Black

Replaces injection molding and other tooling processes.

	Accura® AMX™ Rigid Black	A production-grade black resin engineered for long-term use plastic parts requiring a good balance of heat deflection temperature, flexural modulus, and elongation at break.
	Accura® Xtreme	A gray plastic for use with 3D Systems' SLA printers.
	Accura® Xtreme White 200	A white plastic for use with 3D Systems' SLA printers.
	Figure 4® PRO-BLK 10	A versatile black plastic for use with Figure 4 technology. This material offers industry-leading environmental stability for direct production parts.
	Figure 4® Rigid White	An opaque rigid white production-grade plastic for same-day parts. This biocompatible-capable material provides a smooth surface finish, long-term environmental stability, and long-lasting, clean white color.
	Figure 4® Rigid Gray	A high contrast gray production-grade plastic for long-term use parts with balanced thermal and mechanical properties.
	Figure 4® Tough 60C White	A white plastic for long-term use parts with a good combination of impact strength, elongation and tensile strength.
	Figure 4® Tough 65C Black	A black plastic for long-term use parts with a good combination of impact strength, elongation and tensile strength.



Rigid Plastic

Look and feel of injection molded plastic



PROTOTYPING



MJP

VisiJet® M2R-BK

VisiJet® M2R-CL

VisiJet® M2R-GRY

VisiJet® M2R-TN

VisiJet® M2R-WT

VisiJet® M2S-HT90

VisiJet® M2S-HT250

PROPERTIES:



Rigid










Durable



Smooth surface finish

GOOD FOR:

- Rapid prototyping
- Rapid tooling
 - Applications requiring high temperature resistance
- Certain medical applications (see annotations regarding USP Class VI capability below)

	VisiJet® M2R-BK	An opaque black plastic for use with the ProJet MJP 2500 Series. This material is ideal for panels and thin-walled parts and offers moderate to high temperature resistance.
	VisiJet® M2R-CL	A clear rigid plastic with moderate flex for use with the ProJet MJP 2500 Plus. This material is Class VI capable for use in certain medical applications.
	VisiJet® M2R-GRY	A high contrast gray plastic for use with the ProJet MJP 2500 Plus. This material is Class VI capable for use in certain medical applications.
	VisiJet® M2R-TN	An opaque tan plastic for use with the ProJet MJP 2500 Plus. This material is ideal for applications at high temperature requiring rigidity and details visualization.
	VisiJet® M2R-WT	A rigid, opaque white plastic with moderate flex for use with the ProJet MJP 2500 Series. This material is Class VI capable for use in certain medical applications.
	VisiJet® M2S-HT90	A strong and transparent rigid material for use with the ProJet MJP 2500 Plus for applications requiring temperature resistance up to 90°C and/or biocompatibility.
	VisiJet® M2S-HT250	A strong, rigid material with best-in-class heat deflection temperature of 250°C for functional testing in high heat environments. Available for the ProJet MJP 2500 Plus, this material is Class VI capable for use in certain medical applications.



Rigid Plastic

Look and feel of injection molded plastic









PROTOTYPING



MJP

- Visijet® M3 Black
- Visijet® M3 Crystal
- Visijet® M3 Navy
- Visijet® M3 Proplast
- Visijet® M3 Techplast
- Visijet® M3-X

	Visijet® M3 Black	A black plastic with high elongation for use with the ProJet MJP 3600 Series.
	Visijet® M3 Crystal	A transparent plastic for use with the ProJet MJP 3600 Series. This material is Class VI capable for use in certain medical applications.
	Visijet® M3 Navy	A blue plastic for use with the ProJet MJP 3600 Series.
	Visijet® M3 Proplast	A natural color plastic for use with the ProJet MJP 3600 Series.
	Visijet® M3 Techplast	A gray plastic for use with the ProJet MJP 3600 Series.
	Visijet® M3-X	An opaque white plastic for use with the ProJet MJP 3600 Series. This material offers thermal resistance with the look, feel, and performance of injection molded plastic.



Rigid Plastic

Look and feel of injection molded plastic



PROTOTYPING



MJP

VisiJet® CR-BK

VisiJet® CR-CL 200

VisiJet® CR-WT 200

FIGURE 4






Figure 4® HI TEMP 300-AMB

Figure 4® TOUGH-BLK 20

SEE ALSO:

17 | Figure 4® TOUGH GRY 10
(Figure 4 Tough)

17 | Figure 4® TOUGH GRY 15
(Figure 4 Tough)

	VisiJet® CR-BK	An opaque black plastic for use with the ProJet MJP 5600 Series.
	VisiJet® CR-CL 200	A transparent plastic for use with the ProJet MJP 5600 Series. The clear finish of this material can be enhanced with clear coating. Class VI capable for use in certain medical applications.
	VisiJet® CR-WT 200	An opaque white plastic for use with the ProJet MJP 5600 Series. This material is Class VI capable for use in certain medical applications.
	Figure 4® HI TEMP 300-AMB	A very rigid amber plastic for use with Figure 4 technology. This material produces thermally stable parts with high temperature resistance.
	Figure 4® TOUGH-BLK 20	A functional high performance prototyping material with exceptional surface finish, durability and industry-leading long-term environmental stability.



