

MATERIAL DATASHEET

Rev 3.1 - March 2023



Technology	Material	Natural Color	Density (g/cm³)	Yield Strength (MPa)	Tensile Strength (Mpa)	Young Modulus (Gpa)	Elongation at Break (%)	Thermal Conductivity (W/(m·°C))	Electrical Conductivity (% IACS)	Electrical Resistivity (µΩ·cm)	Hardness	Melting Point (°C)	HDT @ 0.45 Mpa (°C)	HDT @ 1.8 Mpa (°C)		
CNC Machining	Aluminium	Aluminium 5083-H111 / 3.3545 / AlMg4.5Mn0.7	Light Grey	2.66	110-130	280-350	72	10-16	118-128	29	5.85-6.05	75 HB	570	N.A.	N.A.	
		Aluminium 6061-T6 / 3.3211 / AlMgSiCu	Light Grey	2.70	290-330	265-285	68	15-21	153-169	29	3.9-4.1	95 HB	582	N.A.	N.A.	
		Aluminium 6082-T651 / 3.2315 / AlSi1MgMn	Light Grey	2.70	230-360	310-385	69	10-11	10	46	3.8	100 HB	645	N.A.	N.A.	
		Aluminium 7075-T651 / 3.4365 / AlZn5.5MgCu	Light Grey	2.88	434-503	510-570	72	5-11	131-137	33	5.2	150 HB	635	N.A.	N.A.	
	Stainless Steel	Stainless Steel 304 / 1.4301 / X5CrNi18-10	Light Grey	8.00	280-290	520-540	190	65-70	29.3-31.7	13	65-70	75-83 HRB	1400	N.A.	N.A.	
		Stainless Steel 316L / 1.4401 / X2CrNiMo17-12-2	Light Grey	7.85	635-980	570-620	200	50-55	13-17	15	69-87	75-83 HRB	1435	N.A.	N.A.	
		Stainless Steel 303 / 1.4305 / X8CrNi18-9	Light Grey	8.03	205-350	580-700	192-200	40-50	15.8-16.5	3	71.8-72.5	81-96 HRB	1455	N.A.	N.A.	
		Stainless Steel 420 / 1.4021 / X20Cr12 / 20Cr13	Light Grey	7.75	275-380	485-750	190-205	15-20	23-27	2.4	49-60	188-260 HV	1450	N.A.	N.A.	
		Stainless Steel 17-4 PH / 1.4542 / X5CrNiCuNb16-4	Light Grey	7.75	580-860	860-1400	197-207	9-16	17.3-18.7	2.3	75-85	250-260 HV	1400	N.A.	N.A.	
		Steel S235JR / 1.0338 / 1.1119 / Fe410 WC	Light Grey	7.85	185-225	340-510	200	23-28	40.0-45.0	7.2	2.5	120 HB	1460	N.A.	N.A.	
		Mild Steel	Carbon Steel C45 / 1.0503 / AISI 1045	Light Grey	7.87	280-370	480-700	220	20-22	40.0-45.0	3	12	175-230 HB	1550	N.A.	N.A.
		Steel S355J2 / 1.0570 / 1522H / Fe400	Light Grey	7.80	265-340	450-580	217	14-20	40.0-45.0	7.3	2.0-2.5	150-190 HB	1460	N.A.	N.A.	
		Brass	Brass CuZn1 / C360 / 2.0401 / CuZn36Pb3	Brass	8.52	280-350	360-500	97-100	5-20	100	28	62	90-160 HRB	890	N.A.	N.A.
			Brass CuZn39Pb3	Brass	8.40	340-550	360-500	97	6-20	43	28	N.A.	90-160 HB	875	N.A.	N.A.
	Bronze	CuSn12	Bronze	8.60	140-150	140-280	118	5-12	54	10	2.0-3.33	80 HB	1000	N.A.	N.A.	
		Copper C110 / CU ETP	Copper	8.89	160-240	220-280	115-120	9-30	380-388	100	0.171-0.176	40 HRF	1083	N.A.	N.A.	
