

Material Forms

Bar Stock/Investment Castings / Sand Castings/Die Castings / Forgings /Extrusions / Plate /Tubing/Grain/Injection Molding/Printing Resin

Metal Options



All the metal materials can be done the post-processing finishes: Brushing, Sand blasting Silk screen, Polishing, Painting

No	Material	Description	Common Types	Applicable Finishes
1	Aluminium	High machinability and ductility, Good strength-to-weight ratio. Corrosion resistant, Non-magnetic, Chemical resistant.	Al5052, Al6061-T6, Al6082, Al7075-T6, Al5251, Al1050, Al6063, Al6063-T6, Al5083, Al6061-T6, Al6082, Al7075-T6, Al7050, Al2024-T3, Alumecc89	Polishing/Mirror Polishing, Electroplating, Bead blasting, Painting (Matt and glossy), Bake Painting, Anodizing, Brushing, Powder Coating, Chrome Plating, Nickel Plating, Passivation.
2	Stainless Steel	High strength and hardness, Corrosion resistant, Non-magnetic, Chemical resistant. Heat resistant	Stainless Steel 301, Stainless Steel 303, Stainless Steel 306, Stainless Steel 304, Stainless Steel 304L, Stainless Steel 316L, Stainless Steel 420, Stainless Steel 416, Stainless Steel 17/4, Stainless Steel 440C, Stainless Steel 2205 Duplex	Polishing/Mirror Polishing, Electropolished, Bead blasting, Brushing, Powder Coating, Painting, Chrome Plating, Nickel Plating, Passivation.
3	Carbon Steel	Good Machinability, Weldability, Toughness, Strength, Susceptible to corrosion, Less ductile, Heat-treated	Mild Steel 1018, Mild Steel 1045, Mild Steel A36, Soft Steel, Carbon Steel C45, EN8, EN16, EN24T, EN29, EN39	Polishing/Mirror Polishing, Electropolished, Bead blasting, Brushing, Powder Coating, Painting, Chrome Plating, Nickel Plating, Passivation, Heat-Treated
4	Alloy Steel	High strength and hardness, Good Toughness, Corrosion resistant, Hardenability, Heat-treated	Alloy Steel 4140 Alloy Steel 4340 Alloy Steel 1215, 1.7220, 12CrMo, 40Cr, A34202	Polishing/Mirror Polishing, Electropolished, Bead blasting, Brushing, Powder Coating, Painting, Chrome Plating, Nickel Plating, Passivation, Heat-Treated
5	Tool Steel	Distinctive hardness, resistance to abrasion and deformation, and their ability to hold a cutting edge at elevated temperatures	O series, A series and D series	Polishing/Mirror Polishing, Electropolished, Bead blasting, Brushing, Powder Coating, Painting, Chrome Plating, Nickel Plating, Passivation, Heat-Treated
6	Mold Steel	Used for plastic injection mold cavities and tooling and for die casting dies for zinc, good wear resistance and toughness at high temperature with good plasticity and excellent corrosion resistance.	S136, P20 Steel, 420C, AISI P21, 420ESR, SUS 420 J2, 420C, H13	Polishing/Mirror Polishing, Powder Coating, Painting, Heat-Treated
7	Brass	High machinability, Corrosion resistant, Non-magnetic	Brass C360, Brass CZ121, Brass CZ131, Brass H59, Brass H62	Electroplating (Nickel or Zinc), Painting, Polishing, Powder Coating
8	Copper	Excellent Conductivity and good corrosion resistance, Electrical Applications, Ductile, Less cutting force than most other metals of similar strengths.	Copper alloys	Electroplating (Nickel or Zinc), Painting, Polishing, Powder Coating,
9	Titanium	High Strength, Bio-compatible, Non-magnetic and a poor conductor of heat and electricity	Titanium alloys	Painting, Polishing, Powder Coating, Anodizing
10	Zinc	High Strength, Bio-compatible, Non-magnetic and a poor conductor of heat and electricity	Zinc Alloys	Painting, Polishing, Powder Coating, Anodizing
11	Cast Iron	Low melting point, good fluidity, castability, excellent machinability, resistance to deformation and wear resistance	Grey cast iron, White cast iron, Malleable cast iron, Ductile cast iron.	Electroplating, Painting, Polishing, Powder Coating, Heat-Treated
12	Magnesium	High-temperature creep and flammability, lightest structural metal with high strength to weight ratio.	Magnesium Alloy	Electroplating, Painting, Polishing, Powder Coating, Anodizing
13	Invar (FeNi36/64FeNi)	Low coefficient of thermal expansion, is used where high dimensional stability is required, such as precision instruments, clocks, seismic creep gauges, television shadow-mask frames, valves in engines and large aerostructure molds.	Nickel-iron alloy	Electroplating, Painting, Polishing, Powder Coating
14	Inconel	Oxidation-corrosion-resistant, anti pressure and heat in environment, when heated a thick, stable, passivating oxide layer protecting the surface.	Nickel-chromium-based superalloys.	Electroplating, Painting, Polishing, Powder Coating

