



WaterSaver

INNOVATIVE PRODUCTS FOR RESEARCH



ColorTech BT Product Finishes

WaterSaver Faucet Co. is unique in the laboratory industry in offering seven standard finishes for the ColorTech BT range of service fittings. The wide range of choices that only WaterSaver provides allows the lab designer to select the finish best suited for the lab being designed. The selection of finish depends on the particular aesthetic and “look and feel” the designer seeks to achieve. It also will depend on the specific type of lab being designed and the nature of the work being performed in it.

These seven standard finishes can be divided into two categories:

- LabGuard powder coated finishes. These finishes have a colored powder coated finish applied over the brass substrate. There are four standard colors to choose from. In addition, we have the ability to coat in special colors if desired.
- Plated finishes with LabGuard clear powder coating applied over the plated surface. There are three plated finishes to choose from.

All seven finishes incorporate WaterSaver’s unique LabGuard powder coating. This coating is a high-performance epoxy that is specially formulated for WaterSaver. The coating has superior chemical resistance, reduced flow rate for good gloss and complete edge and corner coverage and enhanced mar and abrasion resistance.

Fittings with a white powder coated finish are available at published prices and are stocked at WaterSaver locations in the United States, England, Germany, Singapore and China. Products with other finishes are generally factory ordered and therefore may have longer lead times. In addition, plated finishes with clear powder coating command an upcharge in price. Please confirm price and lead time at time of order.

Powder Coating Process

Powder coating is a “painting” process in which powder paint is applied directly to the surface of a brass component. The steps in the powder coating process are:

- 1.** Clean the exterior surfaces with an alkaline cleaner to remove all dirt and impurities.
- 2.** Thoroughly rinse components in a multi-stage process including final RO water rinse.
- 3.** Thoroughly dry components in dry-off oven.
- 4.** Electrostatically apply the powder in an environmentally-controlled cleanroom. Powder particles are electrostatically charged to bond to the grounded component.
- 5.** Bake components to cure the finish. During curing, the powder particles cross-link together, forming a monolithic surface that is both smooth and hard.

Powder Paint

The selection of a powder paint for any given application always requires trade-offs. No paint will provide superior performance in every attribute. WaterSaver uses our exclusive LabGuard high performance epoxy for all powder coated finishes. This paint is specially formulated for WaterSaver to provide optimum performance **specifically in laboratory environments**.

WaterSaver LabGuard high performance epoxy powder is custom formulated to have the following characteristics:

1. Superior chemical resistance.
2. Reduced flow rate for good gloss and complete edge and corner coverage.
3. Enhanced mar and abrasion resistance.

We have chosen to deemphasize resistance to ultraviolet light, since lab fittings are by definition used only in interior environments.

Technical Advice from the Leading Worldwide Manufacturer of Powder Coatings

Epoxy Coatings

“... epoxy series are interior grade coatings designed to serve decorative as well as functional purposes. **They possess outstanding chemical resistance and mechanical properties.** They are ideal for applications such as metal cabinets, sports and recreation equipment, furniture, hand and power tools, **brass plumbing and hardware fixtures**, tool boxes, safety equipment, appliances, wire goods and automotive underbody/underhood applications.”

Polyester Coatings

“... polyester based powder coatings are designed as **weatherable coatings** for a wide range of end use products. They possess outstanding over bake resistance, exterior exposure qualities, and excellent performance characteristics and mechanical properties. Polyester series finishes are ideal for applications such as sports and recreation equipment, outdoor furniture, fencing, automotive and marine aftermarket parts, architectural, and lawn and garden implements.”

Performance

WaterSaver LabGuard powder coated finishes have been tested to meet or exceed the performance requirements of all applicable industry standards, including ASTM D3359, ASTM D3170, ASTM D552, ASTM D2794 and Scientific Equipment & Furniture Association SEFA-7 “Recommended Practices for Fixtures.”

Environmental Impact

There is no negative environmental impact from the powder coating process. Waste water from the cleaning process is processed on site to (i) remove all residual metals, oils and other impurities and (ii) neutralize the pH. Exhaust air is filtered prior to discharge. The only byproducts to leave our facility are clean water and clean air.



WaterSaver offers three plated finishes with a clear powder coating applied over the plated surface. The fitting therefore has not one but two separate finishes on it. The plated finish provides excellent resistance to abrasion and scratching as well as good chemical resistance. The clear powder coating over the plating provides superior chemical resistance and protects the plating itself.

