FATHOM. // POLYJET MATERIAL CHART

★ Good ★★ Better ★★★ Best

		OPAQUE/RIGID (VERO)	TRANSLUCENT RIGID	HIGH TEMP	DURUS	RIGUR	DIGITAL ABS & DIGITAL ABS2	RUBBER-LIKE/FLEXIBLE (TANGO & AGILUS)	PERFORMANCE DIGITAL	RUBBER-LIKE DIGITAL	BIO-COMPATIBLE
MATERIAL MIMIC	Polypropylene – PP	★	★		★★★	★★★	★★		★★		★
	High-Density Polyethylene – HDPE (PEHD)				★★★	★★★			★★		
	Polystyrene – PS	★	★★		★★★	★★★	★★		★★		★★
	Poly Methyl Methacrylate – PMMA (Plexiglas)		★★★								★★★
	Polycarbonates – PC		★★								★★
	Acrylonitrile Butadiene Styrene – ABS	★★	★★	★	★	★★	★★★		★★		★★
	High-Impact Polystyrene – HIPS	★★	★★	★	★	★★	★★★		★★		★★
	Styrene-Based Thermoplastic Elastomers							★★★		★★★	
	Ethylene Propylene Diene Monomer M-class – EPDM Rubber							★★		★★	
MECHANICAL/THERMAL PROPERTIES	Thermal Resistance – HDT (Heat Deflection Temperature)	★★	★★	★★★	★	★★	★★★		★★		★★
	Toughness	★	★	★	★★	★★	★★★		★		★
	Elongation at Break	★	★	★	★★	★★	★★	★★★	★	★★★	★
PART COLORS	Color	White, Gray, Blue, Black, Wide Variety of Colors	Transparent, Transparent Colors	White	Milky White	White	Green	Translucent, Gray, Black	Varying Gray Scale & Opacity	Varying Gray Scale & Opacity	Transparent, Rose
APPLICATIONS & USAGES	Visual & Aesthetic Modeling	★★★	★★★	★★★	★★	★★★	★★★	★★★	★★★	★★★	★★★
	Form & Fit Testing	★★★	★★		★★	★★★	★★★	★★	★★	★★	★★
	Rigid-Opaque Part Functional Testing	★★		★	★★★	★★★	★★★		★★		★★
	Rigid-Translucent/ Transparent Parts		★★★								★★★
	Flexible/Rubber Part Testing							★★★		★★★	
	Non-Ambient Temperature Part Testing	★	★	★★★	★	★	★★★		★★		★
	Tooling/Patterns	★★	★★	★	★	★	★★★		★★		★★
	Medical Tooling										★★★
	End-Use Parts	★	★	★	★	★	★★	★	★	★	★★
	Finishing – Coatings & Coloring	★★★	★★★	★★★	★★	★★	★★★	★★	★★★	★★	★★★
	Shape Changing & Surface Improvement	★★★	★★★	★★	★★	★★	★★★	★★	★★★	★★	★★★
	Fastening & Gluing	★★★	★★★	★★★	★★	★★	★★★	★★	★★★	★★	★★★
3D PRINTERS	Objet24	✓									
	Objet30	✓			✓						
	Objet30 Pro	✓	✓	✓	✓	✓					
	Objet30 Prime	✓	✓	✓	✓	✓		✓			✓
	Eden260V	✓	✓	✓	✓	✓		✓			✓
	Eden260VS	✓	✓	✓	✓	✓		✓		✓	✓
	Eden350V	✓	✓	✓	✓	✓		✓			✓
	Eden500V	✓	✓	✓	✓	✓		✓			✓
	Objet260 Connex	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Connex350	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Connex500	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Stratasys J750	✓	✓				✓	✓	✓	✓	
	Objet1000	✓				✓	✓	✓	✓	✓	
	Objet1000 Plus	✓				✓	✓	✓	✓	✓	
	Objet260 Connex1	✓	✓	✓	✓	✓		✓		✓	✓
	Objet260 Connex2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Objet260 Connex3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Objet350 Connex1	✓	✓	✓	✓	✓		✓		✓	✓
	Objet350 Connex2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Objet350 Connex3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Objet500 Connex1	✓	✓	✓	✓	✓		✓	✓	✓	✓
	Objet500 Connex2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Objet500 Connex3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