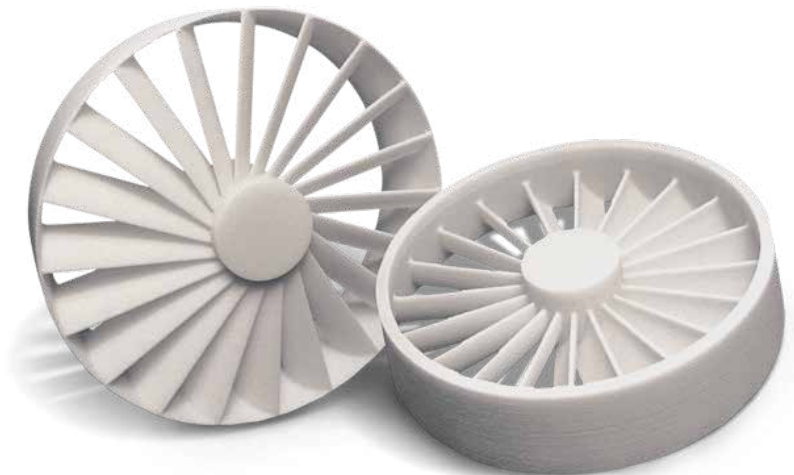
High Temperature





For High Temperature Materials, Please Refer to the Following Listings:

- 11 | **VisiJet® M2S-HT90**
(MJP Rigid Plastic)
- 11 | **VisiJet® M2S-HT250**
(MJP Rigid Plastic)
- 12 | **VisiJet® M3-X**
(MJP Rigid Plastic General Purpose)
- 13 | **Figure 4® HI TEMP 300-AMB**
(Figure 4 Rigid Plastic General Purpose)
- 18 | **Accura® PEAK**
(SLA Ceramic-Reinforced Composite)
- 23 | **Figure 4® Figure 4® 150C FR Black**
(Figure 4 Flame-Retardant)
- 25 | **DuraForm® HST Composite**
(SLS Fiber-reinforced Engineering Plastic)
- 25 | **DuraForm® ProX® HST Composite**
(SLS Fiber-reinforced Engineering Plastic)
- 29 | **Accura® 48HTR**
(SLA Transparent Thermal Resistant)
- 29 | **Accura® Phoenix**
(SLA Transparent Thermal Resistant)
- 29 | **Accura® SL 5530**
(SLA Transparent Thermal Resistant)
- 34 | **Figure 4® MED-AMB 10**
(Rigid, Translucent Amber Biocompatible Material)
- 34 | **Figure 4® MED-WHT 10**
(Rigid White Biocompatible Material)





Tough & Durable





Tough

Tough, accurate, functional parts



PRODUCTION



PROTOTYPING



PROPERTIES:



Rigid



Tough

GOOD FOR:

- Design verification
- Functional prototyping
- Durable assemblies and snap-fits
- Short-run production
- Master patterns for RTV molding

SLA

Accura® 55

Accura® ABS White

Accura® ABS Black

MJP

Visijet® Armor (M2G-CL)

FIGURE 4

Figure 4® TOUGH-GRY 10







Figure 4® TOUGH-GRY 15

SEE ALSO:

10 | Figure 4® PRO BLK 10
(Figure 4 Ultra-Tough Plastic)

10 | Figure 4® Rigid White
(Figure 4 Ultra-Tough Plastic)

Simulate and replace CNC-machined and injection-molded ABS articles.

	Accura® 55	A white material compatible with 3D Systems ProX 800 and ProX 950 machines.
	Accura® ABS White	A white material that does not require painting and is compatible with 3D Systems' ProX 800 and ProX 950 machines.
	Accura® ABS Black	A black material that does not require painting and is compatible with 3D Systems' SLA machines.
	Visijet® Armor (M2G-CL)	A transparent material for use with the ProJet MJP 2500 Series.
	Figure 4® TOUGH GRY 10	A high contrast gray material for use with Figure 4 technology. This material is capable of print speeds up to 100 mm/hr and offers 25% elongation at break.
	Figure 4® TOUGH GRY 15	A high contrast gray material for use with Figure 4 technology. This material offers 35% elongation at break.



Ceramic-Reinforced Composite

High temperature, rigid parts



PRODUCTION



PROTOTYPING

SLA

Accura® PEAK

PROPERTIES:



Thermal resistance



Moisture resistance



Abrasion resistance



Ceramic-like

GOOD FOR:

- Ceramic-like components
- Jigs, fixtures, and tools
- Wind tunnel models
- Master patterns
- Water and fluid-handling components

Great for composite-like prototypes and assemblies.



Accura® PEAK

Compatible with the ProX 800 and ProX 950.



High Performance Composite

Stable, high stiffness parts



PRODUCTION



PROTOTYPING

SLA

Accura® Composite PIV

Accura® HPC

Accura® Bluestone™

PROPERTIES:



Thermal resistance






Exceptional stiffness/rigidity



Abrasion resistance

GOOD FOR:

- Wind tunnel models
- Under-the-hood automotive parts
- Electrical connectors, adaptor fittings, bases, and sockets
- Jigs, fixtures and tools

	Accura® Composite PIV	Rigid material with high contrast, color optimized for PIV wind tunnel testing to reduce preparation time and improve aerodynamic test performance.
	Accura® HPC	A white nano-composite material for use with the ProX 800. This material offers high production speeds.
	Accura® Bluestone™	A blue nano-composite material for use with the ProX 800. This material offers the highest stiffness available, as well as excellent chemical resistance.



