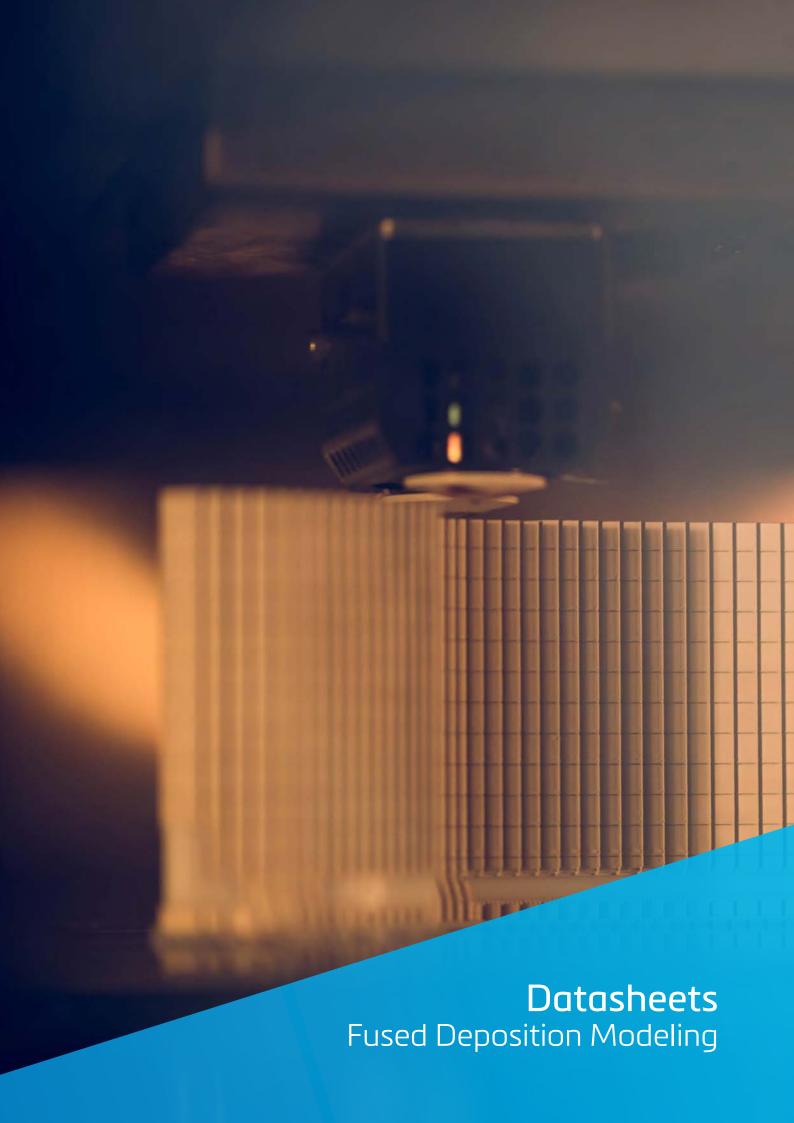


Table of Contents

Fused Deposition Mode	ling	Multi Jet Fusion	
·	_	PA 12 (MJF)	28
► ABS	4	Ultrasint TPU 90A-01	29
► ABS-ESD7	5		
► ABS-M30	6	D 1 1 /	
ABS-M30i	7	PolyJet	
► ABSi	8		
P C	9	Composite Materials (flexible)	31
► PC-ABS	10	Vero (rigid, multicolor)	32
Ultem 9085 Natural	11	VeroClear (rigid, transparent)	33
► Ultem 9085 Black	12		
		Stereolithography	
Laser Sintering		5 1 5	
_		PerFORM	35
➤ Bluesint PA12	14	Poly1500	36
PA 12 (SLS)	15	ProtoGen White	37
► PA 2210 FR	16	✓ Taurus	38
► PA 2241 FR	17	▼ TuskXC2700T	39
PA-AF	18	TuskXC2700W	40
► PA-GF	19	Tusk Somos SolidGrey3000	4
➤ Polypropylene	20	➤ Xtreme	42
Metal 3D Printing		Vacuum Castina	
Metal 3D Fillting		Vacuum Casting	
► Aluminum (AlSi10Mg)	22	ABS-like polyurethanes	44
► Inconel (IN718)	23	▶ PE/PP-like polyurethanes	46
➤ Stainless Steel (316L or 1.4404)		Rubber-like polyurethanes	47
➤ Stainless Steel (C465)	25		
Titanium (Ti6AI4V)	26		







ABS

ABS is a widely used engineering thermoplastic with high durability and fine feature detail. Printed ABS has up to 80% of the strength of injection-molded ABS, making it highly suitable for functional applications. This material is opaque and available in several color options. Applications include snap-fits, end-use components, jigs and fixtures, concept modeling, and testing for form, fit and function.

MEASUREMENT	VALUE	STANDARD
Density	1.05 g/cm³	@ 25°C
Tensile Strength	22 MPa	ASTM D638M
Tensile Modulus	1627 MPa	ASTM D638M
Flexural Strength	41 MPa	ASTM D638M
Flexural Modulus	1834 MPa	ASTM D790M
Notched Izod Impact	107 J/m	ASTM D790M
Unnotched Izod Impact	214 J/m	ASTM D256A
Heat Deflection Temperature	90 °C 76 °C	ASTM D648 @ 0.45 MPa @ 1.81 MPa
Elongation at Break	6%	

Actual values may vary with build condition

For more information on this material, please visit mtls.me/abs.







ABS-ESD7

ABS-ESD7 is a durable and electrostatic-dissipative material. The static-dissipative property makes ABS-ESD7 particularly suitable for applications where a static charge could impair performance, such as electronic products with circuit boards. Other applications for this material include end-use components, industrial equipment and jigs, and fixtures for the assembly of electronic components.

MEASUREMENT	VALUE	STANDARD
Tensile Strength	36 MPa	ASTM D638
Tensile Modulus	2400 MPa	ASTM D638
Flexural Strength	61 MPa	ASTM D790
Flexural Modulus	2400 MPa	ASTM D790
Notched Izod Impact	28 J/m	ASTM D256
Unnotched Izod Impact	55 J/m	ASTM D256
Heat Deflection Temperature	96 °C 82 °C	ASTM D648 @ 0.45 MPa @ 1.81 MPa
Volume Resistivity	3.0*10 ⁹ – 4.0*10 ¹⁰ ohm-cm	ASTM D257
Surface Resistance	10 ⁹ – 10 ⁶ ohms	ASTM D257

Actual values may vary with build condition

For more information on this material, please visit mtls.me/abs-esd7.







ABS-M30

ABS-M30 is 25-75% stronger than the standard ABS material, with higher durability, ideal for realistic functional tests. This material results in smoother parts with finer feature details. ABS-M30 is opaque and is available in several color options. Ideal applications, similar to those of ABS, include end-use components, jigs and fixtures, concept modeling, and testing for form, fit and function.

