

Materials

Steel	Specification
High Carbon Cold Rolled	ASTM A684, AISI 1055
Electrolytic Zinc Coated	ASTM A591
Pre-Galvanized	ASTM A653

Steel

Cooper B-Line's spring steel fasteners are manufactured from spheroidized annealed high carbon cold rolled steel (ASTM A684, AISI 1055). Mild steel fasteners are manufactured from electrolytic zinc coated steel (ASTM A591) or pre-galvanized steel (ASTM A563).

Electrolytic zinc coated and pre-galvanized steel is produced by coating coils of sheet steel with zinc at the mills. These coils are then slit to size and fabricated into Cooper B-Line products.

Heat Treatment

Cooper B-Line spring steel fasteners are heat treated to make the steel hard and give the parts their spring quality and strength. The hardness for a given fastener depends on the required load carrying capacity and the application.

Load Data

The design load ratings for Cooper B-Line fasteners are specified in this catalog as static load capacity or ultimate static load capacity. By definition, the listed static load capacity has a safety factor of three (3.0), the listed ultimate static load capacity has no safety factor. In either case, these stated loads are not to be exceeded, and loads should be applied only as depicted in the catalog and/or instruction sheets. The load capacity of a fastener having more than one component is equal to the load capacity of the lowest rated component.

Fasteners having no load ratings are designed for proper placement of boxes, conduit, etc., and not for supporting loads.

Cooper B-Line fasteners are designed for use with support members (e.g.: angle iron, bar joists, beams, columns, flanges, purlins, wire, rod) that comply with the applicable AISI standards and threaded rod that complies with the applicable AISI standards.

Quality Assurance

Cooper B-Line has an established Q.C. program in which raw material and finished products are sampled, inspected and tested by certified inspectors to assure that all applicable standards are met. Cooper B-Line's fasteners are manufactured in controlled lots and each part is identified by a lot number stamped into the part. This number allows Cooper B-Line to track each step of the manufacturing process including raw material, die set-up, heat treating, and finishing. Samples are tested to verify correct hardness, corrosion resistance and load carrying capacity.



Technical Data - Finishes

Finish	Specification
Zinc-Phosphate	MIL-P-16232 Type Z
Electro-galvanized Zinc	ASTM B633
Pre-Galvanized Zinc	ASTM A653, G90
Gloss White Paint	Acrylic Enamel

Zinc Phosphate

Cooper B-Line's spring steel fasteners receive a coating* of sealant impregnated zinc phosphate. This type of coating was commercially developed by industry to inhibit oxidation of ferrous metals for up to 72 hours in a specified salt fog atmosphere. As applied to its fasteners, Cooper B-Line rates this coating for 30 hours when salt fog tested per ASTM B-117.

Although rust resistant, Cooper B-Line fasteners should be used only indoors and in non-corrosive environments.

Unless otherwise noted, the standard finish for Cooper B-Line's spring steel fasteners is Zinc Phosphate.

*At least 1000 milligrams of zinc phosphate per square foot.

Paint

Some standard fasteners have a gloss white acrylic enamel applied over the zinc phosphate finish for an enhanced appearance that compliments white ceiling grids.

Electro-galvanized Zinc

Electro-galvanized zinc (also known as zinc plated or electroplated) is the process by which a coating of zinc is deposited on the steel by electrolysis from a bath of zinc salts.

The coating is pure zinc and is mechanically bonded to the steel. A maximum of .5 mils of zinc can be applied by this method.

When exposed to air and moisture, zinc forms a tough, adherent, protective film consisting of a mixture of zinc oxides, hydroxides, and carbonates. This film is in itself a barrier coating which slows subsequent corrosive attack of the zinc.

This coating is usually recommended for indoor use in relatively dry areas.

Pre-Galvanized Zinc

Pre-galvanized steel is produced by coating coils of sheet steel with zinc by continuously rolling the material through molten zinc at the mills. This is also known as mill galvanized or hot-dip mill galvanized. These coils are then slit to size and fabricated into Cooper B-Line products.

The G90 specification calls for a coating of .90 ounces of zinc per square foot on each side of the sheet.

During fabrication, cut edges and welded areas are not normally zinc coated; however, the zinc near the uncoated metal becomes a sacrificial anode to protect the bare areas after a short period of time.

Pre-galvanized steel is recommended for indoor use in dry areas.

CAUTION: Do not use Cooper B-Line Fasteners outdoors or in corrosive environments. Proper application of each fastener is shown in this catalog and on the installation sheet inside each carton. Failure due to improper installation may cause harm to personnel and/or property. Allowable loads shown apply to the fastener only and do not account for the structure, which supports the fastener. Flanges, wires and rods used with these fasteners must meet A.I.S.I. standards. To improve personal safety on the jobsite, always observe all federal and local safety regulations: wear gloves, safety glasses and a hard hat.