

ProJet® 5500X

Multi-Material 3D Printer



Large, high-quality multi-material parts in a single build.

3D Systems' ProJet® 5500X uses proven MultiJet Printing (MJP) technology to build the highest quality, most accurate and toughest multi-material parts available. Print finely detailed parts with varying degrees of flexibility, material transparency and color (black, white, or select shades of grey), all from one 3D printer. The ProJet 5500X features the fastest print speeds, a large build volume, and the most convenient print-to-part process, so it's easier to create parts with engineered plastic or rubber properties.

Using VisiJet® Composite materials, the ProJet 5500X offers more than one hundred material variations to precisely match your specifications. With so many options, the ProJet 5500X is perfect for a variety of applications, including overmolded parts, multi-material assemblies, rubber-like components, long-lasting living hinges and high-temperature testing.



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MANUFACTURING THE FUTURE

Print multi-material parts in one build



VisiJet® Composite Materials for the ProJet® 5500X 3D Printer

The VisiJet composite family of materials is precisely mixed by the ProJet 5500X print head on-the-fly to achieve superior mechanical properties and custom performance characteristics to meet your exacting specifications. This ingenious system simultaneously prints and blends together flexible and rigid material composites, layer-by-layer at the pixel level, in a variety of colors and shades including opaque, clear, black or white and numerous shades of gray.

| PROPERTIES | ASTM | BASE MATERIALS | | |
|---|---------|-------------------|-----------------------------|-------------------------|
| | | VisiJet CR-WT | VisiJet CR-CL | VisiJet CF-BK |
| Material Name | | Rigid ABS-like | Rigid Polycarbonate-like | Flexible Rubber-like |
| Description | | | | |
| Appearance | | White | Clear | Black |
| Cartridge Quantity, kg | | 2 | 2 | 2 |
| Density @ 80 °C (liquid), g/cm ³ | D-4164 | 1.04 | 1.04 | 1.04 |
| Tensile Strength, MPa | D-638 | 56 | 56 | 2.2 |
| Tensile Modulus, MPa | D-638 | 2400 | 2400 | 0.7 |
| Elongation at Break, % | D-638 | 8.1 | 13 | 290 |
| Flexural Strength, MPa | D-790 | 74 | 75.00 | 0.5 |
| Flexural Modulus, MPa | D-790 | 2500 | 2500 | 5.5 |
| Heat Deflection Temp. @ 0.45 MPa, °C | D-648 | 54 | 54 | n/a |
| Impact Strength (Notched Izod), J/m | D-256 | 18 | 18 | n/a |
| Shore Hardness (A), Scale A | D-2240 | n/a | n/a | 63 |
| Shore Hardness (D), Scale D | D-2241 | 83 | 83 | n/a |
| Glass Transition, Tg | DMA, E" | 43 | 43 | n/a |

Composite Combinations Created on the Fly by the ProJet 5500X

In addition to printing in pure base materials, the ProJet 5500X can mix any two base materials together pixel-by-pixel to achieve your targeted properties, in seven different ratios. An entire object can be printed in any of these composites, or a user can easily select a specific region of a part to be any number of different material combinations.

