

# Selective Laser Sintering Printers

Production thermoplastic parts with ProX<sup>®</sup> and sPro<sup>™</sup> SLS printers



**ProX SLS 6100**



**sPro 60 HD-HS**



**sPro 140**



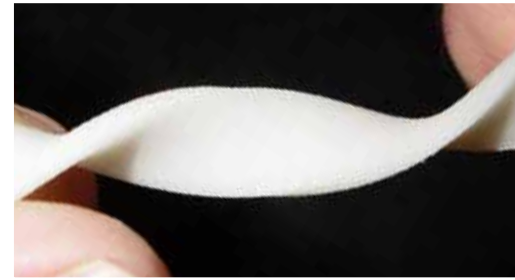
**sPro 230**

|   |  |  |  |  |
|---|--|--|--|--|
| <b>Build Envelope Capacity (XYZ)*</b>   | 381 x 330 x 460 mm<br>(15 x 13 x 18 in)<br>57.5 l (3510 cu in)   | 381 x 330 x 460 mm<br>(15 x 13 x 18 in)<br>57.5 l (3510 cu in)   | 550 x 550 x 460 mm<br>(22 x 22 x 18 in)<br>139 l (8500 cu in)                      | 550 x 550 x 750 mm<br>(22 x 22 x 30 in)<br>227 l (13900 cu in)                     |
| <b>Powder Layout</b>  | Variable Speed<br>Counter Rotating Roller  | Precision Counter<br>Rotating Roller   | Precision Counter<br>Rotating Roller   | Precision Counter<br>Rotating Roller   |
| <b>Layer Thickness Range (typical)</b>  | 0.08 – 0.15 mm<br>0.003 – 0.006 in<br>(0.10 mm, 0.004 in)  | 0.08 – 0.15 mm<br>0.003 – 0.006 in<br>(0.10 mm, 0.004 in)  | 0.08 – 0.15 mm<br>0.003 – 0.006 in<br>(0.10 mm, 0.004 in)                          | 0.08 – 0.15 mm<br>0.003 – 0.006 in<br>(0.10 mm, 0.004 in)                          |
| <b>Imaging System</b>   | ProScan <sup>™</sup> DX Digital<br>High Speed  | ProScan <sup>™</sup> CX (digital)  | ProScan <sup>™</sup> Standard<br>Digital Imaging Systems                           | ProScan <sup>™</sup> Standard<br>Digital Imaging System                            |
| <b>Scanning Speed</b>   | Fill - 12.7 m/s (500 in/s)<br>Outline - 5 m/s (200 in/s)   | 6 m/s (200 in/s)   | 10 m/s (400 in/s)  | 10 m/s (400 in/s)  |
| <b>Laser Power/Type</b>   | 100 W / CO <sub>2</sub>  | 70 W / CO <sub>2</sub>   | 70 W / CO <sub>2</sub>   | 70 W / CO <sub>2</sub>   |
| <b>Volume Build Rate</b>  | 2.7 l/hr   | 1.8 l/hr   | 3.0 l/hr   | 3.0 l/hr   |
| <b>Included software</b>  | 3D Sprint <sup>™</sup>   | Build Setup  | Build Setup  | Build Setup  |
| <b>Powder Recycling and Handling</b>  | Fully automatic<br>(automatically blends, recycles<br>and delivers powder)   | Manual   | Automatic<br>(automatically blends and<br>recycles powder)                         | Automatic<br>(automatically blends and<br>recycles powder)                         |
| <b>Materials</b>  | DuraForm ProX PA<br>DuraForm ProX GF<br>DuraForm ProX EX BLK<br>DuraForm ProX HST<br>DuraForm ProX AF+<br>DuraForm ProX FR1200   | DuraForm PA<br>DuraForm GF<br>DuraForm EX<br>DuraForm HST<br>DuraForm TPU<br>DuraForm Flex<br>DuraForm FR1200<br>CastForm PS | DuraForm PA<br>DuraForm GF<br>DuraForm EX<br>DuraForm HST                          | DuraForm PA<br>DuraForm GF<br>DuraForm EX<br>DuraForm HST                          |
|   | Broad range of DuraForm <sup>®</sup> plastics, composites, elastomer and CastForm <sup>®</sup> PS (powders).<br>See back page for material overview and <a href="http://www.3dsystems.com">www.3dsystems.com</a> for technical datasheets for each material. |  |  |  |
| <b>Materials Packaging</b>  | 7.5 kg bottles for hands-free<br>automatic powder handling   | 10 kg boxes; 15 kg boxes for<br>DuraForm GF only   | 100 kg IPCs (Intelligent Powder<br>Cartidges); 150 kg IPCs for<br>DuraForm GF only | 100 kg IPCs (Intelligent Powder<br>Cartidges); 150 kg IPCs for<br>DuraForm GF only |
| <b>Dimensions (WxDxH)</b><br>3D Printer Crated  | 204 x 153 x 258 cm<br>(80 x 60 x 101 in)   | 191 x 140 x 229 cm<br>(75 x 55 x 90 in)  | 229 x 178 x 257 cm<br>(90 x 70 x 101 in)   | 267 x 224 x 292 cm<br>(105 x 88 x 115 in)  |
| 3D Printer Uncrated   | 174 x 123 x 230 cm<br>(69 x 48 x 90 in)  | 175 x 127 x 213 cm<br>(69 x 50 x 84 in)  | 213 x 163 x 241 cm<br>(84 x 64 x 95 in)  | 251 x 208 x 274 cm<br>(99 x 82 x 108 in)   |
| <b>Weight</b> (not incl. MQC, MDM or BOS)<br>3D Printer Crated<br>3D Printer Uncrated | 1485 kg (3274 lb)<br>1360 kg (3000 lb)   | 1885 kg (4147 lb)<br>1865 kg (4103 lb)   | 2250 kg (4950 lbs)<br>2224 kg (4893 lbs)   | 2539 kg (5586 lbs)<br>2541 kg (5531 lbs)   |
| <b>Electrical Requirements</b><br>System<br>Single or dual MQCs                       | 208 VAC/10 kVA, 50/60 Hz, 3 PH<br>208-230VAC, 50/60Hz, 1PH   | 208 VAC/17 kVA, 50/60Hz, 3 PH  | 208 VAC/17 kVA, 50/60Hz, 3 PH  | 208 VAC/17 kVA, 50/60Hz, 3 PH  |
| <b>System Warranty</b>  | ————— One-year warranty, under 3D Systems purchase terms and conditions —————  |  |  |  |