MEASUREMENT	VALUE	STANDARD
Density	1.04 g/cm³	
Tensile Strength	36 MPa	ASTM D638
Tensile Modulus	2413 MPa	ASTM D638
Flexural Strength	61 MPa	ASTM D790
Flexural Modulus	2317 MPa	ASTM D790
Notched Izod Impact	139 J/m	ASTM D256
Unnotched Izod Impact	283 J/m	ASTM D256
Heat Deflection Temperature	86 °C 82 °C	ASTM D648 @ 0.45 MPa @ 1.81 MPa
Elongation at Break	4%	

Actual values may vary with build condition

For more information on this material, please visit mtls.me/abs-m30.







ABS-M30i

Similar to ABS-M30 in its high strength, durability and fine feature detail, ABS-M30i is additionally biocompatible in its raw state and complies with ISO 10993. With these material properties, the material is suited for end-use components as well as form, fit and function testing. Its biocompatibility certification makes ABS-M30i ideal for applications in food and drug packaging, and the medical devices industry.

MEASUREMENT	VALUE	STANDARD
Density	1.04 g/cm³	
Tensile Strength	36 MPa	ASTM D638
Tensile Modulus	2413 MPa	ASTM D638
Flexural Strength	61 MPa	ASTM D790
Flexural Modulus	2317 MPa	ASTM D790
Notched Izod Impact	139 J/m	ASTM D256
Unnotched Izod Impact	238 J/m	ASTM D256
Heat Deflection Temperature	96 °C	ASTM D648 @ 0.45 MPa
Elongation at Break	4%	
Flame Retardancy	HB 2.5 mm	UL94

Actual values may vary with build condition

For more information on this material, please visit mtls.me/abs-m30i.







ABSi

ABSi (Acrylonitrile Butadiene Styrene – Biocompatible) is an ABS type thermoplastic with high impact strength. This material is stiffer and more durable than the standard ABS material, and appears translucent. That makes ABSi ideal for applications which require light transmission or flow monitoring, such as in the automotive industry or for medical device prototyping.

MEASUREMENT	VALUE	STANDARD
Density	1.08 g/cm ³	
Tensile Strength	37 MPa	ASTM D638
Tensile Modulus	1915 MPa	ASTM D638
Flexural Strength	62 MPa	ASTM D790
Flexural Modulus	1917 MPa	ASTM D790
Notched Izod Impact	96.4 J/m	ASTM D256
Unnotched Izod Impact	191.1 J/m	ASTM D256
Heat Deflection Temperature	86 °C 73 °C	ASTM D648 @ 0.45 MPa @ 1.81 MPa
Elongation at Break	4,4%	

Actual values may vary with build condition

For more information on this material, please visit mtls.me/absi.







Polycarbonate (PC)

Polycarbonates (PC) are among the most widely used industrial thermoplastics owing to the material's excellent impact strength and temperature resistance. The mechanical properties of PC make this material ideal for demanding engineering environments or applications requiring high flexural strength and tensile strength.

MEASUREMENT	VALUE	STANDARD
Density	1.2 g/cm ³	
Tensile Strength	68 MPa	ASTM D638
Tensile Modulus	2280 MPa	ASTM D638
Flexural Strength	104 MPa	ASTM D790
Flexural Modulus	2234 MPa	ASTM D790
Notched Izod Impact	53 J/m	ASTM D256
Unnotched Izod Impact	320 J/m	ASTM D256
Heat Deflection Temperature	138 °C 127 °C	ASTM D648 @ 0.45 MPa @ 1.81 MPa
Elongation at Break	4.8%	
Flame Retardancy	HB 1.5 mm	UL94

Actual values may vary with build condition

For more information on this material, please visit mtls.me/pc.







PC-ABS

PC-ABS is a blend of polycarbonate and ABS plastic which combines the strength and heat resistance of PC with the flexibility of ABS. PC-ABS exhibits high impact strength and thermal resistance, making this material an ideal choice for demanding engineering environments. Applications include snap-fits, end-use components, jigs and fixtures, concept modeling, and testing for form, fit and function.

MEASUREMENT	VALUE	STANDARD
Density	1.2 g/cm³	
Tensile Strength	41 MPa	ASTM D638
Tensile Modulus	1917 MPa	ASTM D638
Flexural Strength	68 MPa	ASTM D790
Flexural Modulus	1931 MPa	ASTM D790
Notched Izod Impact	196 J/m	ASTM D256
Unnotched Izod Impact	481 J/m	ASTM D256
Heat Deflection Temperature	110 °C 96 °C	ASTM D648 @ 0.45 MPa @ 1.81 MPa
Elongation at Break	6%	ASTM D638
Flame Retardancy	HB 1.5 mm	UL 94

Actual values may vary with build condition

For more information on this material, please visit mtls.me/pc-abs.







Ultem 9085 Natural

Ultem 9085 is a pioneering thermoplastic that is strong, lightweight and flame-retardant (passes UL 94 V-0 test). With its superior mechanical performance and strength-to-weight ratio, Ultem 9085 is suitable for end-use production-grade components, particularly in the aerospace and automotive industries. Other applications including highly functional prototypes and production tools.

MEASUREMENT	VALUE X Y	VALUE Z	STANDARD
Density	1.27 g/cm³		ASTM D792 @ 23C
Tensile Strength	70 MPa	No yield	ASTM D638
Tensile Modulus	2510 MPa	2410 MPa	ASTM D638
Elongation at Break	5.4%	1.9%	ASTM D638
Flexural Strength at Break	No break	60MPa	ASTM D790, A
Flexural Strength at 5% Strain	100MPa	-	ASTM D790, A
Flexural Modulus	2400 MPa	2120 MPa	ASTM D790, A
Notched Izod Impact	88 J/m	40 J/m	ASTM D256, ASTM D4812
Unnotched Izod Impact	650 J/m	187 J/m	ASTM D256, ASTM D4812
Heat Deflection Temperature at 1,81MPa	173°C		ASTM D648
UL Flammability	passes UL94 VO test		ANSI/UL 746B
Vertical Burn (Test a (60s), Avg Time to Extinguish)	3.6 S	<15	14 CFR 25.853(a)
Vertical Burn (Test a (60s), Avg Burned Length)	15 mm	10mm	14 CFR 25.853(a)
Smoke Density (within 4 minutes, Avg Ds) Flaming	-	4	BSS 7238, Rev. C
OSU Peak Heat Release (2 minute test)	43.7 kW-min./m ²	52.8 kW-min./m ²	14 CFR 25.853(d)

Actual values may vary with build condition

For more information on this material, please visit mtls.me/ultem-9085.









Ultem 9085 Black

Ultem 9085 is a pioneering thermoplastic that is strong, lightweight and flame-retardant. With its superior mechanical performance and strength-to-weight ratio, Ultem 9085 is suitable for end-use production-grade components, particularly in the aerospace and automotive industries. Other applications including highly functional prototypes and production tools.