	Copper	Copper C101 / CU OFE	Copper	8.91	180-320	220-410	120	6-50	100	100	0.171	90 HB	1085	N.A.	N.A.	
		Alloy Steel 42CrMo4 / 1.7225	Light Grey	7.82	320-480	590-700	190-210	12-20	46	1.7225	2.0-2.5	228 HB	1416	N.A.	N.A.	
	Alloy Steel	Alloy Steel 1.7131 / 16MnCr5	Light Grey	7.80	220-230	470-530	190-210	21	41	7.3	N.A.	160-200 HRB	1450	N.A.	N.A.	
		Alloy Steel 18NiCrMo5	Light Grey	7.85	635-980	900-1200	190	13-16	41	4	16	200-225 HB	1643	N.A.	N.A.	
	Titanium	Titanium Grade 2	Light Grey	4.51	275-410	344-420	105-110	20-23	16.4-22	3	52-56	80-82 HRB	1650	N.A.	N.A.	
		Titanium Grade 5 / Ti6Al4V	Light Grey	4.43	880-885	950	113.8	14	11.4	3	17	334 HB	1668	N.A.	N.A.	
	POM	POM-H (Delrin/ Acetal)	White	1.41	48.6-72.4	70-79	2.5-4	15-75	0.221-0.35	0	N.A.	14.6-24.8 HV	175	110	85	
		POM-C (Delrin/ Acetal)	White	1.41	60-67	65-70	3	25	0.310-0.39	0	N.A.	68 HRM	164	110	85	
	Nylon	POM-C ESD (Delrin / Acetal)	White	1.41	45-46	42	1.8	11	0.46	N.A.	10	100 HRM	166	110	90	
		Nylon 6 / PA6	White or Black	1.15	51.2-63.8	55-80	3	50-100	0.294-0.306	0	N.A.	16.4-18.1 HV	70	N.A.	N.A.	
	ABS	Nylon 6 30%GF	White or Black	1.40	111-137	113-138.1	6.5-8.1	2.81-4.05	0.445-0.463	0	N.A.	35.6-39.4 HV	270	N.A.	N.A.	
		ABS	White or Black	1.05	18.5-51.2	27.6-55.2	1.1-2.9	10-50	0.180-0.335	0	N.A.	5.6-15.3 HV	70	N.A.	N.A.	
	PEEK	PEEK	Off-White	1.30	87.95	70.3-103	3.76-3.95	30-150	0.24-0.26	0	N.A.	26.1-28.5 HV	249	N.A.	N.A.	
		PTFE / Teflon	White	2.20	14-41.4	0.39-2.25	300-450	0.23-0.5	N.A.	0	N.A.	56-58 HRM	164	N.A.	N.A.	
	Polycarbonate	PC	White or Black	1.20	59-70	60-72.4	2-2.44	50-120	0.189-0.218	0	N.A.	17.7-21.7 HV	125	N.A.	N.A.	
		PMMA (Acrylic)	Translucent	1.18	64-80	55-83	2.76-3.3	3-6.4	0.19-0.2	0	N.A.	85 HRM	75	N.A.	N.A.	
