

Material datasheet

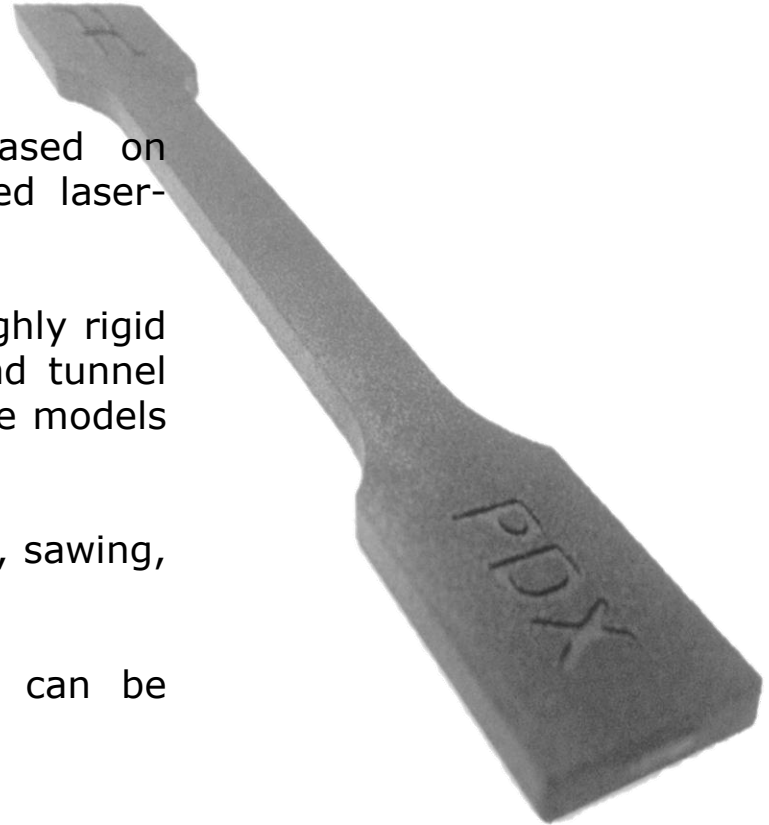
**PDX**  
**(PA12 CF)**

**PDX** is a carbon-fiber reinforced material based on polyamide. **PDX** is processed on highly advanced laser-sintering equipment from 3D Systems.

Typical application of **PDX** is the production of highly rigid components for automotive applications (eg. wind tunnel tests), for functional design models and illustrative models as well as for fixtures and gauges.

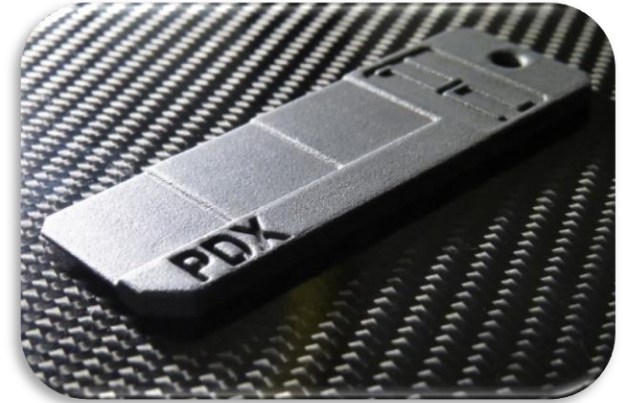
**PDX** parts can be machined mechanically (drilling, sawing, milling...)

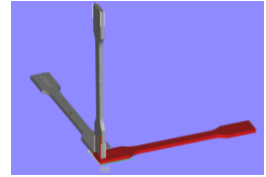
The surfaces of components made from **PDX** can be refined by grinding, polishing or coating.



## Material properties PDX

- Carbon-fibre filled, polyamide based material
- High Young's modulus and impact strength
- Surface finish by grinding, machining, coating
- Mechanical post-treatment possible (drilling, sawing, milling, lathing)
- Conductive material
- Very good long-term stability
- Low moisture absorption





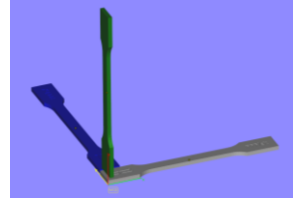
Material Datasheet **PDX**

values for tensile bar in X-direction

	Norm	Unit	PDX
Density (sintered)	DIN EN ISO 1183-1	g/cm <sup>3</sup>	<b>1,2 ± 0.1</b>
Young`s modulus (bending)	DIN EN ISO 178	MPa	<b>7330</b>
Bending strength	DIN EN ISO 178	MPa	<b>132</b>
Young`s modulus (tensile)	DIN EN ISO 527	MPa	<b>8300</b>
Tensile strength	DIN EN ISO 527	MPa	<b>85 ± 5</b>
Yield strength	DIN EN ISO 527	MPa	<b>75 ± 5</b>
Ultimate elongation	DIN EN ISO 527	%	<b>3,2 ± 1</b>
Melting point	DSC	°C	<b>180-185</b>
Thermostability	DIN EN ISO 75	°C	<b>170 ± 5</b>
Thermal expansion		Per Kelvin	<b>5x10<sup>-5</sup></b>
Thermal conductivity	DIN 52616	W/(mK)	<b>0,201</b>
Thermal insulation coefficient	DIN 52616	W/(m <sup>2</sup> K)	<b>47,91</b>
Surface resistivity		Ω	<b>10<sup>3</sup>-10<sup>5</sup></b>
Electrical resistance		Ωm	<b>10<sup>5</sup>-10<sup>7</sup></b>

The Laser Sinter Material PDX is developed by Protodynamix

- please note that values can vary due to build orientation, build values and powder cycle age



Material Datasheet **PDX**

values for tensile bar in Y and Z-direction

	Norm	Unit	PDX
Young`s modulus (tensile)	DIN EN ISO 527		
Y-Direction		Mpa	<b>3400</b>
Z- Direction		MPa	<b>2900</b>
Tensile strength	DIN EN ISO 527		
Y-Direction		MPa	<b>55</b>
Z-Direction		MPa	<b>45</b>
Yield strength	DIN EN ISO 527		
Y-Direction		MPa	<b>49</b>
Z- Direction		MPa	<b>38</b>
Ultimate elongation	DIN EN ISO 527		
Y-Direction		%	<b>3.0</b>
Z- Direction		%	<b>2.2</b>

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## PDX

Production technology	SLS / 3DSystems sPro230 / sPro140
Build envelope	490 x 490 x 740 X/Y/Z (Spro 230 – 4 pcs) 490 x 490 x 450 X/Y/Z (Spro 140 – 3 pcs)
Layer thickness	0.1mm
Min. wall thickness	0.8mm
Tolerances	+/- 0.2mm or above 100 mm: +/- 0,3 % of the nominal dimensions
Surfaces	Bead blasted Polished (to Grain 240) Filled and polished (to Grain 600)
Powder removal	In cavities 2 holes to access the excess powder