| PROPERTIES | ASTM | MULTI-MATERIAL COMPOSITES (VisiJet CR-WT + VisiJet CF-BK) | | | | | | |
|--------------------------------------|---------|---|-------------|----------------|-------------------|-------------------|-------------|----------------|
| Material Name | | RWT-FBK 100 | RWT-FBK 200 | RWT-FBK 300 | RWT-FBK 400 | RWT-FBK 500 | RWT-FBK 600 | RWT-FBK 700 |
| Description | | Very Rigid | Rigid | Slightly rigid | Slightly flexible | Slightly flexible | Flexible | Very flexible |
| Appearance | | Very light grey | Light grey | Light grey | Grey | Grey | Dark grey | Very dark grey |
| Tensile Strength, MPa | D-638 | 36 | 28 | 19 | 10 | 5.1 | 2.8 | 2.1 |
| Tensile Modulus, MPa | D-638 | 1650 | 1200 | 630 | 160 | 23 | 11 | 1.4 |
| Elongation at Break, % | D-638 | 10 | 15 | 17 | 25 | 31 | 34 | 150 |
| Flexural Strength, MPa | D-790 | 57 | 43 | 22 | 7.3 | 1.7 | 1.3 | 0.74 |
| Flexural Modulus, MPa | D-790 | 1960 | 1550 | 800 | 250 | 50 | 14.5 | 7.5 |
| Heat Deflection Temp. @ 0.45 MPa, °C | D-648 | 51 | 48 | 40 | 33 | n/a | n/a | n/a |
| Impact Strength (Notched Izod), J/m | D-256 | 25 | 20 | 20 | 21 | 18 | 19 | 47 |
| Shore Hardness (A), Scale A | D-2240 | n/a | n/a | n/a | n/a | n/a | n/a | 85 |
| Shore Hardness (D), Scale D | D-2241 | 80 | 79 | 74 | 65 | 55 | 44 | n/a |
| Glass Transition, Tg | DMA, E" | 40 | 33 | 31 | 24 | 19.5 | 15 | 8 |

| PROPERTIES | ASTM | MULTI-MATERIAL COMPOSITES (VisiJet CR-CL + VisiJet CF-BK) | | | | | | |
|-----------------------|------|--|------------------|-----------------------|------------------------|-------------------|-------------|------------------|
| Material Name | | RCL-FBK 100 | RCL-FBK 200 | RCL-FBK 300 | RCL-FBK 400 | RCL-FBK 500 | RCL-FBK 600 | RCL-FBK 700 |
| Description | | Very Rigid | Rigid | Slightly rigid | Slightly flexible | Slightly flexible | Flexible | Very flexible |
| Appearance | | Transparent Light Grey | Transparent Grey | Transparent Dark Grey | Translucent Light grey | Translucent grey | Opaque grey | Opaque dark grey |
| Mechanical Properties | | <i>Identical properties to VisiJet CR-WT + VisiJet CF-BK composites in table above</i> | | | | | | |

| PROPERTIES | ASTM | MULTI-MATERIAL COMPOSITES (VisiJet CR-CL + VisiJet CR-WT) | | | | | | |
|--------------------------------------|---------|---|-------------------|-------------------|-------------------|-------------------|--------------|---------------------|
| Material Name | | RCL-RWT 100 | RCL-RWT 200 | RCL-RWT 300 | RCL-RWT 400 | RCL-RWT 500 | RCL-RWT 600 | RCL-RWT 700 |
| Description | | Rigid ABS-like | | | | | | |
| Appearance | | Transparent Pale White | Transparent White | Transparent White | Translucent White | Translucent White | Opaque white | Opaque bright white |
| Tensile Strength, MPa | D-638 | 56 | 56 | 56 | 56 | 56 | 56 | 56 |
| Tensile Modulus, MPa | D-638 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 |
| Elongation at Break, % | D-638 | 8.1 | 8.1 | 8.1 | 8.1 | 8.1 | 8.1 | 8.1 |
| Flexural Strength, MPa | D-790 | 74 | 74 | 74 | 74 | 74 | 74 | 74 |
| Flexural Modulus, MPa | D-790 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 |
| Heat Deflection Temp. @ 0.45 MPa, °C | D-648 | 54 | 54 | 54 | 54 | 54 | 54 | 54 |
| Impact Strength (Notched Izod), J/m | D-256 | 18 | 18 | 18 | 18 | 18 | 18 | 18 |
| Shore Hardness (D), Scale D | D-2241 | 83 | 83 | 83 | 83 | 83 | 83 | 83 |
| Glass Transition, Tg | DMA, E" | 43 | 43 | 43 | 43 | 43 | 43 | 43 |

DISCLAIMER: It is the responsibility of each customer to determine that its use of any VisiJet® material is safe, lawful and technically suitable to the customer's intended applications. The values presented here are for reference only and may vary. Customers should conduct their own testing to ensure suitability for their intended application.