	3D Printing	Nylon / PA12	White	0.98	60	45-51	1.65	15-25	N.A.	N.A.	N.A.	75 Shore D	176	180	85	
			White	1.49	65	48-54	2.750-3.05	3-9	N.A.	N.A.	N.A.	80 Shore D	172-180	179	134	
		SLS (Selective Laser Sintering)	Alu Filled PA12 / Alumide	Grey	1.36	60	48	3.8	4	N.A.	N.A.	N.A.	76 Shore D	172-180	175	144
			Nylon Foodgrade / PA12 Foodgrade	White	0.98	60	45-51	1.65	15-25	N.A.	N.A.	N.A.	75 Shore D	176	180	85
		MJF (MultiJet Fusion)	Flexible TPU	Off-White	0.85	60	5-7	N.A.	250	N.A.	N.A.	N.A.	92 Shore A	138	154	88
			HP PA12	Grey	1.01	65	42-50	1.7	12	N.A.	0	N.A.	75 Shore D	187	175	95
		SLA (Stereolithography)	Xtreme Grey (ABS-like)	Grey	1.18	52-71	38-44	1.7-1.9	14-22	N.A.	0	N.A.	76 Shore D	N.A.	62	54
			Xtreme White (PP-Like)	White	1.20	75-79	45-50	2.35-2.55	7-20	N.A.	0	N.A.	78 Shore D	N.A.	47	42
DMP (Direct Metal Printing)		Clearvue (Transparent)	Translucent	1.17	72-84	46-53	1.9-2.3	3-15	N.A.	0	N.A.	80 Shore D	N.A.	51	50	
		Aluminium / AlSi10Mg	Light Grey	2.52	300-340	305-346	62-76	1-10	114-124	25-44	N.A.	117 HV	590	N.A.	N.A.	
		Stainless Steel / 316L / 1.4404	Light Grey	7.91	300-340	490-531	180	38-48	N.A.	N.A.	N.A.	160-180 HV	1350	N.A.	N.A.	
		Titanium Grade 5 / Ti6Al4V	Light Grey	4.38	880-920	810-850	110	7-14	N.A.	N.A.	N.A.	320 HV	1600	N.A.	N.A.	
		Maraging Steel / 1.2709	Light Grey	7.98	1295-1335	1430-1470	170	5-15	N.A.	N.A.	N.A.	52-58 HV	N.A.	N.A.	N.A.	
		Figure 4 (DLP)	FLEX-BLK 20 (Flexible)	Black	1.18	24	840	N.A.	86	N.A.	N.A.	N.A.	68 Shore D	N.A.	41	25
			PRO-BLK 10 (ABS-Like)	Black	1.07	63	2320	2.3	12	N.A.	N.A.	N.A.	79 Shore D	62	188	71
			MED-WHT 10 (Biocompatible)	White	1.18	N.A.	3090	3.09	3	N.A.	N.A.	N.A.	84.1 Shore D	102.4	102	79.4
			HI TEMP 300-AMB (High Temperature Resistant)	Amber	1.19	N.A.	4000	4	3	N.A.	N.A.	N.A.	89 Shore D	N.A.	300	300
		Sheet Metal	Aluminium	Aluminium 5754	Light Grey	2.66	215	265-605	68	15	130	N.A.	N.A.	70 HB	600	N.A.
Aluminium 5052				Light Grey	2.68	193	206	117	8	147	N.A.	4.9	60 HRB	903	N.A.	N.A.
Aluminium 6082				Light Grey	2.70	230-360	310-385	69	10-11	170	N.A.	4.6	100 HB	645	N.A.	N.A.
Stainless Steel	Aluminium 5005		Light Grey	2.70	193	200	69	4	200	N.A.	3.3	47 HB	655	N.A.	N.A.	
	Stainless Steel 304		Light Grey	8.00	280-290	520-540	190	65-70	29.3-31.7	13	65-70	75-83 HRB	1400	N.A.	N.A.	
Steel	Stainless Steel 316L	Light Grey	7.85	635-980	570-620	200	50-55	13-17	15	69-87	75-83 HRB	1435	N.A.	N.A.		
	S235	Light Grey	7.80	205	560	190	25	18	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.		
Injection Moulding	ABS	S355	Light Grey	7.85	320	520	200	21	25	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	
		Acetal/POM (Delrin)														
Vacuum Casting	ABS-like Polyurethane	PC														
		PC/ABS														
Injection Moulding	ABS-V0	ABS-V0-UL94														
		ASA														
Injection Moulding	PA66	PA66GF30														
		PA66GF30														
Vacuum Casting	PE/PP-like Polyurethane	PE/PP-like Polyurethane														
		Rubber-like Polyurethane														

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