MEASUREMENT	VALUE X Y	VALUE Z	STANDARD
Density	1.27 g/cm³		ASTM D792 @ 23C
Tensile Strength	70 MPa	No yield	ASTM D638
Tensile Modulus	2530 MPa		ASTM D638
Elongation at Break	5.4%	2.1%	ASTM D638
Flexural Strength at Break	No break		ASTM D790, A
Flexural Strength at 5% Strain	105MPa	-	ASTM D790, A
Flexural Modulus	2470 MPa		ASTM D790, A
Notched Izod Impact	95 J/m	37 J/m	ASTM D256, ASTM D4812
Unnotched Izod Impact	770 J/m		ASTM D256, ASTM D4812
Heat Deflection Temperature @ 1,81MPa	173°C		ASTM D648
Vertical Burn (Test a (60s), Avg Time to Extinguish)	<15	<15	14 CFR 25.853(a)
Vertical Burn (Test a (60s), Avg Burned Length)	30 mm	38 mm	14 CFR 25.853(a)
Smoke Density (within 4 minutes, Avg Ds) Flaming	10	15	BSS 7238, Rev. C
OSU Peak Heat Release (2 minute test)	43.7 kW-min./m ²	52.8 kW-min./m ²	14 CFR 25.853(d)

Actual values may vary with build condition

For more information on this material, please visit mtls.me/ultem-9085.











Bluesint PA 12

Bluesint PA 12 is a more sustainable rapid prototyping alternative to the PA 12 SLS material. Previously, prototyping with traditional laser sintering meant that about 70% of the unsintered powder became waste. But with Bluesint PA 12, we can use that unsintered powder to build brand-new parts. The result is a printed part with mechanical properties similar to traditional PA 12 but printed with 100% re-used powder, reducing carbon footprint by about 30%.

MEASUREMENT	VALUE	STANDARD
Density	0.95 ±0.03 g/cm³	
Tensile Strength	45 MPa ±7 MPa	DIN EN ISO527
Tensile Modulus	1570 MPa	DIN EN ISO527
Elongation at Break	17% ±7 %	DIN EN ISO527
Flexural Modulus	1150 MPa	ASTM D790
Izod – Impact strength	28 ±8 kJ/m²	DIN EN ISO180
Izod – Notched Impact Strength	4.9 ±0.7 kJ/m²	DIN EN ISO180
Ball Indentation Hardness	77.6 ±2	DIN EN ISO2039
Shore D/A-hardness	D75	DIN 53505
Melting Temperature	176°C	ISO 11357-1/-3

Actual values may vary with build condition

For more information on this material, please visit mtls.me/bluesint-pa-12.







PA 12 (SLS)

Being a solid material, polyamide powder has the attractive feature of being self-supporting for the generated product sections. This makes support structure redundant. Polyamide allows the production of fully functional prototypes or end-use parts with high mechanical and thermal resistance. Polyamide parts have excellent long-term stability and are resistant against most chemicals. They can be made watertight by impregnation. The PA material used by Materialise is certified as biocompatible and food-safe under certain conditions.

MEASUREMENT	VALUE	STANDARD
Density	0.95 ±0.03 g/cm³	
Tensile Strength	48 ±3 MPa	DIN EN ISO527
Tensile Modulus	1650 MPa	DIN EN ISO527
Flexural Strength	41 MPa	D790
Elongation at Break	20 ±5%	DIN EN ISO527
Flexural Modulus	1500 N/mm²	DIN EN ISO178
Charpy – Impact strength	53 ±3.8 kJ/m²	DIN EN ISO179
Charpy – Notched Impact Strength	4.8 ±0.3 kJ/m²	DIN EN ISO179
Izod – Notched Impact Strength	4.4 ±0.4 kJ/m²	DIN EN ISO180
Ball Indentation Hardness	77.6 ±2	DIN EN ISO2039
Shore D/A-hardness	D75 ±2	DIN 53505
Heat Deflection Temperature	86 °C	ASTM D648 @ 1.82 MPa

Actual values may vary with build condition

For more information on this material, please visit mtls.me/pa-12-sls.









PA 2210 FR

PA 2210 FR is a flame-resistant, halogen-free polyamide (PA 12) material, with excellent long-term stability and chemical resistance. This high-performance plastic is Blue Card-certified, meaning it is tested and approved regularly by an independent test lab. Since it also passes the UL 94 VO test and tests part of FAR 25.853, it is suitable for even electrical and electronic, and aeronautics and aerospace applications.

MEASUREMENT	VALUE	STANDARD
Density of parts	1.06 g/cm ³	
Tensile Strength	46 MPa	DIN EN ISO 527
Elongation at Break	4%	DIN EN ISO 527
Tensile Modulus	2500 MPa	DIN EN ISO 527
Flexural Modulus	2300 MPa	DIN EN ISO 178
Flexural Strength	65 MPa	DIN EN ISO 179
Melting Temperature (20°C/min)	185°C	ISO 11357-1/-3
Flammability properties	1.7/2.0 mm	JAR/FAR 25, App. F, part 1 & AITM 2.0002 B Vertical Bunsen Burner Test 12s Ignition Time
Smoke generation	1.7/2.0 mm	JAR/FAR 25, App. F – Part V & AITM 2.0007
Toxic gas generation	1.7/2.0 mm	AITM 3.0005
Burning behavior	3.0 mm	UL 94 V-0 Blue Card-Certified

Actual values may vary with build condition

For more information on this material, please visit mtls.me/pa-2210-fr.







PA 2241 FR

PA 2241 FR is a flame-resistant polyamide (PA 12) material, with excellent long-term stability and chemical resistance. Owing to its flame-retardant quality, this high-performance plastic is suitable for aeronautics and aerospace applications in accordance with FAR 25.853.

MEASUREMENT	VALUE	STANDARD
Density	1.00 ±0.03 g/cm³	
Tensile Strength	49 MPa	DIN EN ISO 527
Elongation at Break	15%	DIN EN ISO 527
Tensile Modulus	1900 MPa	DIN EN ISO 527
Heat Deflection Temperature	86 °C	ASTM D648 @ 1.82 MPa
Flammability properties	1.0/1.5/2.0 mm	JAR/FAR 25, App. F, part 1 AITM 2.0002 B Vertical Bunsen Burner Test 12s Ignition Time
Smoke generation	1.0/1.5/2.0 mm	JAR/FAR 25, App. F – Part V & AITM 2.0007
Hardness	89 HRB	DIN EN ISO 6508-1
Toxic gas generation	1.0/1.5/2.0 mm	AITM 3.0005

Actual values may vary with build condition Passes aerospace flame resistance tests FAR 25.853

For more information on this material, please visit mtls.me/pa-2241-fr.







PA-AF

Polyamide Aluminum-Filled (PA-AF) is a blend of aluminum powder and polyamide powder, which allows metallic-looking, non-porous components to be machined easily and is resistant to high temperatures (130°C). Typical applications include parts for wind tunnel testing in the automotive industry, small production runs, jig manufacturing, education and illustrative models with a metallic appearance.

