

Materials Types and Apparent Colors of Surface Treatment

Types of Surface Treatment

Name	Vickers Hardness (HV)	Layer Thickness (μm)	Applicable Materials	Example	Purpose, Features	Reference	
Zinc Plating	—	3~20	Steel	Thin Plate Wire	·Antirust, low price. ·Poor appearance.	—	
Chromate Plating	—	1~2	Steel	Plate Work Bolts and Nuts.	·Antirust, low price. ·Fit for mass production. ·Poor appearance, however, can work instead of nickel plating.	—	
Bright Chromate	—	1~2	Steel	—			
Trivalent Chromate	—	1~2	Steel	Bolts and Nuts	·Antirust, low price. ·Do not contain hexavalent chrome.	—	
Nickel Plating	—	—	Steel Copper Brass	—	·Improvement of corrosion resistance and decoration ·Chrome plating has more corrosion resistance in the atmosphere.	·Copper base plating as appropriate. ·Not applicable to deep indentations.	
	Class 1 Plating	500			5~20	·Better appearance than Class 3 plating.	·Material...Buff...Plating...Buff
	Class 3 Plating					—	·Material...Plating
	Satin Finish Plating	—			—	·Fatigue resistance. ·Minor flaws remain inconspicuous.	·Material...Satin finish...Plating
Electroless Nickel Plating	500	Specifiable	Steel Stainless Steel Copper	Parts Unsuitable for Nickel Plating.	·Approx.10 times more expensive than nickel plating. ·Easy film thickness control. ·High corrosion resistance, abrasion resistance. ·Give Conductivity to Non-Metals	—	
Kanigen Plating	Up to 1000		Aluminum Alloy Glass Plastic	Parts hardened after Plating.	·Same as the features of electroless nickel plating. ·Can be hardened by heat treatment after plating.		
Chrome Plating	—	—	Steel Copper Brass	—	·Appearance with gloss ·Good corrosion resistance ·Sliding chrome plating surfaces are easy to stick together.	·Nickel base plating as appropriate. ·Not applicable to deep indentations.	
	Class 1 Plating	500			5~20	·Better appearance than Class 3 plating.	·Material...Buff...Plating...Buff
	Class 3 Plating					—	·Material...Plating
	Satin Finish Plating	—			—	·Fatigue resistance. ·Minor flaws remain inconspicuous.	·Material...Satin finish...Plating
	Hard Chrome Plating	1000		10~30	Cylinder Liners	·Excellent abrasion resistance. ·More expensive than other chrome plating.	·Material...Plating (Class 3 Plating)
Black Oxide (Blackening)	—	—	Steel	Bolts Nuts Instruments	·Base coating. ·Appearance(with gloss). ·Rusts more easily than Tufftride	·General Black Oxide	
Low Temperature Black Chrome Plating	—	1~2	Steel Copper Stainless Steel	Items requiring high precision, items requiring higher corrosion resistance than blackening.	·Long term antirust performance. ·High corrosion resistance. ·Ultra thin film.	·Low-Temperature Preliminary Treatment. No thermal effect on raw material. Parts coupled with plastic matter, rubber, etc.	
Anodize	Clear	—	Aluminum Alloy	—	·Corrosion and abrasion resistance. ·No electric conductivity. ·Heat Resistance	·Some anodize pieces are colored through fine holes in the hard, oxidized film formed on the surface.	
	Black	—					3~5
		5~10					

Apparent Colors of Surface Treatment