MATERIALS SIMULATING ENGINEERING PLASTICS

Digital ABS, Green (RGD5160-DM, RGD5161-DM) made of RGD515 & RGD535 Digital ABS, Ivory (RGD5130-DM, RGD5131-DM) made of RGD515 & RGD531					
	ASTM	Units	Metric	Units	Imperial
Tensile Strength	D-638-03	MPa	55-60	psi	8000-8700
Elogation at Break	D-638-05	%	25-40	%	25-40
Modulus of Elasticity	D-638-04	MPa	2600-3000	psi	375,000-435,000
Flexural Strength	D-790-03	MPa	65-75	psi	9,500-11,000
Flexural Modulus	D-790-04	MPa	1700-2200	psi	245,000-320,000
HDT, °C @ 0.45 MPa	D-648-06	°C	58-68	°F	136-154
HDT, °C @ 0.45 MPa after thermal post-treatment procedure A	D-648-06	°C	82-90	°F	180-194
HDT, °C @ 0.45 MPa after thermal post-treatment procedure B	D-648-06	°C	92-95	°F	198-203
HDT, °C @ 1.82 MPa	D-648-07	°C	51-55	°F	124-131
Izod Notched Impact	D-256-06	J/m	65-80	ft lb/inch	1.22-1.50
Tg	DMA, E+	°C	47-53	°F	117-127
Shore Hardness (D)	Scale D	Scale D	85-87	Scale D	85-87
Rockwell Hardness	Scale M	Scale M	67-69	Scale M	67-69
Polymerized Density	ASTM D792	g/cm3	1.17-1.18	no data	no data

High Temperature Material (RGD525)					
	ASTM	Units	Metric	Units	Imperial
Tensile Strength	D-638-03	MPa	70-80	psi	10,000-11,500
Elongation at Break	D-638-05	%	10-15	%	10-15
Modulus of Elasticity	D-638-04	MPa	3200-3500	psi	465,000-510,000
Flexural Strength	D-790-03	MPa	110-130	psi	16,000-19,000
Flexural Modulus	D-790-04	MPa	3100-3500	psi	450,000-510,000
HDT, °C @ 0.45 MPa	D-648-06	°C	63-67	°F	145-163
HDT, °C @ 0.45 MPa after thermal post-treatment procedure A	D-648-06	°C	75-80	°F	167-176
HDT, °C @ 1.82 MPa	D-648-07	°C	55-57	°F	131-135
Izod Notched Impact	D-256-06	J/m	14-16	ft lb/inch	0.262-0.300
Water Absorption	D-570-98 24hr	%	1.2-1.4	%	1.2-1.4
Tg	DMA, E+	°C	62-65	°F	144-149
Shore Hardness (D)	Scale D	Scale D	87-88	Scale D	87-88
Rockwell Hardness	Scale M	Scale M	78-83	Scale M	78-83
Polymerized Density	ASTM D792	g/cm3	1.17-1.18	no data	no data
Ash Content	USP281	%	0.38-0.42	%	0.38-0.42