MEASUREMENT	VALUE	STANDARD
Density	1.36 ±0.05 g/cm³	
Tensile Strength	48 ±3 MPa	DIN EN ISO527
Tensile Modulus	3800 ±150 MPa	DIN EN ISO527
Flexural Modulus	3600 ±150 MPa	DIN EN ISO178
Charpy – Impact strength	29 ±2 kJ/m²	DIN EN ISO179
Charpy – Notched Impact Strength	4.6 ±0.3 kJ/m²	DIN EN ISO179
Shore D/A-hardness	D76 ±2	DIN 53505
Heat Deflection Temperature	130 °C	ASTM D648 @ 1.82 MPa
Elongation at Break	3.5 ±1%	DIN EN ISO527

Actual values may vary with build condition

For more information on this material, please visit mtls.me/pa-af.







PA-GF

Polyamide powder filled with glass particles (PA-GF) has a much higher thermal resistance (up to 110°C) than polyamide, and is typically used in functional tests with high thermal loads. This material exhibits excellent stiffness, high density and tensile strength, combined with low specific weight. As a result, PA-GF is ideal for demanding conditions where stiffness, temperature performance or wear resistance is key.

MEASUREMENT	VALUE	STANDARD
Density	1.22 ±0.03 g/cm³	
Tensile Strength	51 ±3 MPa	DIN EN ISO527
Tensile Modulus	3200 ±200 MPa	DIN EN ISO527
Elongation at Break	6 ±3%	DIN EN ISO527
Flexural Modulus	2900 ±150 MPa	DIN EN ISO178
Charpy – Impact strength	35 ±6 kJ/m²	DIN EN ISO179
Charpy – Notched Impact Strength	5.4 ±0.6 kJ/m²	DIN EN ISO179
Izod – Impact Strength	21.3 ±1.7 kJ/m²	DIN EN ISO180
Izod – Notched Impact Strength	4.2 ±0.3 kJ/m²	DIN EN ISO180
Ball Indentation Hardness	98	DIN EN ISO2039
Shore D/A-hardness	D80 ±2	DIN 53505
Heat Deflection Temperature	110 °C	ASTM D648 @ 1.82 MPa

Actual values may vary with build condition

For more information on this material, please visit mtls.me/pa-gf.







Polypropylene (PP)

Polypropylene is one of the most versatile and commonly used plastics in industrial production. 3D-printed PP is a translucent off-white material with exceptionally high elongation at break, and properties comparable to injection molded PP. Tough, fatigue-resistant and lightweight, PP is suited for form-, fit- and function-testing. Prototypes and test parts in 3D-printed PP carry the unique advantage of being produced in the same material as the end-part. Ideal applications include functional prototypes for snap-fit assemblies or living hinges in automotive components, packaging, and consumer goods.

MEASUREMENT	VALUE	STANDARD
Density	0.84 g/cm³	
Tensile Strength	21.4 MPa	DIN EN ISO527
Tensile Modulus	907 MPa	DIN EN ISO527
Elongation at Break	529%	DIN EN ISO527
Flexural Modulus	698 MPa	DIN EN ISO178

Actual values may vary with build condition

For more information on this material, please visit mtls.me/pp.









Aluminum (AlSi₁₀Mg)

AlSi¹⁰Mg is an aluminum alloy that combines good strength and thermal properties with low weight and flexible post-processing possibilities. For those reasons, it's an often used material in automotive, aerospace and automation. Applications include housings, ductwork, engine parts, production tools and molds, both for prototyping and manufacturing purposes.

MEASUREMENT	STANDARD GRADE	PERFORMANCE GRADE	ASTM/PROCEDURE
Density	>2.59 g/cm³	> 2.65g/cm³	WGE-Prod-067EN
Relative Density	>97.0%	>99.0%	WGE-Prod-067EN
Tensile Strength	>250 MPa	>300 MPa	DIN EN ISO 6892-1:2009
Yield Strength	>180 MPa	>190 MPa	DIN EN ISO 6892-1:2009
E-Modulus	70 GPa	70 GPa	DIN EN ISO 6892-1:2009
Elongation at Break	>1.0%	>2.0%	DIN EN ISO 6892-1:2009
Roughness R _a	<20 µm	<16 µm	ISO 4287 / AITM 1-00070
Roughness R _z	<80 µm	<70 µm	ISO 4287 / AITM 1-00070
Hardness	>80 HV	>100 HV	ISO 6597-1:03-2006

Actual values may vary with build condition

Strong tensions, due to part geometry, may cause distortion in the part which may lead to greater deviation. Values for surface roughness depending on orientation or surface. Downward-facing surfaces and surfaces with support will be

Values represent as printed status. No stress relief heat treatment. Stress relief heat treatment will have impact on the mechanical properties.

For more information on this material, please visit mtls.me/aluminum.







Inconel (IN718)

Inconel 718 exhibits an exceptional thermal resistance, up to 700°C, and high resistance to oxidation and corrosion. It also offers excellent strength, with high yield, tensile and creeprupture properties. 3D-printed Inconel retains strength over a wide temperature range, making IN718 an attractive choice for extreme environments, whether in high-temperature applications like turbines and engine parts or low-temperature applications like cryogenic environments. Inconel is ideal for the aerospace and automotive industries, with common applications including ductwork, valves and heat exchangers.

MEASUREMENT	STANDARD GRADE	ASTM/PROCEDURE
Density	>8.07 g/cm ³	WGE-Prod-067EN
Relative Density	>99.0%	WGE-Prod-067EN
Tensile Strength	>940 Mpa	DIN EN2002-1
Yield Strength	>750 MPa	DIN EN2002-1
E-Modulus	220 GPa	DIN EN2002-1
Elongation at Break	>8.0%	DIN EN2002-1
Roughness $R_{_{\rm o}}$	<15 µm	ISO 4287 / AITM 1-00070
Roughness R _z	<60 µm	ISO 4287 / AITM 1-00070
Hardness	>300HV	ISO 6597-1:03-2006

Actual values may vary with build condition

Strong tensions, due to part geometry, may cause distortion in the part which may lead to greater deviation. Values for surface roughness depending on orientation or surface. Downward-facing surfaces and surfaces with support will be rougher.

Values represent stress relief heat treated status. No aging.

For more information on this material, please visit mtls.me/inconel.









Stainless Steel (SS316L or 1.4404)

SS316L, a low-carbon alloy of stainless steel also known as 1.4404, is highly corrosion-resistant and offers excellent strength. 3D-printed stainless steel has high ductility and good thermal properties. Stainless steel can be used for food-safe applications, machine components and production tools. Other applications include ductwork, durable prototypes, spare parts, medical instruments and wearables.