The real advantage of these finishes is that, by having two separate finishes on it, the fitting has exceptional durability. If the fitting is scratched, the clear coating may possibly be damaged. However, the chrome plating is still protecting the fitting. The underlying brass will not be exposed, preventing the oxidation that occurs when brass is exposed to atmosphere. The fitting will therefore “last as long as the building.”

These finishes cost more than a simple powder coated finish. They are used in laboratory facilities where a high performance finish and superior durability are required. They are widely used in university, industrial and pharmaceutical laboratories where the facility is intended to last for many decades.

Plating Process

Plating is an electrochemical process in which the components are placed on an electrically conductive rack. Following cleaning, the rack is immersed in a bath containing dissolved nickel ions. The bath is electrically conductive due to the presence of the metal ions. An electrical current is run through the bath, creating an electrical circuit that includes the components being plated. Through a process of ion exchange, nickel atoms are deposited and electrically bonded to the surface of the brass component. Following multi-stage rinsing, the process is then repeated in a bath containing dissolved chromium ions. As a result of this process, nickel and chromium atoms are deposited on the component and essentially become part of the metal substrate itself. The coating cannot be removed except by reversing the electrical process.

Key steps in the plating process are:

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| 1.
Place the components on specially designed electrically conductive racks. | 2.
Clean the exterior surfaces of the components to remove all dirt and impurities by alkaline cleaning, ultrasonic cleaning and electrochemical cleaning. | 3.
Acid etch the surface of the components to activate the surface ions. | 4.
Electrochemically plate a layer of nickel onto the brass substrate. | 5.
Thoroughly rinse the components in a multi-stage rinse. | 6.
Electrochemically plate a layer of chromium over the nickel plated surface. |
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Performance

WaterSaver plated finishes have been tested to meet or exceed the performance requirements of all applicable industry standards, including ASTM B456 “Standard Specification for Electrodeposited Coatings of Copper Plus Nickel Plus Chromium and Nickel Plus Chromium.” WaterSaver chrome plating meets the requirements of Service Condition No. SC 3 for “severe service,” including repeated wetting and exposure to strong cleaners and saline solutions. Our plated finishes also meet the requirements of Scientific Equipment & Furniture Association SEFA-7 “Recommended Practices for Fixtures.”

Environmental Impact

WaterSaver’s chrome plating process has no adverse impact on the environment or on the people who perform the process. The only byproducts of the process are:

Clean Water. The nickel and chrome baths that are the heart of the plating process are “perpetual”, meaning that they are never disposed of. The baths are continually replenished with metal ions, chemicals and water as these materials are depleted by the plating process. Consequently, the only liquid waste generated by the plating process is the water used for cleaning and rinsing parts before, during and after plating.

Water used for cleaning and rinsing is processed on site through our waste treatment system. Waste water is treated by (i) precipitating out dissolved solids, (ii) decanting the clean water and (iii) neutralizing the pH of the clean water prior to discharge into the city sewer system. This waste treatment process is licensed and monitored by public authorities.

Clean Air. Exhaust air is scrubbed and filtered prior to discharge. Exhaust air is warm and humid but completely free of any impurities.

Clean Solid Waste. Solid waste residue that is recovered during precipitation is compacted into a solid cake that contains small amounts of metal. The cake is processed to extract the metals for reuse. The inert residue is sold for use as foundation material in road construction.



White Powder Coated Finish (WHT)

The gloss white powder coated finish is color matched to be consistent with a wide variety of laboratory countertop materials. It provides a clean aesthetic to the laboratory. Due to its visual appeal, versatility and cost effectiveness, this finish is ideal for all types of lab facilities.

Advantages

Appearance. Commonly used on a wide variety of architectural and plumbing products. Provides a contemporary appearance that blends well with a variety of laboratory countertop materials and casework.

Durability. WaterSaver LabGuard powder coated finish is relatively hard. However, like the finish on a car, it is not impervious to dents and scratches. Once scratched, it is possible for the brass substrate to be exposed. If this occurs, WaterSaver offers a color-matched touch-up paint that can be field applied to repair minor dents and scratches.

Chemical Resistance. Superior.

Cost. Lowest priced finish option.

Disadvantages

Maintenance. A powder coated finish will require periodic cleaning to maintain its appearance.

Corrosion. If the surface of the fitting is scratched and the brass substrate is exposed, it must be repaired. If it is not repaired, the brass can oxidize and the coating can delaminate from the fitting.