Nylon 11

Impact and fatigue resistant



PRODUCTION



PROTOTYPING

SLS

DuraForm® EX Natural

DuraForm® ProX® EX NAT

DuraForm® EX Black

DuraForm® ProX® EX BLK

PROPERTIES:



Tough and durable



High elongation







High impact strength

GOOD FOR:

- Snap-fits
- Living hinges
- Connectors
- Ducting
- Jigs, fixtures, and tools

Tough enough to replace injection molded ABS and polypropylene. Available in black and natural colors.

	DuraForm® EX Black	No painting required for a deep black color that does not fade or chip
	DuraForm® ProX® EX BLK	
	DuraForm® EX Natural	Natural color ready for dyeing
	DuraForm® ProX® EX NAT	



Nylon 12

Durable thermoplastic



PRODUCTION



PROTOTYPING

SLS

DuraForm® PA

DuraForm® ProX® PA

PROPERTIES:



Tough and durable



Chemical resistance





Low moisture absorption



Class VI capable

GOOD FOR:

- Functional prototypes
- Low- to mid-volume production
- Housings and enclosures
- Jigs, fixtures, and tools
- Certain medical applications

 <p>DuraForm® PA</p>	<p>Highly versatile polyamide material.</p>
 <p>DuraForm® ProX® PA</p>	<p>Machinable and paintable for demonstration parts.</p>



Aluminum-Filled Nylon 12

Excellent surface finish and consistent mechanical properties



PRODUCTION



SLS

DuraForm® ProX® AF+

PROPERTIES:



Metallic surface finish



High stiffness

GOOD FOR:

- Functional prototyping and low volume production parts for:
 - Automotive
 - Aerospace
 - Consumer goods
- Housings and enclosures
- Snap-fits and complex assemblies
- Connectors



Flame-Retardant

Excellent for direct production in aerospace applications



PRODUCTION



SLS







DuraForm® FR1200

DuraForm® ProX® FR1200

FIGURE 4

Figure 4® 150C FR Black



PROPERTIES:

-  Non-halogenated
-  Flame-retardant
-  Excellent surface finish
-  FAR 25.853 compliant
-  Passes AITM guidelines for smoke density and toxicity
-  Tough and durable

GOOD FOR:

- Aircraft interior parts
- Consumer goods and electronics
- Components requiring flame retardancy

Delivers highly accurate flame-retardant parts with excellent surface quality for aerospace, transportation, and consumer goods applications. Enables direct 3D production in aerospace to accelerate part delivery and reduce downtime.

	DuraForm® FR1200	A flame-retardant nylon 12 material with high accuracy and excellent surface finish. Compatible with the sPro 60 HD-HS.
	DuraForm® ProX® FR1200	A flame-retardant nylon 12 material with high accuracy and excellent surface finish. Compatible with the ProX SLS 6100.
	Figure 4® 150C FR Black	UL94 V0 rated flame-retardant black plastic with >150°C heat deflection temperature.



Glass-Filled Nylon 12 Composite

High stiffness engineering plastic



PRODUCTION



SLS

DuraForm® GF

DuraForm® ProX® GF

PROPERTIES:



Thermal resistance



Fuel and oil resistance




Best-in-class rigidity and stiffness

GOOD FOR:

- Low to mid-volume production parts
- Aircraft, motorsports and sporting goods parts

Replaces molded and CNC-machined glass and mineral-filled plastic articles for short-run production.

	DuraForm® GF	Compatible with sPro SLS machines.
	DuraForm® ProX® GF	Compatible with the ProX SLS 6100.

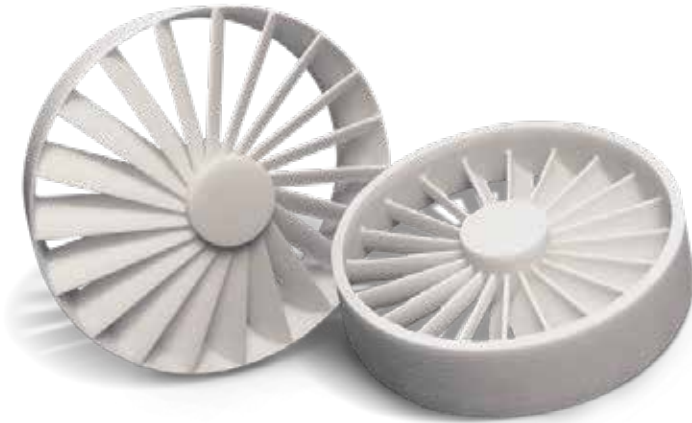


High Temperature Nylon 12

Stiff, fiber-reinforced engineering plastic



PRODUCTION



SLS

DuraForm® HST Composite

DuraForm® ProX® HST Composite

PROPERTIES:



Rigid



Non-conductive



RF transparent





High temperature resistance

GOOD FOR:

- Low to mid-volume direct manufacturing of end-use parts
- Enclosures and housings that require elevated stiffness
- Aircraft and motorsports parts
- Sporting goods

Excellent for testing and use in rugged environments.

	DuraForm® HST Composite	Compatible with sPro SLS machines.
	DuraForm® ProX® HST Composite	Compatible with the ProX SLS 6100.



Transparent

(Excludes clear casting materials, found in the Castable Materials section on page 39)

High Clarity Resin

High rigidity clear plastic



PRODUCTION



PROTOTYPING

SLA

Accura® ClearVue™

Accura® ClearVue™ Free

PROPERTIES:



Polycarbonate-like



Transparent





Excellent humidity/moisture resistance

GOOD FOR:

- Rapid prototyping
 - Headlamps
 - Lenses
- Visualization models
- Snap-fit assemblies
- Certain medical models and devices

Exceptional clarity plastic for a wide range of applications.