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| | |
|---|---|
| Net Build Volume (xyz) | |
| HD Mode (High Definition) | 21 x 15 x 11.8 in (533 x 381 x 300 mm) |
| HDS Mode (HD High Speed) | 21 x 15 x 11.8 in (533 x 381 x 300 mm) |
| <i>HDS prints 2x faster than HD for a single material</i> | |
| UHD Mode (Ultra High Definition) | 21 x 15 x 11.8 in (533 x 381 x 300 mm) |
| Resolution (xyz) | |
| HD Mode | 375 x 375 x 790 DPI; 32µ (0.0012 in) layers |
| HDS Mode | 375 x 375 x 790 DPI; 32µ (0.0012 in) layers |
| UHD Mode | 750 x 750 x 890 DPI; 29µ (0.0011 in) layers |
| Build Materials | |
| VisiJet® CR-CL | Rigid Plastic Material - Clear |
| VisiJet® CR-WT | Rigid Plastic Material - White |
| VisiJet® CF-BK | Rubber-like Material - Black |
| Support Material | VisiJet® S500 Support Material |
| Material Packaging | Build materials in clean 2.0 kg cartridges and support material in clean 1.75 kg cartridges (printer holds 4 build and 4 support cartridges with auto-switching) |
| Electrical | 100 VAC, 50/60 Hz, single-phase, 15 Amps 115 VAC, 50/60 Hz, single-phase, 15 Amps 240 VAC, 50/60 Hz, single-phase, 8 Amps |
| Dimensions (WxDxH) | |
| 3D Printer Crated | 80 x 48 x 78 in (2032 x 1219 x 1981 mm) |
| 3D Printer Uncrated | 67 x 35.4 x 65 in (1700 x 900 x 1650 mm) |
| Weight | |
| 3D Printer Crated | 2550 lbs (1157 kg) |
| 3D Printer Uncrated | 2060 lbs (934 kg) |
| ProJet Accelerator Software | Easy build job set-up, submission and job queue management; Automatic part placement and build optimization tools; Part stacking and nesting capability; Extensive part editing tools; Automatic support generation; Job statistics reporting tools |
| Network Compatibility | Network ready with 10/100 Ethernet interface |
| Client Hardware Recommendation | 1.7 GHz or better with 4GB RAM OpenGL 1.1 Compatible 1280x1024 resolution or better |
| Client Operating System | Windows® 7, Windows® 8 or Windows® 8.1 |
| Input Data File Formats Supported | STL, CTL |
| Operating Temperature Range | 18 - 28 °C (64-82 °F) |
| Noise | < 65 dBA estimated (at medium fan setting) |
| Certification | CE |

Multi-material composite printing in one part, at one time

- **Have more material options** – Print the precise variety of engineered plastic or rubber you need, no assembly required.
- **Make quality, exact parts** – Produce the most detailed, most accurate multi-material parts with superior strength, stability and temperature performance.
- **Fit your part size requirements** – High throughput to quickly print a large variety of small or big precision parts.
- **Increase productivity** – The ProJet 5500X features fast build speeds, ease of use, and hands-free post processing, all at lower cost of ownership.
- **Maximize spending** – By using less material than similar printers, and a 5-year guarantee on the print head, the ProJet 5500X offers a lower TCO.
- **Vary tone and clearness** – Print stunning clear parts as well as parts in white, black and select shades of grey.

Features:

- Print in multiple materials in a single build
- Produces strong, finely detailed, precise parts
- Easy post processing
- Larger net build volume for bigger parts or more parts per build
- Build speeds up to two times faster than other printers in class

MultiJet Printing (MJP)

MultiJet 3D Printers (MJP) print thin layers of UV-curable liquid plastic onto a flat platform, using wax to create supports that brace the part during production. UV lamps cure each layer, and the build platform lowers for the next layer. This process continues layer by layer until the part is complete.



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