

FASTENER CORROSION PLATINGS, COATINGS AND FINISHES

Type of Finish Treatment	Fastener Material	Degree of Corrosion Resistance	Characteristics	Type of Finish Treatment	Fastener Material	Degree of Corrosion Resistance	Characteristics
Zinc (electroplated)	Steel	Very good	Blue to blue-white gray color	Chromium (electroplated)	Most metals	Good (improves with copper and nickel undercoats)	Bright, blue-white, lustrous finish. Has relatively hard surface. Used for decorative purposes or to add wear resistance
Zinc (Hot-dip galvanizing)	Steel	Very good	Gives maximum corrosion protection. Dull grayish color				
Zinc (mechanically deposited)	Steel	Very good	Dull gray, smooth finish. Very good corrosion protection depends on coating thickness	Copper (electroplated)	Most metals	Fair	Used for nickel and chromium plating as undercoat. Can be blackened and relieved to obtain Antique finishes
Anodizing	Aluminum	Excellent	Acid electrolytic treatment. Frosty-etched appearance. Hard oxide surface gives excellent protection	Copper, brass, bronze, miscellaneous	Most metals	Very good indoors	Decorative finishes. Colors and tone vary from black to almost the original color. Many colours possible
Black oxide, blued	Steel	Indoor satisfactory, outdoor poor. Subsequent oil coating necessary	Hot-alkali chemical process, black, can be waxed or oiled. Produces a rust-inhibited surface	Dichromate	Zinc and cadmium plated parts	Very good to excellent	Yellow, brown, green or iridescent colored coating same as clear chromate
Black Chromate	Zinc plated or cadmium plated steel	Added corrosion protection on cadmium & zinc plated surfaces	Black, semilustrous. Chemical dip. Used for decorative outdoor purposes. Can be lacquered	Lacquering (clear or color matched)	All metals	Improves corrosion resistance depends on layer thickness	Used for decorative finishes. Clear or colored to match mating color or luster
Blueing	Steel	Indoor satisfactory, outdoor poor. Subsequent oil coating necessary	Coloring process by heat tinting. Decorative use. Blue to black, can be waxed or oiled	Nickel (bright)	Most metals	Excellent indoors. Good outdoors	Electroplated, silver-colored finish. Used for appliances, hardware, etc
Brass (electroplated, lacquered)	Steel	Fair	Brass electroplated which is then lacquered. Recommended on for indoor decorative use	Nickel (dull)	Most metals	Excellent indoors. Good outdoors	Whitish gray and expensive
Bronze (electroplated, lacquered)	Steel	Fair	Electroplated and then lacquered. Recommended only for indoor decorative use	Passivating	Stainless Steel	Excellent	Chemical treatment. Removes iron particles and produces a passive surface
Cadmium (electroplated)	Steel	Excellent	Bright silver-gray, dull gray, or black finish. Good corrosion protection but losing popularity owing to cadmium toxicity	Phosphate (color coating)	Steel	Superior, depends on subsequent oil layer	Chemically produced color coating. Available in blue, green, red, purple, etc
Chromate (clear)	Zinc and cadmium plated parts	Very good to excellent	Clear bright or iridescent chemical conversion coating applied to plated parts to enhance corrosion protection, coloring, and paint bonding	Phosphate (zinc or manganese)	Steel	Good	Black in color. Added protection when oiled. Good lubricity
Chromate (color)	Zinc and cadmium plated parts	Very good to excellent	Olive drab, blue, gold, bronze, etc. Same characteristics as clear chromate	Silver (electroplated)	All metals	Excellent	Decorative, expensive, excellent electrical conductor
				Tin (electroplated)	All metals	Excellent	Silver-gray color. Excellent corrosion protection for parts in contact with food
				Tin (hot-dip)	All metals	Excellent	Same as electroplated but thickness is harder to control
				Hot-dip aluminum	Steel	Very good	For maximum corrosion protection. Dull grayish color. Corrosion resistance is directly proportional to the coating thickness

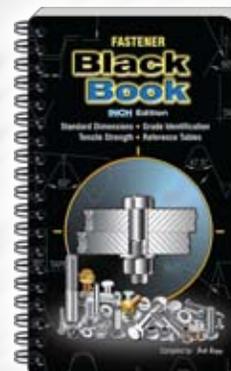
The above information has been extracted from the **FASTENER BLACK BOOK - METRIC Edition** courtesy of the www.FastenerBlackBook.com

The right parts, at the right price, on time - every time!

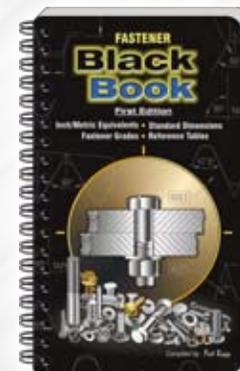
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METRIC Edition

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