MEASUREMENT	STANDARD GRADE	PERFORMANCE GRADE	ASTM/PROCEDURE
Density	>7.91 g/cm³	>7.95 g/cm³	WGE-Prod-067EN
Relative Density	>99.0%	>99.5%	WGE-Prod-067EN
Tensile Strength	>510 Mpa	>530 MPa	DIN EN ISO 6892-1:2009 / DIN EN2002-1
Yield Strength	>300 MPa	>340 MPa	DIN EN ISO 6892-1:2009 / DIN EN2002-1
E-Modulus	180 GPa	180 GPa	DIN EN ISO 6892-1:2009 / DIN EN2002-1
Elongation at Break	>45%	>50%	DIN EN ISO 6892-1:2009 / DIN EN2002-1
Roughness $R_{\scriptscriptstyle a}$	<20 µm	<15 µm	ISO 4287 / AITM 1-00070
Roughness R _z	<90 µm	<70 µm	ISO 4287 / AITM 1-00070
Hardness	>170 HV	>200 HV	ISO 6597-1:03-2006

Actual values may vary with build condition

Strong tensions, due to part geometry, may cause distortion in the part which may lead to greater deviation. Values for surface roughness depending on orientation or surface. Downward-facing surfaces and surfaces with support will be rougher.

Values represent stress relief heat treated status.

For more information on this material, please visit mtls.me/stainless-steel.







Stainless Steel (C465)

C465 stainless steel material is an age-hardenable alloy, ideal for producing high-performance metal parts. Well-suited to demanding environments, C465 offers excellent strength and toughness, and high corrosion resistance. These properties are desirable for enduse parts in the aerospace, medical, and maritime industries. Applications include hand tools, plastic injection molds, oil and gas drilling machines, and other industrial equipment.

MEASUREMENT	STANDARD GRADE	PERFORMANCE GRADE	ASTM/PROCEDURE
Density	>7.8 g/cm³	>7.84 g/cm³	
Relative Density	>99.0%	>99.5%	
Tensile Strength	>1400 Mpa	>1600 MPa	EN2002-1
Yield Strength	>1300 MPa	>1500 MPa	EN2002-1
E-Modulus	~195	~195	EN2002-1
Elongation at Break	>2%	>2%	EN2002-1
Roughness R _a	<22 µm		ISO 4287:2010-07
Roughness R _z	<120 µm		ISO 4287:2010-07
Hardness	>500 HV	>550 HV	DIN EN ISO 6507-1:2018-07 HV10

Actual values may vary with build condition

Strong tensions, due to part geometry, may cause distortion in the part which may lead to greater deviation. Values for surface roughness depending on orientation or surface. Downward-facing surfaces and surfaces with support will be rougher.

Values represent stress relief heat treated status.

For more information on this material, please visit mtls.me/stainless-steel-C465









Titanium (Ti6AI4V)

Ti₆Al₄V, one of the widest-known alloys in Metal 3D Printing, combines excellent mechanical properties with very low specific weight. This material is corrosion- resistant and used in a variety of demanding engineering environments such as aeronautics. Applications include functional prototypes, solid end-use parts, medical devices and spare parts.

MEASUREMENT	STANDARD GRADE	PERFORMANCE GRADE	ASTM/PROCEDURE
Density	>4.36 g/cm ³	>4.39 g/cm³	WGE-Prod-067EN
Relative Density	>99.0%	>99.5%	WGE-Prod-067EN
Tensile Strength	>900 Mpa*	>980 MPa	DIN EN2002-1
Yield Strength	> 830 MPa	>900 MPa	DIN EN2002-1
E-Modulus	110 GPa	110 GPa	DIN EN2002-1
Elongation at Break	>10.0%*	> 14.0%	DIN EN2002-1
Roughness R _a	<20 µm	<20 µm	ISO 4287 / AITM 1-00070
Roughness R _z	<80 µm	<80 µm	ISO 4287 / AITM 1-00070
Hardness	>310 HV	>340 HV	ISO 6597-1:03-2006

Actual values may vary with build condition

Strong tensions, due to part geometry, may cause distortion in the part which may lead to greater deviation. Values for surface roughness depending on orientation or surface. Downward-facing surfaces and surfaces with support will be rougher.

Values represent stress relief heat treated status.

For more information on this material, please visit mtls.me/titanium.





^{*}Values for tensile specimens according DIN EN ISO 6892 status as build.





PA 12 (MJF)

No matter how complex your designs, polyamide is a great and versatile choice. The self-supporting powder needs no support structure and works equally well for fully functional prototypes or end-use parts. The PA 12 material used by Multi Jet Fusion technology has a very fine grain, resulting in parts with higher density and lower porosity than parts produced with Laser Sintering. That feature also makes PA 12 for MJF the ideal choice when you need more detailed surface resolution or thinner walls than are possible with Laser Sintering. Think crisp textures, embossing, and engraving, or labels.

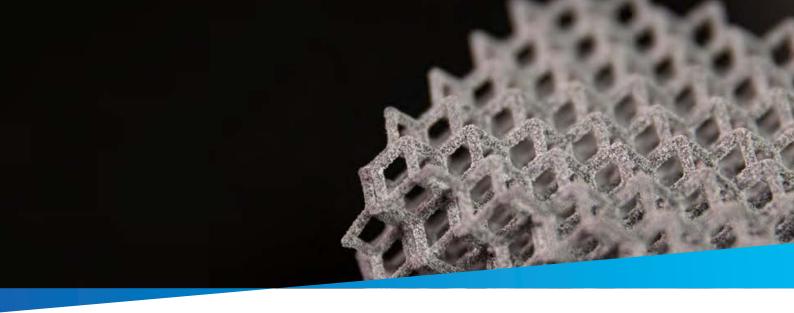
MEASUREMENT	VALUE	STANDARD
Density of parts	1.01 g/cm3	ASTM D792
Tensile Strength, Max Load - XY	48 MPa/6960 psi	ASTM D638
Tensile Strength, Max Load - Z	48 MPa/6960 psi	ASTM D638
Tensile Modulus - XY	1700 MPa/245 ksi	ASTM D638
Tensile Modulus - Z	1800 MPa/260 ksi	ASTM D638
Elongation at Break - XY	20%	ASTM D638
Elongation at Break – Z	15%	ASTM D638
Heat Deflection Temperature - Z	175 °C 95 °C	ASTM D648 @ 0.45 MPa @ 1.82 MPa

Actual values may vary with build condition

For more information on this material, please visit mtls.me/pa-12-mjf.







Ultrasint TPU 90A-01

Ultrasint TPU 90A-01, a thermoplastic polyurethane, is a fully-functional and flexible material with high elongation at break. Ultrasint TPU 90A-01 combines durable elasticity with good wear resistance and abrasion resistance, making it an ideal material for prototyping and manufacturing applications that require good shock absorption and rubber-like elasticity over a wide range of temperatures. Produced with Multi Jet Fusion technology, Ultrasint TPU 90A-01 exhibits smooth surfaces and high detail.