Sample Specification

Fittings shall have LabGuard white powder coated finish. All exposed surfaces shall be (i) polished to remove all parting lines and other surface defects, (ii) cleaned to remove dirt and impurities and (iii) thoroughly dried. Coating material shall be high-performance epoxy that is electrostatically applied in an environmentally-controlled cleanroom. Following coating, components shall be fully baked to permit curing. Finish shall be smooth and free of blemishes, with a minimum coating thickness of 3 mils and complete coverage of all corners and edges.



Gray Powder Coated Finish (GRY)

WaterSaver gray powder coated finish matches RAL color 7035. This finish color is widely used in lab environments. It blends well with many laboratory countertop and casework colors. Due to its visual appeal, versatility and cost effectiveness, this finish is also appropriate for nearly all types of lab facilities.

Advantages

Appearance. Commonly used on a wide variety of architectural and plumbing products. Provides a contemporary appearance that blends well with a variety of laboratory countertop materials and casework.

Durability. WaterSaver LabGuard powder coated finish is relatively hard. However, like the finish on a car, it is not impervious to dents and scratches. Once scratched, it is possible for the brass substrate to be exposed. If this occurs, WaterSaver offers a color-matched touch-up paint that can be field applied to repair minor dents and scratches.

Chemical Resistance. Superior.

Cost. Lowest priced finish option.

Disadvantages

Maintenance. A powder coated finish will require periodic cleaning to maintain its appearance.

Corrosion. If the surface of the fitting is scratched and the brass substrate is exposed, it must be repaired. If it is not repaired, the brass can oxidize and the coating can delaminate from the fitting.

Sample Specification

Fittings shall have LabGuard gray (RAL 7035) powder coated finish. All exposed surfaces shall be (i) polished to remove all parting lines and other surface defects, (ii) cleaned to remove dirt and impurities and (iii) thoroughly dried. Coating material shall be high-performance epoxy that is electrostatically applied in an environmentally-controlled cleanroom. Following coating, components shall be fully baked to permit curing. Finish shall be smooth and free of blemishes, with a minimum coating thickness of 3 mils and complete coverage of all corners and edges.



Dark Gray Powder Coated Finish (GRD)

Due to its darker color, gloss dark gray powder coated finish has the added advantage of hiding dirt and smudges well. Aesthetic appeal, versatility and cost effectiveness make the gloss dark gray powder coated finish a great choice for any lab facility.

Advantages

Appearance. Commonly used on a wide variety of architectural and plumbing products. Provides a contemporary appearance that blends well with a variety of laboratory countertop materials and casework.

Durability. WaterSaver LabGuard powder coated finish is relatively hard. However, like the finish on a car, it is impervious to dents and scratches. Once scratched, it is possible for the brass substrate to be exposed. If this occurs, WaterSaver offers a color-matched touch-up paint that can be field applied to repair minor dents and scratches.

Chemical Resistance. Superior.

Cost. Lowest priced finish option.

Disadvantages

Maintenance. A powder coated finish will require periodic cleaning to maintain its appearance.

Corrosion. If the surface of the fitting is scratched and the brass substrate is exposed, it must be repaired. If it is not repaired, the brass can oxidize and the coating can delaminate from the fitting.

Sample Specification

Fittings shall have LabGuard dark gray powder coated finish. All exposed surfaces shall be (i) polished to remove all parting lines and other surface defects, (ii) cleaned to remove dirt and impurities and (iii) thoroughly dried. Coating material shall be high-performance epoxy that is electrostatically applied in an environmentally-controlled cleanroom. Following coating, components shall be fully baked to permit curing. Finish shall be smooth and free of blemishes, with a minimum coating thickness of 3 mils and complete coverage of all corners and edges.



Starburst Metallic Powder Coated Finish (STM)

New from WaterSaver, Starburst matte metallic powder coat is an attractive, durable finish. With its visual appeal and versatility, the metallic matte finish complements lab casework, countertops, hardware and equipment.

Starburst metallic powder coated finish is superior to the “satin chrome” powder coated finish offered by other lab fitting manufacturers. The “satin chrome” powder is manufactured, marketed and sold for applications such as sports equipment, outdoor furniture and lawn and garden implements. The Starburst finish utilizes WaterSaver’s high-performance powder paint that is formulated specifically for the rigorous demands of laboratory use.

Advantages

Appearance. Commonly used on a wide variety of architectural and plumbing products. Provides a contemporary appearance that blends well with a wide variety of laboratory materials. In addition, the matte metallic finish hides dust, dirt, fingerprints and watermarks. It will maintain its attractive appearance with minimal cleaning.