MATERIALS SIMULATING STANDARD PLASTICS // TRANSPARENT MATERIALS

RGD720					
	ASTM	Units	Metric	Units	Imperial
Tensile Strength	D-638-03	MPa	50-65	psi	7250-9450
Elongation at Break	D-638-05	%	15-25	%	15-25
Modulus of Elasticity	D-638-04	MPa	2000-3000	psi	290,000-435,000
Flexural Strength	D-790-03	MPa	80-110	psi	12,000-16,000
Flexural Modulus	D-790-04	MPa	2700-3300	psi	390,000-480,000
HDT, °C @ 0.45 MPa	D-648-06	°C	45-50	°F	113-122
HDT, °C @ 1.82 MPa	D-648-07	°C	45-50	°F	113-122
Izod Notched Impact	D-256-06	J/m	20-30	ft lb/inch	0.375-0.562
Water Absorption	D-570-98 24hr	%	1.5-2.2	%	1.5-2.2
Tg	DMA, E+	°C	48-50	°F	118-122
Shore Hardness (D)	Scale D	Scale D	83-86	Scale D	83-86
Rockwell Hardness	Scale M	Scale M	73-76	Scale M	73-76
Polymerized Density	ASTM D792	g/cm3	1.18-1.19	no data	no data
Ash Content	USP281	%	0.01-0.02	%	0.01-0.02

VeroClear RGD810					
	ASTM	Units	Metric	Units	Imperial
Tensile Strength	D-638-03	MPa	50-65	psi	7250-9450
Elongation at Break	D-638-05	%	10-25	%	10-25
Modulus of Elasticity	D-638-04	MPa	2000-3000	psi	290,000-435,000
Flexural Strength	D-790-03	MPa	75-110	psi	11,000-16,000
Flexural Modulus	D-790-04	MPa	2200-3200	psi	320,000-465,000
HDT, °C @ 0.45 MPa	D-648-06	°C	45-50	°F	113-122
HDT, °C @ 1.82 MPa	D-648-07	°C	45-50	°F	113-122
Izod Notched Impact	D-256-06	J/m	20-30	ft lb/inch	0.375-0-.562
Water Absorption	D-570-98 24hr	%	1.1-1.5	%	1.1-1.5
Tg	DMA, E+	°C	52-54	°F	126-129
Shore Hardness (D)	Scale D	Scale D	83-86	Scale D	83-86
Rockwell Hardness	Scale M	Scale M	73-76	Scale M	73-76
Polymerized Density	ASTM D792	g/cm3	1.18-1.19	no data	no data
Ash Content	USP281	%	0.02-0.06	%	0.02-0.06

MATERIALS SIMULATING ENGINEERING PLASTICS // RIGID OPAQUE MATERIALS

VeroGray RGD850, VeroBlackPlus RGD875, VeroWhitePlus RGD835, VeroYellow RGD836, VeroCyan RGD841, VeroMagenta RGD851					
	ASTM	Units	Metric	Units	Imperial
Tensile Strength	D-638-03	MPa	50-65	psi	7250-9450
Elongation at Break	D-638-05	%	10-25	%	10-25
Modulus of Elasticity	D-638-04	MPa	2000-3000	psi	290,000-435,000
Flexural Strength	D-790-03	MPa	75-110	psi	11,000-16,000
Flexural Modulus	D-790-04	MPa	2200-3200	psi	320,000-465,000
HDT, °C @ 0.45 MPa	D-648-06	°C	45-50	°F	113-122
HDT, °C @ 1.82 MPa	D-648-07	°C	45-50	°F	113-122
Izod Notched Impact	D-256-06	J/m	20-30	ft lb/inch	0.375-0.562
Water Absorption	D-570-98 24hr	%	1.1-1.5	%	1.1-1.5
Tg	DMA, E+	°C	52-24	°F	126-129
Shore Hardness (D)	Scale D	Scale D	83-86	Scale D	83-86
Rockwell Hardness	Scale M	Scale M	73-76	Scale M	73-76
Polymerized Density	ASTM D792	g/cm3	1.17-1.18	no data	no data
Ash Content VeroGray, VeroWhitePlus	USP281	%	0.23-0.26	%	0.23-0.26
Ash Content VeroBlackPlus	USP281	%	0.01-0.02	%	0.01-0.02