MEASUREMENT	VALUE X Y	VALUE Z	STANDARD
Density	1,1 g/cm³	1,1 g/cm³	
Hardness Shore A	88	88	DIN ISO 7619-1
Tensile Strength	9 MPa	7 MPa	DIN 53504, S2
Tensile Elongation at break	220 %	120 %	DIN 53504, S2
Tensile Modulus	75 MPa	85 MPa	ISO 527-2, 1A
Flexural Modulus	75 MPa	75 MPa	DIN EN ISO 178
Tear resistance (Trouser)	20 kN/m	16 kN/m	DIN ISO 34-1, A
Tear resistance (Graves)	36 kN/m	32 kN/m	DIN ISO 34-1, B
Compression set B (23°C, 72h)	20 %	20 %	DIN ISO 815-1
Rebound resilience	63 %	63 %	DIN 53512
Abrasion resistance	140 mm³	100 mm³	DIN ISO 4649
Charpy Impact Strength (notched, 23°C)	Partial Break	No Break	DIN EN ISO 179-1
Charpy Impact Strength (notched, -10°C)	21 kJ/m²	29 kJ/m²	DIN EN ISO 179-1
Rossflex testing (100k cycles, 23°C)	No Cut Growth		ASTM D1052
Rossflex testing (100k cycles, -10°C)	No Cut Growth		ASTM D1052
Vicat/ A (10N)	84	96 °C	DIN EN ISO 306
Melting temperature	120-150 °C	120-150 °C	ISO 11357 (20K/min)

Actual values may vary with build condition

For more information on this material, please visit mtls.me/TPU-MJF.











Composite Materials

The Agilus family of materials is a set of flexible, rubber-like resins for PolyJet. Agilus is translucent while Agilus Black is a vivid black. Both Agilus materials provides superior tear-resistance and elongation at break making them suitable for prototypes of rubber components like seals, non-slip surfaces, overmolding, etc. Agilus materials can be combined with Vero materials to simulate specific Shore values, influence tensile strength and tear resistance. We offer six composite materials with preset combinations of mechanical properties: Shore A40 - Shore A50 - Shore A60 - Shore A70 - Shore A85 - Shore A95.

Agilus Black

MEASUREMENT	VALUE	STANDARD
Tensile Strength	2.4 – 3.1 MPa	ASTM D-412
Elongation at Break	220 – 270%	ASTM D-412
Shore Hardness (A)	30 – 35	Scale A
Tensile Tear Resistance	4 – 7 Kg/cm	ASTM D-624
Compressive Set	6 – 7%	ASTM D-395
Polymerized Density	1.14 – 1.15 g/cm³	ASTM D-792

Composite Materials

Primary material: VeroWhitePlus Secondary material: Agilus Black	DM_9840/ Shore A40	DM_9850/ Shore A50	DM_9860/ Shore A60	DM_9870/ Shore A470	DM_9885/ Shore A85	DM_9895/ Shore A95
Tensile Strength (MPa)	0.5 – 1.5	0.5 – 1.5	2 – 4	2 – 4	4 – 8	15 – 25
Elongation at Break (%)	150 – 170	130 – 150	80 – 100	50 – 70	50 - 60	25 – 35
Shore (Scale A)	28 – 40	36 – 50	46 – 60	57 – 70	70 – 85	80 – 95
Color	Black	Black	Black	Black	Black	Black

Actual values may vary with build condition Shore values are provided by Stratasys

For more information on this material, please visit mtls.me/composite.









Vero

This set of Vero materials is rigid and opaque, with a high level of surface detail and available in multiple colors. These PolyJet materials are general-purpose resins, offering enhanced mechanical properties and the ability to withstand bending. We offer opaque colors in the Vero line. These materials can be blended with others on PolyJet machines to achieve your desired level of rigidity or translucency.

MEASUREMENT	VALUE	STANDARD
Tensile Strength	50 – 65 MPa	ASTM D-638
Elongation at Break	10 – 25%	ASTM D-638
Modulus of Elasticity	2000 – 3000 MPa	ASTM D-638
Flexural Strength	75 – 110 MPa	ASTM D790
Flexural Modulus	2200 – 3200 MPa	ASTM D790
Notched Izod Impact	20 – 30 J/m	ASTM D256
Shore Hardness (D)	83 – 86	Scale D
Rockwell Hardness	73 – 76	Scale M
Heat Deflection Temperature	45-50 °C 45-50 °C	ASTM D648 @ 0.45 MPa @ 1.81 MPa
Glass Transition Temperature	52 – 54°C	DMA, E"
Ash Content	0.23 – 0.26%	USP281
Polymerized Density	1.17 – 1.18 g/cm³	ASTM D792

Actual values may vary with build condition Shore values are provided by Stratasys

For more information on this material, please visit mtls.me/vero.







VeroClear

VeroClear is a transparent, rigid material that offers exceptional surface detail, in common with the Vero family of materials. The high dimensional stability and smooth surface quality of VeroClear make it an ideal material for fine-detailed model building, or prototypes for clear parts. With its transparent appearance, VeroClear is also ideal for parts which require visibility of liquid flows. To create an endless variety of translucent shades or patterns, VeroClear can be combined with colored materials on PolyJet machines.

MEASUREMENT	VALUE	STANDARD
Tensile Strength	50 – 65 MPa	ASTM D-638
Elongation at Break	10 – 25%	ASTM D-638
Modulus of Elasticity	2000 – 3000 MPa	ASTM D-638
Flexural Strength	75 – 110 MPa	ASTM D790
Flexural Modulus	2200 – 3200 MPa	ASTM D790
Notched Izod Impact	20 – 30 J/m	ASTM D256
Shore Hardness (D)	83 – 86	Scale D
Rockwell Hardness	73 – 76	Scale M
Heat Deflection Temperature	45-50 °C 45-50 °C	ASTM D648 @ 0.45 MPa @ 1.81 MPa
Glass Transition Temperature	52 – 54°C	DMA, E"
Ash Content	0.02 – 0.06%	USP281
Polymerized Density	1.18 – 1.19 g/cm³	ASTM D792

Actual values may vary with build condition Shore values are provided by Stratasys

For more information on this material, please visit mtls.me/veroclear.











PerFORM

PerFORM produces strong, stiff parts with high thermal resistance, suitable for wind tunnel tests for aerospace and automotive applications. It exhibits superior sidewall quality, along with excellent detail resolution, which makes it ideal for metal plating purposes as well as rapid tooling for injection molding. Applications include wind tunnel testing, high temperature testing, automotive housings, electronic housings, and tooling for injection molding.

MEASUREMENT	VALUE	STANDARD
Density	1.61 g/cm³	@ 25°C
Tensile Strength	68 MPa	ASTM D638M
Tensile Modulus	10,500 MPa	ASTM D638M
Elongation at Break	1.1%	ASTM D638M
Flexural Modulus	10,000 MPa	ASTM D790M
Flexural Strength	120 MPa	ASTM D790M
Notched Izod Impact	17 J/m	ASTM D256A
Water Absorption	0.2%	ASTM D570-98
Heat Deflection Temperature	132 °C 82 °C	ASTM D648-98c @ 0.46 MPa @ 1.82 MPa

Actual values may vary with build condition

For more information on this material, please visit mtls.me/perform.