	Accura® ClearVue™	A transparent material for use with 3D Systems' SLA machines.
	Accura® ClearVue™ Free	A transparent antimony-free material for use with 3D Systems' ProX 800 and ProX 950 machines.

SEE ALSO:

- 12 | **VisiJet® M2R-CL**
(MJP Rigid Plastic)
- 13 | **VisiJet® M3 Crystal**
(MJP Rigid Plastic)
- 14 | **VisiJet® CR-CL 200**
(MJP Rigid Plastic)
- 18 | **VisiJet® Armor (M2G-CL)**
(MJP Tough Plastic)
- 27 | **VisiJet® ProFlex (M2G-DUR)**
(MJP Rigid Clear Plastic)
- 38 | **Accura® CastPro**
(SLA Clear Castable Resins)
- 39 | **Accura® Fidelity™**
(SLA Clear Castable Resins)

Clear, Multi-Purpose Resin

Stable, accurate parts with aesthetics of molded polycarbonate



PRODUCTION



PROTOTYPING



SLA

Accura® 60

PROPERTIES:



Clear and transparent



Rigid and strong

GOOD FOR:

- Tough, functional prototypes
- Transparent assemblies
- Investment casting patterns
- Clear display and visualization models
 - Lighting components (lenses, etc.)
 - Headlamps
 - Bottles

Good general-purpose material with aesthetics of polycarbonate; suitable for investment casting applications.

Transparent Thermal Resistant Resin

High temperature, moisture-resistant parts



PROPERTIES:



Thermal resistance






Clear and transparent

GOOD FOR:

- Under-the-hood component testing
- Hot fluid flow
- Transparent assembly

Material transparency allows for visualization of internal structures in assemblies.

	Accura® 48HTR	A rigid and stiff transparent plastic for applications requiring high-heat resistance.
	Accura® Phoenix	Antimony-free material offering heat resistance over 130°C/270°F with exceptional clarity and moderate stiffness and rigidity.
	Accura® SL 5530	A polycarbonate-like material that is resistant to humidity, water and solvents.



PRODUCTION



PROTOTYPING

SLA

Accura® 48HTR

Accura® Phoenix

Accura® SL 5530

SEE ALSO:

- 11 | **VisiJet® M2S-HT90**
(MJP Rigid Plastic)
- 11 | **VisiJet® M2S-HT250**
(MJP Rigid Plastic)
- 13 | **VisiJet® M3-X**
(MJP Rigid Plastic)
- 20 | **Accura® PEAK**
(SLA Ceramic-Reinforced Composite)
- 25 | **DuraForm® HST Composite**
(SLS Fiber-Reinforced Plastic)
- 25 | **DuraForm® ProX® HST Composite**
(SLS Fiber-Reinforced Plastic)
- 27 | **Accura® ClearVue**
(SLA High Clarity Resin)



Dental Materials





Digital Dentistry

NextDent dental materials for 3D printing



The NextDent portfolio - for both medical and non-medical devices - is suitable for a wide range of applications.

Exceptional quality, throughput and effectiveness. Applications vary by material.



PRODUCTION



PROTOTYPING

NEXTDENT 5100 WITH FIGURE 4 TECHNOLOGY

NextDent® Denture 3D+

NextDent® Cast

NextDent® Gingiva Mask

NextDent® Tray

NextDent® Model 2.0

NextDent® Ortho Rigid

NextDent® Ortho IBT

NextDent® C&B MFH

NextDent® Try-In

NextDent® SG

NextDent® Model 2.0
(Peach and White)

NextDent® Ortho Flex

NextDent® Ortho Rigid

NextDent® SG

*Only available through authorized
NextDent by 3D Systems partners*

	NextDent® Denture 3D+	3D print resin for the manufacturing of removable denture bases. Available in 5 new colors: Dark Pink, Light Pink, Opaque Pink, Red Pink and Translucent Pink.
	NextDent® Cast	3D print resin for the manufacturing of castable parts. Available in color Purple.
	NextDent® Gingiva Mask	3D print resin for the manufacturing of gingiva masks on dental models. Available in color Pink.
	NextDent® Tray	3D print resin for the manufacturing of individual impression trays. Available in colors Blue and Pink.
	NextDent® Model 2.0	3D print resin for the manufacturing of prosthodontic and orthodontic models. Available in colors Peach, White and Grey.
	NextDent® Ortho Flex	3D print resin for the manufacturing of splints and retainers. Available in Clear.
	NextDent® Ortho Rigid	3D print resin for the manufacturing of dental splints. Available in Transparent Blue..
	NextDent® Ortho IBT	3D print resin for the manufacturing of Indirect Bonding Trays. Available in Clear.
	NextDent® C&B MFH	Micro Filled Hybrid 3D print resin for the manufacturing of long-term temporaries. Available in colors BL, N1, N1.5, N2, N2.5, and N3.
	NextDent® Try-In	3D print resin for the manufacturing of try-in devices. Available in colors TI0, TI1, TI2.
	NextDent® SG	3D print resin for the manufacturing of dental surgical guides. Available in color Translucent Orange.

06/2021



Digital Dentistry

High-accuracy plastic



PRODUCTION



PROTOTYPING



MJP

Visijet® M3 Stoneplast

Visijet® M3 Pearlstone

Visijet® M3 Dentcast

GOOD FOR:

- Dental models
- Dental restorations

SEE ALSO:

12 | Visijet® M2R-TN
(MJP Rigid Plastic)

27 | Accura® ClearVue™
(SLA High Clarity Resin)

Exceptional quality, throughput and effectiveness. Applications vary by material.