VeroBlue RGD840					
	ASTM	Units	Metric	Units	Imperial
Tensile Strength	D-638-03	MPa	50-65	psi	7250-9450
Elongation at Break	D-638-05	%	15-25	%	15-25
Modulus of Elasticity	D-638-04	MPa	2000-3000	psi	290,000-435,000
Flexural Strength	D-790-03	MPa	60-70	psi	8,700-10,200
Flexural Modulus	D-790-04	MPa	1900-2500	psi	265,000-365,000
HDT, °C @ 0.45 MPa	D-648-06	°C	45-50	°F	113-122
HDT, °C @ 1.82 MPa	D-648-07	°C	45-50	°F	113-122
Izod Notched Impact	D-256-06	J/m	20-30	ft lb/inch	0.375-0-.562
Water Absorption	D-570-98 24hr	%	1.5-2.2	%	1.5-2.2
Tg	DMA, E+	°C	48-50	°F	118-122
Shore Hardness (D)	Scale D	Scale D	83-86	Scale D	83-86
Rockwell Hardness	Scale M	Scale M	73-76	Scale M	73-76
Polymerized Density	ASTM D792	g/cm3	1.18-1.19	no data	no data
Ash Content	USP281	%	0.21-0.22	%	0.21-0.22

MATERIALS SIMULATING ENGINEERING PLASTICS // POLYPROPYLENE-LIKE MATERIALS

DurusWhite RGD430					
	ASTM	Units	Metric	Units	Imperial
Tensile Strength	D-638-03	MPa	20-30	psi	2900-4350
Elongation at Break	D-638-05	%	40-50	%	40-50
Modulus of Elasticity	D-638-04	MPa	1000-1200	psi	145,000-175,000
Flexural Strength	D-790-03	MPa	30-40	psi	4350-5800
Flexural Modulus	D-790-04	MPa	1200-1600	psi	175,000-230,000
HDT, °C @ 0.45 MPa	D-648-06	°C	37-42	°F	99-108
HDT, °C @ 1.82 MPa	D-648-07	°C	32-34	°F	90-93
Izod Notched Impact	D-256-06	J/m	40-50	ft lb/inch	0.749-0.937
Water Absorption	D-570-98 24hr	%	1.5-1.9	%	1.5-1.9
Tg	DMA, E+	°C	35-37	°F	95-99
Shore Hardness (D)	Scale D	Scale D	74-78	Scale D	74-78
Rockwell Hardness	Scale M	Scale M	no data	Scale M	no data
Polymerized Density	ASTM D792	g/cm3	1.15-1.17	no data	no data
Ash Content	USP281	%	0.10-0.12	%	0.1-0.12

Rigur RGD450					
	ASTM	Units	Metric	Units	Imperial
Tensile Strength	D-638-03	MPa	40-45	psi	5800-6500
Elongation at Break	D-638-05	%	20-35	%	20-35
Modulus of Elasticity	D-638-04	MPa	1700-2100	psi	246,000-305,000
Flexural Strength	D-790-03	MPa	52-59	psi	7500-8500
Flexural Modulus	D-790-04	MPa	1500-1700	psi	217,000-246,000
HDT, °C @ 0.45 MPa	D-648-06	°C	49-54	°F	120-129
HDT, °C @ 1.82 MPa	D-648-07	°C	45-50	°F	113-122
Izod Notched Impact	D-256-06	J/m	30-35	ft lb/inch	0.561-0.656
Tg	DMA, E+	°C	48-52	°F	118-126
Shore Hardness (D)	Scale D	Scale D	80-84	Scale D	80-84
Rockwell Hardness	Scale M	Scale M	58-62	Scale M	58-62
Polymerized Density	ASTM D792	g/cm3	1.20-1.21	no data	no data
Ash Content	USP281	%	0.3-0.4	%	0.3-0.4