Poly1500

Poly1500 is a translucent material with properties comparable to those of PP (polypropylene) and engineering plastics. Being impact-resistant and durable, this material is suited for rigid, functional prototypes in a large range of applications such as automotive components, electronic housings, and snap-fit assemblies.

MEASUREMENT	VALUE	STANDARD
Density	1.18 – 1.2 g/cm³	
Tensile Strength	30 – 32 MPa	ASTM D638M
Tensile Modulus	1227 – 1462 MPa	ASTM D638M
Elongation at Break	15 – 25%	ASTM D638M
Flexural Strength	41 – 46 MPa	ASTM D790
Flexural Modulus	1310 – 1455 MPa	ASTM D790
Notched Izod Impact	48 – 53 J/m	ASTM D256A
Hardness (Shore D)	80 - 82	ASTM D2240
Heat Deflection Temperature	52 - 61°C	ASTM D648 @ 0.46 MPa

Actual values may vary with build condition

For more information on this material, please visit mtls.me/poly1500.







ProtoGen White

ProtoGen White is suitable for general purpose applications with ABS-like specifications. A resilient material with good surface quality and thermal properties, ProtoGen White is ideal for markets that demand accurate RTV (room temperature vulcanized) patterns, highly detailed parts and durable concept models. Applications include impellers, ductwork and connectors, automotive housings, dashboard assemblies and high-end finished models.

MEASUREMENT	VALUE	STANDARD	
Density	1.18 – 1.2 g/cm³		
Tensile Strength	43.8 MPa	ASTM D638M	
Tensile Modulus	2310 MPa	ASTM D638M	
Elongation at Break	16%	ASTM D638M	
Flexural Strength	70.5 MPa	ASTM D790M	
Flexural Modulus	2130 MPa	ASTM D790M	
Notched Izod Impact	22 J/m	ASTM D256A	
Hardness (Shore D)	88	ASTM D2240	
Water Absorption	0.68%	ASTM D570-98	
Glass Transition Temperature	57 – 59°C	ASTM E1545-00	
Heat Deflection Temperature	56°C 47°C	ASTM D648-98c @ 1.82 MPa @ 0.46 MPa	

Actual values may vary with build condition







Taurus

Taurus is a charcoal black material with strong mechanical properties, including a high elongation at break and thermal resistance. Its black surface is helpful in detecting surface imperfections, and Taurus exhibits high surface detailing and precision, making it an ideal choice for the aerospace and automotive industries. Suitable applications include functional prototypes and form-, fit- and function-testing. For an SLA material, Taurus is remarkable for its thermoplastic-like appearance and performance. If you need the look and feel of an injection-molded part with fast lead times, Taurus is what you're looking for.

MEASUREMENT	VALUE	STANDARD	
Density	1.13 g/cm³		
Tensile Strength	46.9 MPa	ASTM D638-14	
Tensile Modulus	2310 MPa	ASTM D638-14	
Elongation at Break	17%	ASTM D638-14	
Flexural Strength	73.8 MPa	ASTM D790-15e2	
Flexural Modulus	2054 MPa	ASTM D790-15e2	
Notched Izod Impact	47.5 J/m	ASTM D256-10e1	
Hardness (Shore D)	83	ASTM D2240-05	
Heat Deflection Temperature	62°C 50°C	ASTM D648-16 @ 0.46 MPa @ 1.81 MPa	

Actual values may vary with build condition







TuskXC2700T

TuskXC2700T is a transparent material with a slight blue tinge. It is suitable for strong, water-resistant prototypes with ABS- and PBT-like specifications (e.g. parts for water flow analysis and wind tunnel testing). Other applications include functional prototypes and high-end finished models.

MEASUREMENT	VALUE	STANDARD	
Density	1.18 – 1.2 g/cm³		
Tensile Strength	47.1 – 53.6 MPa	ASTM D638M	
Tensile Modulus	2650 – 2880 MPa	ASTM D638M	
Elongation at Break	11 – 20%	ASTM D638M	
Flexural Strength	63.1 – 74.16 MPa	ASTM D790M	
Flexural Modulus	2040 – 2370 MPa	ASTM D790M	
Notched Izod Impact	20 – 30 J/m	ASTM D256A	
Hardness (Shore D)	81	ASTM D2240	
Heat Deflection Temperature	5.9 - 54.5°C 49.0 - 49.7°C	ASTM D648-98c @ 0.46 MPa @ 1.81 MPa	

Actual values may vary with build condition







TuskXC2700W

TuskXC2700W is a white material that is suitable for strong, water-resistant prototypes with ABS- and PBT-like specifications (e.g. parts for water flow analysis and wind tunnel testing). Other applications include functional prototypes and high-end finished models.

MEASUREMENT	VALUE	STANDARD	
Density	1.18 – 1.2 g/cm³		
Tensile Strength	47.1 – 53.6 MPa	ASTM D638M	
Tensile Modulus	2650 – 2880 MPa	ASTM D638M	
Elongation at Break	11 – 20%	ASTM D638M	
Flexural Strength	63.1 – 74.16 MPa	ASTM D790M	
Flexural Modulus	2040 – 2370 MPa	ASTM D790M	
Notched Izod Impact	20 – 30 J/m	ASTM D256A	
Hardness (Shore D)	81	ASTM D2240	
Heat Deflection Temperature	45.9 - 54.5°C 49.0 - 49.7°C	ASTM D648-98c @ 0.46 MPa @ 1.81 MPa	

Actual values may vary with build condition







Tusk Somos SolidGrey3000

Tusk SolidGrey3000 is the world's first Stereolithography material that combines a high degree of stiffness with high impact resistance, and it is available exclusively at Materialise. Parts built with this material are not only robust, but highly functional as well, allowing them to be used in a wide variety of applications. Ideal applications include automotive body parts, machine covers, functional prototypes, durable concept models and robust scale models.

MEASUREMENT	VALUE	STANDARD	
Density	1.18 – 1.2 g/cm³		
Tensile Strength	43.8 MPa	ASTM D638M	
Tensile Modulus	2310 MPa	ASTM D638M	
Elongation at Break	16%	ASTM D638M	
Flexural Strength	70.5 MPa	ASTM D790M	
Flexural Modulus	2130 MPa	ASTM D790M	
Notched Izod Impact	22 J/m	ASTM D256A	
Hardness (Shore D)	88	ASTM D2240	
Water Absorption	0.68%	ASTM D570-98	
Glass Transition Temperature	57 – 59°C	ASTM E1545-00	
Heat Deflection Temperature	56°C 47°C	ASTM D648-98c @ 0.46 MPa @ 1.82 MPa	

Actual values may vary with build condition







Xtreme

Xtreme is a resin with good all-round properties including high impact strength, high elongation at break and excellent surface quality. Xtreme is ideal for tough enclosures, snap-fit assemblies and replacing CNC machined parts. Owing to its surface quality, this material is also suitable for finished models with a high level of detail.

