

Materials	CNC MACHINED MATERIALS STARTING FROM STOCK													3D PRINTING			3D PRINTING			3D PRINTING			3D PRINTING		
	Non-ferrous alloys						Carbide grades				Plastics			HP 5210 MJF technology			HP 5210 MJF technology			HP 5210 MJF technology			LED MSLA + 4KSPER™ technology		
	Aluminum 7075 T6 Ergal	Aluminum 6082 Anticorodal	Aluminum 5083 Peraluman	OT58 Brass (UNS C14500, Cu Zn39Pb3, UN15705)	C101 Copper (UNS C11000, CW004A)	CuSn12 Bronze	C45 Steel (EN8, AISI 1045)	Steel 39 (39NiCrMo3 EN10083-3)	Steel 18NiCrMo5	Stainless Steel 316L	Stainless Steel 304	Nylon 6 + MoS2 (Polyamide 6, Tecast TM)	Delrin POM-C, acetal resin)	Nylon PA12 classic	Nylon PA12 performance	Nylon PA12 top mechanical	Nylon PA11 classic	Nylon PA11 performance	Nylon PA11 top mechanical	Polypropylene PP classic	Polypropylene PP performance	Polypropylene PP top mechanical	Resin ABS like classic	Resin ABS like performance	Resin ABS like top mechanical
Natural color	light grey	light grey	light grey	yellow	reddish yellow	dark yellow	light grey	light grey	light grey	light grey	light grey	black	white	grey			grey			grey			grey		
Available finishes	Anodizing, Lancel® shot peening	Anodizing, Lancel® shot peening	Anodizing, Lancel® shot peening	Lancel® shot peening	Lancel® shot peening	Lancel® shot peening	Lancel® shot peening	Lancel® shot peening	Lancel® shot peening	Lancel® shot peening	Lancel® shot peening	-	-	Black, blue, red, green, white. In RAL paint and dye colors.			Black, blue, red, green, white. In RAL paint and dye colors.			Black, blue, red, green, white. In RAL paint and dye colors.			-		
Density	2.88 g/cm³	2.70 g/cm³	2.66 g/cm³	8.40 g/cm³	8.91 g/cm³	8.60 g/cm³	7.87 g/cm³	7.85 g/cm³	7.85 g/cm³	7.85 g/cm³	8.00 g/cm³	1.15 g/cm³	1.41 g/cm³	1.01 g/cm³			1.05 g/cm³			0.89 g/cm³			1.20 g/cm³		
Max workable size	496x496x400 mm (19.5x19.5x15.7 in)	496x496x400 mm (19.5x19.5x15.7 in)	496x496x400 mm (19.5x19.5x15.7 in)	300x300x300 mm (11.8x11.8x11.8 in)	300x300x300 mm (11.8x11.8x11.8 in)	300x300x300 mm (11.8x11.8x11.8 in)	260x260x200 mm (10x10x7.8 in)	260x260x200 mm (10x10x7.8 in)	260x260x200 mm (10x10x7.8 in)	110x110x300 mm (4.3x4.3x11.8 in)	110x110x300 mm (4.3x4.3x11.8 in)	150x150x150 (5.9x5.9x5.9 in)	150x150x150 (5.9x5.9x5.9 in)	380x284x380 mm (15x11.2x15 in)			380x284x200 mm (15x11.2x7.8 in)			250x250x250 mm (7.87x7.87x7.87in)			250x152x390mm (9.84x5.98x15.35 in)		
Applications	High strength aeronautic alloy: gears, shafts, motorcycle and bikes frames, spurs, aerospace applications, naval engines, moulds.	Light alloy with excellent mechanical properties, and very good corrosion resistance: industrial components, load bearing elements.	Very good resistance to corrosion and mechanical resistance. For parts which require a good mechanical strength, and improved fatigue resistance.	Good corrosion and mechanical resistance: shafts, transmission parts, impellers, condenser plates, valves, pins and decorative elements.	Oxygen free copper, high electric and thermal conductivities, moderate resistance to corrosion: bus bars, automotive components, home appliances.	Good corrosion resistance: pumps bodies, valves, friction, wearing and high-pressure bearing parts.	Resisting and toughness. It is suitable for the construction of hard and tough mechanical organs such as shafts, pins, gears, mold holders and under-molds.	Tenacity and hardenability, resistance to fatigue, vibrations and twists. For heavily stressed parts, crankshafts, axle shafts, large gears.	