\* Maximum part size is dependent on geometry, among other factors.

# DuraForm® Materials for SLS Printing

Production thermoplastic parts with ProX® and sPro™ SLS printers



| Density<br>Sintered Part<br>(g/cm <sup>3</sup> ) | Flexural<br>Modulus<br>(MPa) | Flexural<br>Strength<br>(MPa) | Tensile<br>Modulus<br>(MPa) | Tensile<br>Strength<br>(MPa) | Elongation<br>at Break<br>(%) | Impact<br>Strength (J/m)<br>Notched Izod, 23 °C<br>Unnotched Izod, 23 °C | Heat Deflection<br>Temperature (°C)<br>@ 0.45 MPa<br>@ 1.82 MPa | Flammability | Hardness   |
|--|------------------------------|-------------------------------|-----------------------------|------------------------------|-------------------------------|--|---|--------------|------------|
| ASTM 792   | ASTM D790                    | ASTM D790                     | ASTM D638                   | ASTM D638                    | ASTM D638                     | ASTM D256  | ASTM D648   | UL 94        | ASTM D2240 |

## sPro Compatible Material Properties

|                  |      |           |       |           |       |       |             |            |    |        |
|------------------|------|-----------|-------|-----------|-------|-------|-------------|------------|----|--------|
| DuraForm TPU*    | 0.78 | 6.0       | -     | 5.3       | 2.0   | 220 % | -           | -          | -  | 59A    |
| DuraForm Flex*   | -    | 5.9       | 48    | 5.9       | 1.8   | 110 % | -           | -          | -  | 45-75A |
| DuraForm EX      | 1.01 | 1310      | 46    | 1517      | 48    | 47 %  | 74<br>1486  | 188<br>48  | HB | 74D    |
| DuraForm PA      | 1.03 | 1387      | 48    | 1586      | 43    | 14 %  | 32<br>336   | 180<br>95  | HB | 73D    |
| DuraForm GF      | 1.49 | 3106      | 37    | 4068      | 26    | 1.4 % | 41<br>123   | 179<br>134 | HB | 77D    |
| DuraForm HST     | 1.20 | 4400-4550 | 83-89 | 5475-5725 | 48-51 | 4.5 % | 37.4<br>310 | 184<br>179 | HB | 75D    |
| CastForm® PS*    | 0.86 | -         | -     | 1604      | 2.84  | -     | < 11<br>14  | -<br>-     | -  | -      |
| DuraForm FR1200* | 1.02 | 1770      | 62    | 2040      | 41    | 5.9 % | 25<br>233   | 180<br>94  | HB | 76D    |

\* Material compatible only with sPro™ 60 HD-HS.

## ProX Compatible Material Properties

|                         |      |      |    |      |    |       |            |            |    |     |
|-------------------------|------|------|----|------|----|-------|------------|------------|----|-----|
| DuraForm ProX PA        | 0.95 | 1650 | 63 | 1770 | 47 | 22 %  | 45<br>644  | 182<br>97  | HB | 73D |
| DuraForm ProX GF        | 1.33 | 3120 | 60 | 3720 | 45 | 2.8 % | 48<br>207  | 180<br>129 | HB | 73D |
| DuraForm ProX HST       | 1.12 | 3430 | 75 | 4123 | 44 | 4.3 % | 55<br>307  | 183<br>171 | HB | 73D |
| DuraForm ProX EX BLK    | 1.02 | 1360 | 51 | 1570 | 43 | 60 %  | 75<br>3336 | 193<br>57  | HB | 76D |
| DuraForm ProX AF+       | 1.31 | 3710 | 64 | 4340 | 37 | 3 %   | 54<br>255  | 182<br>174 | HB | 78D |
| DuraForm ProX<br>FR1200 | 1.03 | 1720 | 61 | 2010 | 45 | 8 %   | 24<br>278  | 180<br>94  | HB | 77D |

For more information refer to our SLS Material Selection Guide or the individual DuraForm and CastForm material datasheets on [www.3dsystems.com](http://www.3dsystems.com)

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