MATERIALS SIMULATING ENGINEERING PLASTICS // RUBBER-LIKE MATERIALS

TangoBlackPlus FLX980 and TangoPlus FLX930					
	ASTM	Units	Metric	Units	Imperial
Tensile Strength	D-412	MPa	0.8-1.5	psi	115-220
Elongation at Break	D-412	%	170-220	%	170-220
Compressive Set	D-395	MPa	4-5	%	4-5
Shore Hardness (A)	D-2240	Scale A	26-28	Scale A	26-28
Tensile Tear Resistance	D-624	Kg/cm	4-5	lb/in	18-22
Polymerized Density	ASTM D792	g/cm3	1.12-1.13	no data	no data

TangoBlack FLX973					
	ASTM	Units	Metric	Units	Imperial
Tensile Strength	D-412	MPa	1.8-2.4	psi	115-350
Elongation at Break	D-412	%	45-55	%	45-55
Compressive Set	D-395	MPa	0.5-1.5	%	0.5-1.5
Shore Hardness (A)	D-2240	Scale A	60-62	Scale A	60-62
Tensile Tear Resistance	D-624	Kg/cm	3-5	lb/in	18-24
Polymerized Density	ASTM D792	g/cm3	1.14-1.15	no data	no data

TangoGray FLX950					
	ASTM	Units	Metric	Units	Imperial
Tensile Strength	D-412	MPa	3-5	psi	435-725
Elongation at Break	D-412	%	45-55	%	45-55
Compressive Set	D-395	MPa	0.5-1.5	%	0.5-1.5
Shore Hardness (A)	D-2240	Scale A	73-77	Scale A	73-77
Tensile Tear Resistance	D-624	Kg/cm	8-12	lb/in	50-60
Polymerized Density	ASTM D792	g/cm3	1.16-1.17	no data	no data

Agilus30					
	ASTM	Units	Metric	Units	Imperial
Tensile Strength	D-412	MPa	2.4-3.1	psi	348-450
Elongation at Break	D-412	%	220-240	%	220-240
Compressive Set	D-395	MPa	6-7	%	6-7
Shore Hardness (A)	D-2240	Scale A	30-35	Scale A	30-35
Tensile Tear Resistance	D-624	Kg/cm	5-7	lb/in	28-39
Polymerized Density	ASTM D792	g/cm3	1.14-1.15	no data	no data

