



Material Selector Guide

Process/Technology		Photopolymers					Nylons		Metals			Thermoplastics		
		SLA		Objet			SLS		DMLS		FDM			
Tolerances		SLA, Objet, FDM, DMLS: +/- 0.005" for the first inch, +/- 0.002" on every inch thereafter.							SLS (nylon): +/- 0.005" for the first inch, +/- 0.003" on every inch thereafter.			SLS (A6): +/- 0.010" per inch.		
Material <small>(click material for detailed specification sheets)</small>		9120***	11122****	NeXT	18420**	Digital Material (Mix of vero plus and tango plus) Tango Plus Vero Plus		Nylon 12***	Nylon 11***	Stainless/ Bronze	Marging Steel MS1	Stainless Steel PH1	PPSF	ABSplus
Appearance		Amber	Clear*	Off White	White	Black	White	White	White	Light Bronze	Steel	Steel	Tan	Various
Build Layer Thickness		.0025" .004" .006"	.0025" .004" .006"	.0025" .004" .006"	.0025" .004" .006"	.001" .002"	.001" .002"	.004" .006"	.004" .006"	.004" .006"	.0016"	.0008"	.010" .013"	.007" .010"
Key Properties and Applications		Polypro like, Snap Fits Live Hinges	Polycarb like, Clear ISO & USP Medical Certs	High Impact ABS like	All purpose ABS like, Heat Resistant	Rubber like, Gaskets Overmold Boots Keypads	ABS like	Live hinges, High Impact, Additive MFG Jobs	Flame, Smoke, Toxicity (FST) Certified	Low cost metal parts, Rapid Tooling	Ideal for Rapid tooling	Medical and Accurate	Highest Heat and Chemical Resistance	Variety of Colours
IZOD Impact Strength	J/cm (ft-lb/in)	.53 (1)	.3 (.6)	.52 (.97)	.22 (.41)		.25 (.46)	.32 (.6)	.48 (7)				.58 (1.1)	.96 (1.8)
Tensile Modulus	MPa (ksi)	1347 (195)	2372 (344)	2490 (361)	2310 (336)			1700 (247)					2068 (300)	2265 (330)
Tensile Strength at Break	MPa (ksi)	32 (4.7)	53 (7.8)	34 (5)	43 (6.4)	211	55	43 (6.2)	46 (6.7)	610 (88)	1000 (145)	1150 (167)	55 (8.0)	36 (5.2)
Elongation at Break	%	28	20	10	16	218	15	14	21	3	8	16	3	4
Index of Refraction		NA	1.51	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Flexural Strength	MPa (ksi)	46 (6.7)	74 (10.4)	70 (10)	70 (10.2)		75 (11)	48 (6.9)	46 (6.7)				110 (15.9)	52 (7.6)
Flexural Modulus	MPa (ksi)	1455 (210)	2372 (344)	2450 (357)	2130 (309)		2200 (320)	1500 (217)	1460 (212)				2206 (320)	2200 (320)
Shore Hardness	A, D, or Rockwell	82D	84D	82D	88D	27A	82D	73D	73D	15HRC	35HRC	35HRC	M86	R105
HDT@.46MPa (66psi)	C (F)	61 (142)	54 (129)	57 (134)	98** (208)		45 (115)	180 (356)	194 (381)	~230 (450)	400 (750)	550 (1022)		90 (195)
HDT@1.81MPa(264psi)	C (F)	37 (98)	49 (120)	51 (124)	78** (173)			95 (203)	70 (158)				189 (372)	76 (169)
Tg	C (F)	41 (106)	46 (109)	47 (116)	96 (205)								230 (446)	104 (219)
Water Absorbtion	%	.93	.35	.41	.68		1.2							
Compressive set	%			-		4								
Dielectric Strength	kV/mm (V/mil)		16.3 (413)	15.5 (395)	14.2 (359)			17.3 (439)					14.6 (372)	32 (810)

Warranty/Disclaimer: Actual part properties may vary significantly from those listed above based on part geometry, processing parameters, operating conditions and material usage. AXIS Prototypes makes no warranties of usability, expressed or implied, included but not limited to the warranties of merchantability or usability for a particular purpose.

* Digital Material™ is a mix of Vero White and Tango Plus (black)
 ** 18420 heat resistance after post process tempering treatment
 *** Live Hinge treatment available on these materials
 **** Various levels of clarity available

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