	<p>Visijet® M3 Stoneplast</p> <p>A translucent rigid plastic for use on the ProJet MJP 3600 Dental. This material is Class VI capable for use in certain medical applications.</p>
	<p>Visijet® M3 Pearlstone</p> <p>A rigid plastic with a stone-like finish for use on the ProJet MJP 3600 Dental</p>
	<p>Visijet® M3 Dentcast</p> <p>A dark green, castable rigid plastic for use on the ProJet MJP 3600 Dental.</p>



Biocompatible

USP Class VI capable and/or ISO 10993 capable





Biocompatible & Rigid Plastic

Suitable for medical and industrial applications



PROPERTIES:



Rigid



Thermal resistance



Humidity/Moisture resistance





High accuracy

GOOD FOR:

- Medical applications, including:
 - Surgical drill guides
 - Splints
 - Anatomical or bone models
- High temperature applications

Excellent feature resolution and high definition parts for medical and industrial applications. Can be sterilized and tested at high temperatures.

	Figure 4® MED-AMB 10	A rigid, translucent amber material for use with Figure 4 technology.
	Figure 4® MED-WHT 10	A rigid, white material for use with Figure 4 Standalone.

Biocompatibility is based on testing by an independent lab on a single geometry and sample set per USP Class VI and/or ISO 10993. Users should confirm fitness for use and biocompatibility for their applications.



PRODUCTION



PROTOTYPING

FIGURE 4

Figure 4® MED-AMB 10

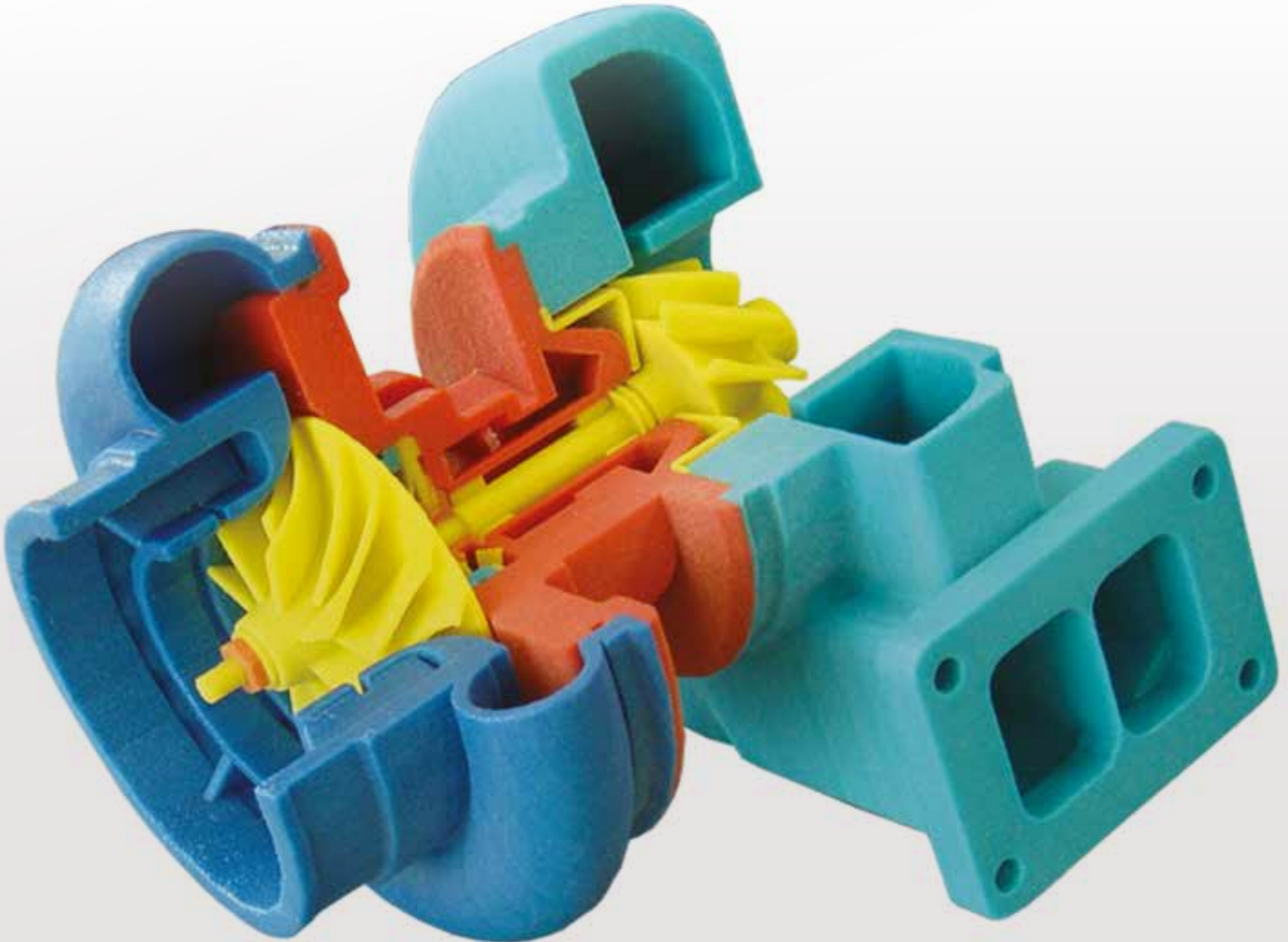
Figure 4® MED-WHT 10

SEE ALSO:

- 06 | **Figure 4® RUBBER-BLK 10 & RUBBER-65A BLK**
(Rubber-Like)
- 07 | **VisiJet® M2E-BK70**
(MJP Rubber-Like)
- 10 | **Figure 4® PRO-BLK 10, Rigid White, Rigid Gray, Tough 60C White, Tough 65C Black**
(Ultra-Tough Plastic)
- 11 | **VisiJet® M2S-HT90 & M2S-HT250**
(MJP Rigid Plastic)
- 12 | **VisiJet® M3 Crystal**
(MJP Rigid Plastic)
- 13 | **VisiJet® CR-BK, CR-CL 200 & CR-WT 200**
(MJP Rigid Plastic)
- 17 | **Accura® ABS White (SL 7810)**
(SLA Rigid Plastic)
- 21 | **DuraForm® PA & ProX® PA**
(SLS Nylon 12)
- 27 | **Accura® ClearVue™ & SL Y-C 9300**
(SLA High Clarity Resin)
- 27 | **VisiJet® M2R-CL**
(MJP Rigid Plastic)
- 32 | **VisiJet® M2R-TN**
(MJP Rigid Plastic)
- 34 | **VisiJet® M2R-WT & M2R-GRY**
(MJP Rigid Plastic)



Full-Color





Full-Color Capable

High definition CMYK parts



PROTOTYPING



CJP

VisiJet® PXL

PROPERTIES:



Monochrome to full
CMYK capable

GOOD FOR:

- Photo-realistic parts and
concept models

Compatible with a range of finishing options from ColorBond infiltration for stronger prototypes, to wax for creating concept models quickly and affordably.



Castable Materials





Castable Wax

100% wax for repeatable casting patterns fitting seamlessly into existing foundry workflows



PRODUCTION



PROTOTYPING



MJP

VisiJet® M2 ICast

VisiJet® M2 CAST

VisiJet® M3 CAST

VisiJet® M3 Hi-Cast

VisiJet® Wax Jewel Red

PROPERTIES:



High resolution



High contrast color








100% wax

GOOD FOR:

- Metal casting

Delivers durable, high quality patterns for reliable performance and results throughout existing lost-wax casting process and equipment.

	VisiJet® M2 ICast	A paraffin-based wax for the ProJet MJP 2500 IC printer; ideally suited for small- to medium-sized industrial component casting patterns.
	VisiJet® Wax Jewel Red	Durable and flexible, high contrast brilliant red 100% wax for intricate jewelry casting patterns on the ProJet MJP 2500W.
	VisiJet® M2 CAST	A high contrast, deep purple wax material for sharp edges and smooth surfaces jewelry casting patterns on the ProJet MJP 2500W.
	VisiJet® M3 CAST	A high contrast deep purple color for precision jewelry and metal casting on the ProJet MJP 3600W.
	VisiJet® M3 Hi-Cast	A high contrast dark blue color for precision jewelry and metal casting on the ProJet MJP 3600W.



Clear Castable Resins

Stable medium to extra-large lightweight QuickCast casting patterns



PRODUCTION



PROTOTYPING



SLA

Accura® CastPro™

Accura® Fidelity™

PROPERTIES:



Excellent humidity/
moisture resistance



Transparent



Stable

GOOD FOR:

- QuickCast patterns for prototype and production parts
- A range of castings, including titanium, aluminum, magnesium, zinc, plaster and ferrous metals

SEE ALSO:

27 | Accura® ClearVue™
(SLA Clear, Rigid Plastic)

28 | Accura® 60
(SLA Clear, Multi-Purpose Resin)

Accurate and durable clear resin materials for 3D printing QuickCast investment casting patterns. Parts retain dimensions, and platform size of SLA build platforms enables large part casting. Easy post-curing and fast part finishing.

	<p>Accura® Fidelity™</p> <p>An ultra-low viscosity (117 cps at 30°C), antimony-free resin for high yield investment casting QuickCast patterns.</p>
	<p>Accura® CastPro™</p> <p>A highly accurate material for stable, high quality investment casting patterns using QuickCast build style.</p>



Castable Resins for Jewelry

High resolution metal casting



PRODUCTION



PROTOTYPING



SLA

Accura® Amethyst

Accura® Sapphire

FIGURE 4

Figure 4® JCAST-GRN 10

PROPERTIES:



High contrast color



Minimal ash and residue





Accurate

GOOD FOR:


- Jewelry manufacturing
- Direct metal casting
- Master pattern production

These castable resins produce accurate, reproducible, and highly detailed master patterns for jewelry casting. These high contrast materials cast with minimal ash and residue for high quality jewelry pieces.

Compatible with high temperature rubber molding operations; material is also suitable for design testing and presentation with stunning high contrast, painted or plated models.

	Accura® Sapphire	A high contrast deep blue color for use with 3D Systems' Projet SLA printers.
	Figure 4® JCAST-GRN 10	A high contrast green color for use with Figure 4 technology.