For parts with high mechanical properties and high surface hardness conferred by cementing – hardening: gears, pins, bushings, plastic molds with high surface hardness.	Very good corrosion and chemical resistance. Heat exchangers, pipes, materials for external construction in coastal areas. Marine and food industry equipment	Household and industrial applications such as food handling and processing equipment, screws, machinery parts, utensils and car headers. It is also used in the architectural field for exterior accents.	The addition of the solid lubricant Molybdenum Sulphide makes it an excellent choice for the manufacturing of bushings, pulleys, rolls, wheels, gears, valve seats, seals.	Excellent mechanical properties, low moisture absorption, chemical inertness, and dimensional stability. Can be used in a wide range of temperatures.	Strong thermoplastic for functional prototyping and final parts. Excellent chemical resistance to oils, greases and hydrocarbons. Optimal for post finishing processes. USP Class I-VI and US FDA guidance for Intact Skin Surface Devices, RoHS,11 REACH, PAHs, UL 94, UL 746A, Statement of Composition for Toy Applications.			For functional prototypes and final parts in the automotive and consumer electronics sectors. Excellent impact and fatigue resistance for parts that require hundreds of opening and closing cycles. It can replace injection parts. Resistant to hydrocarbons and oils. UL 94HB.			Lightweight material for prototypes, automotive interiors, fluid tubes and tanks, machine parts, medical equipment and cosmetics			It offers a great level of detail, extremely smooth surfaces and due to its technical characteristics it replaces ABS in many applications. Excellent for prototypes or functional parts in the automotive and mechanical fields.		
Best tolerance	± 0,05	± 0,05	± 0,05	± 0,05	± 0,05	± 0,05	± 0,05	± 0,05	± 0,05	± 0,05	± 0,05	± 0,10	± 0,10	± 0,30mm under 100mm ±0,3% above 100mm			± 0,50mm under 100mm ±0,5% above 100mm			± 0,60mm under 100mm ±0,6% above 100mm			± 0,20mm under 100mm ±0,25% above 100mm		
Yield strenght [MPa]	434-503	230-360	110-130	340-550	180-320	140-150	280-370	540-785	635-980	290-320	280-290	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Tensile strenght [MPa]	510-572	310-385	275-350	360-500	220-410	140-280	480-700	780-1080	900-1200	570-620	520-540	55-80	65-70	42-46	46-50	50-54	44-46	49-52	52-56	30-32	34-36	37-39	44-48	48-52	52-54
Young modulus [GPa]	72	69	72	97	120	118	220	205	190	200	190	3	3	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Elongation at break [%]	5-11	10-11	12-16	6-20	6-50	5-12	20-22	11-13	13-16	50-55	65-70	50-100	25	12	15	19	31	35	39	20	22	24	14	16	17
Brinell hardness	150	100	75	90-160	90	80	175-230	250-285	200-225	215-225	120-130	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Melting point [°C]	635	645	570	875	1083	1000	1550	1580	1643	1435	1400	255	164	187			202			140			230		
Electrical conductivity (% IACS)	33	46	29	28	100	10	3	3	4	15	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rockwell M hardness												M86	M94	Shore D 80			Shore D 80			-			Shore D 84		
HDT @ 0.45 MPa [°C]												160	165	175			185			100			110		
HDT @ 1.8 MPa [°C]												55	125	95			54			60			78		
Maximum operating temperature (short term) [°C]												180	145	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Maximum operating temperature (long term, 20.000 hours) [°C]												75	85	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Water absorption (50% Rh, saturation) [%]												3	0,9	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.