Plastic Options



All the plastic materials can be done the post-processing finishes: Deburring Silk screen, Polishing, Painting

No	Material	Description	Common Types	Applicable Finishes
1	ABS	Light weight, High stability, Common thermoplastic, impact resistant, easy to machine and do the assembly and split, and easy to adhesive. One of the most common used material,	Black ABS, Yellow ABS, White ABS Plastic Acrylonitrile butadiene styrene - High-Temp ABS - high temp Plastic Acrylonitrile butadiene styrene + Polycarbonate ABS + PC Plastic Acrylonitrile butadiene styrene + Polycarbonate + Glass Fill ABS + PC + GF Plastic Acrylonitrile styrene acrylate ASA	Electroplating (Vacuum Aluminium Plating and Chrome plating), Bead blasting, polishing,
2	Derlin (Resin)	Light weight, Liquid condition for printing High stability, Common thermoplastic, impact resistant, easy to machine and do the assembly and split, and easy to adhesive. One of the most common used material,	Transparent Resin	Electroplating (Vacuum Aluminium Plating and Chrome plating), Bead blasting, polishing,
3	PMMA (Acrylic)	Transparent and clear, good properties especially for optical parts milling, more visible than PC. Poor chemical resistance, and can be brittle and vulnerable	Clear PMMA	Polishing/Mirror Polishing, Electroplating, Bead blasting, Painting, dyeing
4	PC (Polycarbonate)	High thermal resistance, clear and weather resistance, toughness, more durable and strong than PMMA., But thick areas can have defects such as voids, bubbles, and sink	Clear PC Plastic Polycarbonate + Glass Fill PC + GF Plastic Polycarbonate + 10% Glass Fill PC + 10% GF Plastic Polycarbonate + Acrylonitrile butadiene styrene + 20% Glass Fill + 10% Stainless Steel fiber PC + ABS + 20% GF + 10% SS Fiber	Smoke Clear, Polishing, Electroplating, Bead blasting, polishing,
5	PEEK	Injection Molding Material High strength, thermal resistance, chemical resistance.	Polyether ether ketone	Bead blasting, Polishing, Painting
6	PP	Wear-resistant, flexible and high elongation, while it also has high chemical resistance.	PPS Plastic Polyphenylene sulfide + 30 % Glass Fill PPS + 30% GF Plastic Polyphenylene sulfide + Glass Fill PPS + GF Plastic Polyphenylsulfone PPSU Plastic Polypropylene PP Plastic Polypropylene + 20% Talc PP + 20% Talc	Deburring, Polishing, Painting
7	POM	Similar properties to the metal parts, high strength and resistance, versatile material with good chemical and physic properties	Polyoxymethylene POM Plastic Polyoxymethylene + 10% PTFE POM + 10% PTFE Plastic Polyoxymethylene + 30% Glass Fill POM + 30% GF	Bead blasting, Polishing, Painting
8	Nylon (PA)	High elongation, Little weight but high resistance, Good specific strength,	PA66 PA66 + 10% GF PA66 + 20% GF PA66 + 30% GF PA66 + 50% GFPA12 Plastic Polybutylene terephthalate PBT Plastic Polybutylene terephthalate + 30% Glass Fill PBT + 30% GF Plastic Polycaprolactam PA6 Plastic Polycaprolactam + 20% Glass Fill PA6 + 20% GF Plastic Polycaprolactam + 30% Glass Fill PA6 + 30% GF Plastic Polycaprolactam + 50% Glass Fill PA6 + 50% GF	Bead blasting, Polishing, Painting
9	PVC	The world's third-most widely produced synthetic plastic polymer, excellent mechanical properties, High accuracy & repeatability	PVC	Bead blasting, Painting
10	PBT	Slightly lower strength and rigidity, slightly better impact resistance, and a slightly lower glass transition temperature. Sensitive to hot water. PBT and PET need UV protection if used outdoors, and most grades of these polyesters are flammable.	PBT	Bead blasting, Polishing, Painting
11	(PTFE)TEFLON	A thermoplastic polymer, Low friction, wear, and energy consumption of machinery	(PTFE)TEFLON	Bead blasting, Polishing, Painting

12	HDPE	Hardness, Tensile Strength and Creep properties are better than LDPE. Good at abrasive resistance, electrical insulation, corrosion resistance.	HDPE	Bead blasting, Polishing, Painting
13	LDPE	LDPE is the lightest Polyethylene, good at tensile, electrical insulation, transparency and easy to be processed.	LDPE	Bead blasting, Polishing, Painting

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