FATHOM // FDM MATERIAL CHART

		ABSplus-P430*	PLA	ABSi	ABS-ESD7	ABS-M30	ABS-M30i	ASA	PC-ABS	PC-ISO	PC	Nylon 12	Nylon 12CF	ULTEM 9085	ULTEM 1010	PPSF
FDM 3D PRINTERS	Mojo	✔														
	uPrint SE	✔														
	uPrint SE Plus	✔														
	F170		✔			✔		✔								
	F270		✔			✔		✔								
	F370		✔			✔		✔	✔							
	Dimension 1200es	✔														
	Dimension Elite	✔														
	Fortus 250mc	✔														
	Fortus 360mc					✔		✔	✔		✔	✔				
	Fortus 400mc			✔	✔	✔	✔	✔	✔	✔	✔	✔		✔		✔
	Fortus 380mc				✔	✔	✔	✔	✔	✔	✔	✔				
	Fortus 450mc				✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	
	Fortus 900mc			✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔
LAYER THICKNESS	0.013 inch	✔		✔		✔	✔	✔	✔	✔	✔	✔		✔		✔
	0.010 inch	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
	0.007 inch	✔		✔	✔	✔	✔	✔	✔	✔	✔	✔				
	0.005 inch			✔		✔	✔	✔	✔							
	Support Structure	Soluble	Breakaway	Soluble	Soluble	Soluble	Soluble	Soluble	Soluble	Breakaway	Breakaway / Soluble	Soluble	Soluble	Breakaway	Breakaway	Breakaway
	Available Colors	Ivory, White, Black, Dark Gray, Red, Blue, Olive Green, Nectarine, Fluorescent Yellow, Custom Colors	Black, White, Light Gray, Medium Gray, Red, Blue, Colorless Translucent, Red Translucent, Blue Translucent, Yellow Translucent, Green Translucent	Colorless Translucent, Translucent Amber, Translucent Red	Black	Ivory, White, Black, Dark Gray, Red, Blue	Ivory	Ivory, Black, Dark Gray, Light Gray, White, Dark Blue, Green, Yellow, Orange, Red	Black	White, Translucent Natural	White	Black	Dark Gray	Black, Tan	Gold	Beige
MECHANICAL PROPERTIES	Tensile Strength	5,300 psi (37 MPa)	XY: 6,990 psi (48 MPa) Z: 3,830 psi (26 MPa)	5,400 psi (37 MPa)	5,200 psi (36 MPa)	XY: 4,680 psi (32 MPa) Z: 4055 psi (28 MPa)	5,200 psi (36 MPa)	XY: 4,720 psi (33 MPa) Z: 4300 psi (30 MPa)	XY: 5,040 psi (35 MPa) Z: 4345 psi (30 MPa)	8,265 psi (57 MPa)	9,800 psi (68 MPa)	7,000 psi (48 MPa)	10,967 psi (75.6 MPa)	10,390 psi (72 MPa)	12,000 psi (83 MPa)	8,000 psi (55 MPa)
	Elongation Strength	3.0%	XY: 1.5% Z: 1%	4.4%	3.0%	XY: 7% Z: 2%	4.0%	XY: 9% Z: 3%	XY: 5% Z: 2%	4.3%	4.8%	30%	1.9%	5.9%	4.0%	3.0%
	Flexural Stress	7,600 psi (53 MPa)	12,190 psi (84 MPa)	8,980 psi (62 MPa)	8,800 psi (61 MPa)	8,729 psi (60 MPa)	8,800 psi (61 MPa)	8,720 psi (60 MPa)	8,526 psi (59 MPa)	13,089 psi (90 MPa)	15,100 psi (104 MPa)	10,000 psi (69 MPa)	20,665 psi (142 MPa)	16,700 psi (115.1 MPa)	N/A	15,900 psi (110 MPa)
	IZOD Impact, Notched	2.0 ft-lb/in (106 J/m)	0.5 ft-lb/in (27 J/m)	1.8 ft-lb/in (96 J/m)	2.1 ft-lb/in (111 J/m)	2.4 ft-lb/in (128 J/m)	2.6 ft-lb/in (139 J/m)	1.2 ft-lb/in (64 J/m)	4.0 ft-lb/in (235 J/m)	1.6 ft-lb/in (86 J/m)	1.0 ft-lb/in (53 J/m)	3.74 ft-lb/in (200 J/m)	0.75 ft-lb/in (40 J/m)	2.0 ft-lb/in (106 J/m)	0.5 ft-lb/in (26 J/m)	1.1 ft-lb/in (58.73 J/m)
	Heat Deflection	204°F (96°C)	124°F (51°C)	188°F (87°C)	204°F (96°C)	204°F (96°C)	204°F (96°C)	208°F (98°C)	230°F (110°C)	271°F (133°C)	280°F (138°C)	180°F (82°C)	289°F (143°C)	307°F (153°C)	415°F (213°C)	372°F (189°C)
	Unique Properties	Variety of color options	Ultra-fast low-cost draft mode, opaque and translucent colors	Translucent material	Static dissipative with a target surface resistance of 107 ohms**	Variety of color options	ISO-10993 certified, gamma- or EtO-sterilizable	UV stability and best aesthetics	Highest impact resistance	ISO 10993 certified	High tensile strength	Fatigue resistant, high elongation at break	Highest tensile strength, highest specific stiffness	FST (flame, smoke, toxicity) certified material	Highest strength, heat, chemical resistence. Bio-compatible and food safe	Chemical resistant and autoclavable

* The Mojo 3D Printer and the uPrint SE 3D Printer use ABSplus in ivory only.