MEASUREMENT	VALUE	STANDARD	
Density	1.18 – 1.2 g/cm³		
Tensile Strength	38 – 44 MPa	ASTM D638M	
Tensile Modulus	1790 – 1980 MPa	ASTM D638M	
Elongation at Break	14 – 22%	ASTM D638M	
Flexural Modulus	1520 – 2070 MPa	ASTM D790M	
Notched Izod Impact	35 – 52 J/m	ASTM D256A	
Heat Deflection Temperature	62°C 54°C	ASTM D648 @ 0.45 MPa @ 1.82 MPa	

Actual values may vary with build condition







ABS-like polyurethanes

Vacuum Casting is a copying technique used for the production of small series of functional plastic parts. Using two-component polyurethanes and silicone molds, Vacuum Casting is known for its fast production of high-quality prototypes or end-use products.

	Units	HMPU1	НМРИ3	НМРИЗР	HMPU4	HMPU5	нмри6
Density	g/cm³	1.14	1.17	1.16	1.2	1.2	1.2
Hardness at 25°C	Shore D	80	80	80	85	81	82
Hardness at 60°C	Shore D	>65 (120°C)	70 (130°C)	70 (130°C)	n/a	n/a	n/a
Tensile Strength	MPa	60	54	54	70	60	70
Tensile Modulus	MPa	n/a	1650	1650	n/a	2800	n/a
Bending Strength	MPa	80	87	87	110	105	105
Bending Modulus	MPa	2300	1600	1600	2500	2100	2500
Elongation at Break	%	11	11	11	9	7.5	15
Impact Strength	kJ/m²	>60 Charpy	56 Charpy	56 Charpy	50	71	70 Charpy
Glass Transition Temperature	°C	>120	n/a	n/a	100	95	105
Heat Deflection Temperature	°C	n/a	105	105	n/a	n/a	n/a
Max Casting Thickness	mm	5 – 10	5 – 10	5 – 10	5	5	5
Color		Black	Black	Beige	Opalescent	Off-white	White
Colorability in Mass	-/+/++/++	-	-	+	+	++	++
Special Purpose		High thermal resistance	High thermal resistance	High thermal resistance	Thermoplastic like parts	High impact resistance	High thermal and impact resistance
Thermoplastic similarity		ABS	ABS	ABS	Polycarbonate, ABS	ABS	Polystyrene- filled ABS

Actual values may vary with build condition





	Units	HMPU7.1	HMPU10	HMPU11	HMPU13	HMPU14	НМРИ15НО
Density	g/cm³	1.11	1.2 – 1.25	1.19	1.04 – 1.08	1.17 – 1.23	1.06
Hardness at 25°C	Shore D	77	85	80	85	85 – 90	86
Hardness at 60°C	Shore D	74	80 (80°C)	65 (150°C)	n/a	n/a	n/a
Tensile Strength	MPa	40	85	61	66	80 – 85	68
Tensile Modulus	MPa	n/a	n/a	1800	2400	n/a	2600
Bending Strength	MPa	51	150	80	110	105 – 115	100
Bending Modulus	MPa	1310	4500	1850	2400	2250 – 2750	2100
Elongation at Break	%	25	3	13	7.5	6 – 8	6
Impact Strength	kJ/m²	n/a	30 Charpy	41 Charpy	48 Charpy	n/a	42 Charpy
Glass Transition Temperature	°C	106	95	220	95	n/a	100
Heat Deflection Temperature	°C	90	92	n/a	85	65 – 75	85
Max Casting Thickness	mm	n/a	5	5	10	15	100
Color		White	Off-white	Light amber	Transparent	Straw	Transparent
Colorability in Mass	-/+/++/+++	++	+	+	+++	+	+++
Special Purpose		Food-safe under certain conditions	n/a	High thermal resistance	UV-stable	Flame- retardant UL 94 V-0	UV resistance, high transpa- rency
Thermoplastic similarity		ABS	PA6 / Polyoxymet- hylene / POM	PA6.6 / PPS / PEEK	PC / PMMA	n/a	PC / PMMA

Actual values may vary with build condition





PE/PP-like polyurethanes

Vacuum Casting is a copying technique used for the production of small series of functional plastic parts. Using two-component polyurethanes and silicone molds, Vacuum Casting is known for its fast production of high-quality prototypes or end-use products.

	Units	LMPU1e	LMPU2	LMPU3	LMPU5	LMPU6	LMPU7
Density	g/cm³	1.08	1.22	1.13 – 1.17	1.21	1.21	1.21
Hardness at 23°C	Shore D	64 – 67	70	76	80	80	80
Hardness at 80°C	Shore D	n/a	64	68	n/a	n/a	n/a
Tensile Strength	MPa	27	27	40	47	n/a	n/a
Tensile Modulus	MPa	530	942	n/a	1225	n/a	n/a
Bending Strength	MPa	28	42	80	60	48	64
Bending Modulus	MPa	450	1050	1200	1310	1010	1320
Elongation at Break	%	120	50	25	43	n/a	n/a
Tear Strength	kJ/m²	94	n/a	n/a	n/a	n/a	n/a
Impact Strength	°C	Unbrea- kable	15 Izod	> 50 Charpy	14 Izod	15 Izod	13 Izod
Glass Transition Temperature	°C	100	78	90	127 – 195	105 – 132	125 – 195
Heat Deflection Temperature	mm	n/a	65	n/a	105 – 175	90 – 110	115 – 180
Color		Beige / Dark Beige	White / Beige	Translu- cent	Translu- cent	Translu- cent	Translu- cent
Colorability in Mass	-/+/++/+++	+	++	+++	+++	+++	+++
Thermoplastic similarity		PE	PP	PE 30% GF	PP GF	PP	PP GF

Actual values may vary with build condition





Rubber-like polyurethanes

Vacuum Casting is a copying technique used for the production of small series of functional plastic parts. Using two-component polyurethanes and silicone molds, Vacuum Casting is known for its fast production of high-quality prototypes or end-use products.

	Units	RPU4	RPU5	RPU6	RPU10	RPU11	RPU12	RPU13
Density	g/cm³	1.02	1.08	1.09	1.02 – 1.07	1.14 – 1.15	1.05 – 1.1	1.04 – 1.09
Hardness at 23°C	Shore A	63	79	85	35	51	95	70
Tensile Strength	MPa	3	12	17	1.5 – 3.5	3	9.5 – 11.5	6.5 - 8.5
Tear Strength	KPa	24	67	83	n/a	18	n/a	20 – 25
Elongation at Break	%	1000	620	810	900 – 1100	1200	200 – 300	400 – 500
Color		Light amber	Black	Black	Translucent	Beige	Translucent	Off-white
Colorability in Mass	-/+/++/++	+	-	-	++	+	++	++
Max Operating Temperature	°C	80	80	80	70	70	70	70

Actual values may vary with build condition







Materialise has been active in Additive Manufacturing since 1990 and operates one of the largest 3D printing facilities in the world. With its headquarters in Belgium and branches worldwide, Materialise provides Additive Manufacturing software solutions and sophisticated 3D printing services in industries including healthcare, automotive, aerospace, art and consumer products.

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