Only available with legacy SLA printers:

	Accura® Amethyst	A high contrast purple color for use with Viper SLA systems.
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Jewelry Master Patterns & Prototypes

Versatile high contrast gray resin



PRODUCTION



PROTOTYPING

FIGURE 4

Figure 4® JEWEL MASTER GRY

PROPERTIES:



High heat deflection temperature (up to 300 °C) compatible with a range of silicones



Stunning surface finish and excellent print quality available in 30 µm and 50 µm build styles



High contrast gray color shows fine details



Meets biocompatibility standard ISO 10933-5 for cytotoxicity

GOOD FOR:

- High definition master patterns for silicone and RTV molds
- Extended try-ons and fit tests
- Snap-fit and stone-in-place testing
- Design and functional prototyping



General Purpose Castable Plastic

High resolution for small and delicate feature details



PRODUCTION



PROTOTYPING

MJP

Visijet® M3 Procast

PROPERTIES:



High contrast dark blue color



Rigid

GOOD FOR:

- Delicate jewelry pieces
- Medical instruments and devices
- Custom metal applications

Break-Away Plastic for Silicone Molding

Rigid plastic compatible with all durometer silicones



PRODUCTION



PROTOTYPING

FIGURE 4

Figure 4® EGGHELL-AMB 10

PROPERTIES:



Withstands high temperature and pressure of silicone injection



Designed to shatter easily after filled and cooled

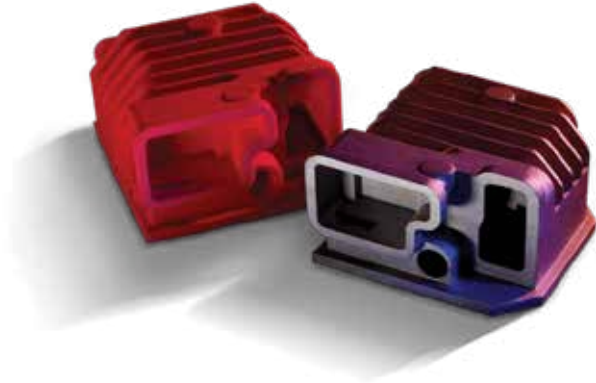
GOOD FOR:

- Silicone castings
- Customized end-use silicone parts
- Low-volume production of silicone parts



Styrene-Based Casting

Expendable material compatible with standard foundry processes



GOOD FOR:

- Prototype castings
- Low to medium production runs
- A range of castings, including titanium, aluminum, magnesium, zinc, plaster, and ferrous metals

Prototype and production casting without tooling.
Short burnout cycle.



PRODUCTION



PROTOTYPING

SLS

CastForm® PS

What's Next?

Our materials scientists are constantly working to grow the capabilities of additive manufacturing through the development of more material options. Stay tuned for updates to this guide as we continue to expand our materials selection to enable your innovation.

Talk to one of our experts about your specific application and what material/technology is best for your needs.

[CONTACT US](#)

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Appendix

CJP	
Material	Certified Printers
VisiJet® PXL	ProJet® CJP 660Pro, ProJet® CJP 860Pro
DENTAL	
Material	Certified Printers
NextDent Cast	NextDent 5100
NextDent C&B MFH	NextDent 5100
NextDent Denture 3D+	NextDent 5100
NextDent Gingiva Mask	NextDent 5100
NextDent Model 2.0	NextDent 5100
NextDent Ortho Flex	NextDent 5100
NextDent Ortho IBT	NextDent 5100
NextDent Ortho Rigid	NextDent 5100
NextDent SG	NextDent 5100
NextDent Tray	NextDent 5100
NextDent Try-In	NextDent 5100
VisiJet® M3 Dentcast	ProJet® MJP 3600 Dental
VisiJet® M3 Pearlstone	ProJet® MJP 3600 Dental
VisiJet® M3 Stoneplast	ProJet® MJP 3600 Dental
VisiJet® M2R-TN	ProJet® MJP 2500 Plus
FIGURE 4	
Material	Certified Printers
Figure 4® EGGHELL-AMB 10	Figure 4® Modular, Figure 4® Standalone
Figure 4® FLEX-BLK 10	Figure 4® Modular, Figure 4® Standalone, Figure 4® Production
Figure 4® FLEX-BLK 20	Figure 4® Modular, Figure 4® Standalone, Figure 4® Production
Figure 4® HI TEMP 300-AMB	Figure 4® Modular, Figure 4® Standalone
Figure 4® High Temp 150°C FR Black	Figure 4® Modular, Figure 4® Standalone
Figure 4® JCAST-GRN 10	Figure 4® Standalone, Figure 4® Production, Figure 4® Jewelry
Figure 4® JEWEL MASTER GRY	Figure 4® Jewelry, Figure 4® Standalone
Figure 4® MED-AMB 10	Figure 4® Modular, Figure 4® Standalone, Figure 4® Production
Figure 4® MED-WHT 10	Figure 4® Standalone
Figure 4® PRO-BLK 10	Figure 4® Modular, Figure 4® Standalone, Figure 4® Production
Figure 4® Rigid Gray	Figure 4® Modular, Figure 4® Standalone, Figure 4® Production
Figure 4® Rigid White	Figure 4® Modular, Figure 4® Standalone, Figure 4® Production
Figure 4® RUBBER-65A BLK	Figure 4® Modular, Figure 4® Standalone, Figure 4® Production
Figure 4® RUBBER-BLK 10	Figure 4® Modular, Figure 4® Standalone, Figure 4® Production
Figure 4® Tough 60C White	Figure 4® Modular, Figure 4® Standalone, Figure 4® Production
Figure 4® Tough 65C Black	Figure 4® Modular, Figure 4® Standalone, Figure 4® Production

Appendix

Figure 4® TOUGH-BLK 20	Figure 4® Modular, Figure 4® Standalone, Figure 4® Production
Figure 4® TOUGH-GRY 10	Figure 4® Modular, Figure 4® Standalone, Figure 4® Production
Figure 4® TOUGH-GRY 15	Figure 4® Modular, Figure 4® Standalone, Figure 4® Production
MJP	
Material	Certified Printers
VisiJet® Armor (M2G-CL)	ProJet® MJP 2500 Plus
VisiJet® CE-BK	ProJet® MJP 5600
VisiJet® CE-NT	ProJet® MJP 5600
VisiJet® CR-BK	ProJet® MJP 5600
VisiJet® CR-CL 200	ProJet® MJP 5600
VisiJet® CR-WT 200	ProJet® MJP 5600
VisiJet® M2 CAST	ProJet® MJP 2500W
VisiJet® M2 ICast	ProJet® MJP 2500 IC
VisiJet® M2E-BK70	ProJet® MJP 2500 Plus
VisiJet® M2 EBK	ProJet® MJP 2500 Plus
VisiJet® M2 ENT	ProJet® MJP 2500 Plus
VisiJet® M2R-BK	ProJet® MJP 2500, ProJet® MJP 2500 Plus
VisiJet® M2R-CL	ProJet® MJP 2500 Plus
VisiJet® M2R-GRY	ProJet® MJP 2500 Plus
VisiJet® M2R-TN	ProJet® MJP 2500 Plus
VisiJet® M2S-HT90	ProJet® MJP 2500 Plus
VisiJet® M2S-HT250	ProJet® MJP 2500 Plus
VisiJet® M2R-WT	ProJet® MJP 2500, ProJet® MJP 2500 Plus
VisiJet® M3 Black	ProJet® MJP 3600 Series
VisiJet® M3 CAST	ProJet® MJP 3600W
VisiJet® M3 Crystal	ProJet® MJP 3600 Series
VisiJet® M3 Hi-Cast	ProJet® MJP 3600W
VisiJet® M3 Navy	ProJet® MJP 3600 Series
VisiJet® M3 Procast	ProJet® MJP 3600 Series
VisiJet® M3 Proplast	ProJet® MJP 3600 Series
VisiJet® M3 Techplast	ProJet® MJP 3600 Series
VisiJet® M3-X	ProJet® MJP 3600 Series
VisiJet® ProFlex (M2G-DUR)	ProJet® MJP 2500, ProJet® MJP 2500 Plus
VisiJet® Wax Jewel Red	ProJet® MJP 2500W
SELECTIVE LASER SINTERING	
Material	Certified Printers
CastForm® PS	sPro™ 60 HD-HS
DuraForm® EX Black	sPro™ 60 HD-HS, sPro™ 140, sPro™ 230
DuraForm® EX Natural	sPro™ 60 HD-HS, sPro™ 140, sPro™ 230

Appendix

DuraForm® Flex	sPro™ 60 HD-HS
DuraForm® FR1200	sPro™ 60 HD-HS
DuraForm® GF	sPro™ 60 HD-HS, sPro™ 140, sPro™ 230
DuraForm® HST Composite	sPro™ 60 HD-HS, sPro™ 140, sPro™ 230
DuraForm® PA	sPro™ 60 HD-HS, sPro™ 140, sPro™ 230
DuraForm® TPU Elastomer	sPro™ 60 HD-HS
DuraForm® ProX® AF	ProX® SLS 6100
DuraForm® ProX® EX BLK	ProX® SLS 6100
DuraForm® ProX® EX NAT	ProX® SLS 6100
DuraForm® ProX® FR1200	ProX® SLS 6100
DuraForm® ProX® GF	ProX® SLS 6100
DuraForm® ProX® HST Composite	ProX® SLS 6100
DuraForm® ProX® PA	ProX® SLS 6100
STEREOLITHOGRAPHY	
Material	Certified Printers
Accura® 25	ProJet® 6000 HD, ProJet® 7000 HD, ProX® 800, ProX® 950
Accura® 48HTR	ProJet® 6000 HD, ProJet® 7000 HD, ProX® 800, ProX® 950
Accura® 55	ProX® 800, ProX® 950
Accura® 60	ProX® 800, ProX® 950
Accura® ABS Black	ProJet® 6000 HD, ProJet® 7000 HD, ProX® 800, ProX® 950
Accura® ABS White	ProX® 800, ProX® 950
Accura® Amethyst	Viper SLA (legacy printer)
Accura® AMX™ Rigid Black	ProJet® 6000 HD, ProJet® 7000 HD, ProX® 800
Accura® Bluestone	ProX® 800
Accura® CastPro™	ProX® 800, ProX® 950
Accura® ClearVue™	ProJet® 6000 HD, ProJet® 7000 HD, ProX® 800, ProX® 950
Accura® ClearVue™ Free	ProX® 800, ProX® 950
Accura® Composite PIV	ProX® 800, ProX® 950
Accura® HPC	ProX® 800
Accura® Fidelity™	ProJet® 6000, ProJet® 7000 HD, ProX® 800, ProX® 950
Accura® PEAK	ProX® 800, ProX® 950
Accura® Phoenix	ProJet® 6000 HD, ProJet® 7000 HD, ProX® 800, ProX® 950
Accura® PP White	ProX® 800, ProX® 950
Accura® Sapphire	ProJet® 6000 HD, ProJet® 7000 HD
Accura® SL 5530	ProX® 800, ProX® 950
Accura® Xtreme	ProJet® 6000 HD, ProJet® 7000 HD, ProX® 800, ProX® 950
Accura® Xtreme White 200	ProJet® 6000 HD, ProJet® 7000 HD, ProX® 800, ProX® 950