Durability. WaterSaver LabGuard powder coated finish is relatively hard. However, like the finish on a car, it is not impervious to dents and scratches. Once scratched, it is possible for the brass substrate to be exposed. If this occurs, WaterSaver offers a color-matched touch-up paint that can be field applied to repair minor dents and scratches.

Chemical Resistance. Superior.

Cost. Lowest priced finish option.

Disadvantages

Maintenance. A powder coated finish will require periodic cleaning to maintain its appearance.

Corrosion. If the surface of the fitting is scratched and the brass substrate is exposed, it must be repaired. If it is not repaired, the brass can oxidize and the coating can delaminate from the fitting.

Sample Specification

Fittings shall have LabGuard Starburst metallic powder coated finish. All exposed surfaces shall be (i) polished to remove all parting lines and other surface defects, (ii) cleaned to remove dirt and impurities and (iii) thoroughly dried. Coating material shall be high-performance epoxy that is electrostatically applied in an environmentally-controlled cleanroom. Following coating, components shall be fully baked to permit curing. Finish shall be smooth and free of blemishes, with a minimum coating thickness of 3 mils and complete coverage of all corners and edges.



Components are polished and buffed, then plated with one layer of nickel and one layer of chrome in WaterSaver's environmentally-controlled process. Following plating, components are powder coated with LabGuard clear powder coating applied over the chrome plated surface.

Advantages

Appearance. Chrome plating is widely used on a wide variety of plumbing products in the US and around the world. Common applications include sanitary taps, flush valves, hospital furnishings and laboratory equipment.

Durability. Superior. The fitting has two separate finishes on it. Due to the dual finishes, the fitting will "last as long as the building."

Chemical Resistance. Superior.

Disadvantages

Cost. More expensive than a powder coated finish only.

Sample Specification

Fittings shall have a polished chrome plated finish with clear powder coating. All exposed surfaces shall be polished and buffed, then cleaned to remove all dirt and impurities. Following cleaning, components shall be electroplated with one layer of nickel and one layer of chrome. Each layer of plating shall completely cover all visible areas to provide a monolithic surface that is smooth, reflective and scratch resistant.

The plating process shall be performed in compliance with all applicable governmental rules and regulations. In addition, the manufacturer shall provide documentation certifying that no hazardous materials used or produced in the plating process are discharged from the manufacturing site.

Following chrome plating, fittings shall be coated with LabGuard clear powder coated finish. Coating material shall be high-performance clear epoxy that is electrostatically applied in an environmentally-controlled cleanroom. Following coating, components shall be fully baked to permit curing. Clear finish shall be smooth and free of blemishes, with a minimum coating thickness of 3 mils and complete coverage of all corners and edges.



The process for creating WaterSaver’s satin chrome plated finish with clear powder coating is quite lengthy, requiring the following steps:

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| 1.
Components are polished and buffed to a mirror-like surface. | 2.
Components are electrochemically plated with an extra heavy layer of nickel. | 3.
Following nickel plating, components are polished again to create a satin or “brushed” surface with fine grain lines. | 4.
Components are cleaned in a multi-stage cleaning process. | 5.
Components are chrome plated. | 6.
Following chrome plating, components are powder coated with LabGuard clear powder coating. |
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The satin chrome plated finish with clear powder coating provides fittings with the look and feel of brushed pewter. It is the premium, “top of the line” finish offered by WaterSaver. It is most often used in lab facilities where attractive appearance and exceptional durability are of utmost importance. Fittings with this finish are found in the highest profile and most sophisticated lab facilities in the world.

Advantages

Appearance. Fittings with our satin chrome plated finish with clear powder coating have a silver/blue hue that is similar to the appearance of brushed pewter.

Maintenance. The satin brushed finish hides fingerprints, watermarks and smudges. The fittings will maintain their appearance with minimal cleaning.

Durability. Superior. The fitting has two separate finishes on it. Due to the dual finishes, the fitting will “last as long as the building.”

Chemical Resistance. Superior.

Disadvantages

Cost. Due the additional processing steps described above, this finish is the most expensive of the WaterSaver finishes.

Sample Specification

Fittings shall have a satin chrome plated finish with clear powder coating. All exposed surfaces shall be polished and buffed, then cleaned to remove all dirt and impurities. Following cleaning, components shall be electroplated with an extra heavy layer of nickel. After nickel plating, components shall be polished to produce a fine grained surface. Components shall then be electroplated with a layer of chrome.

The plating process shall be performed in compliance with all applicable governmental rules and regulations.



In addition, the manufacturer shall provide documentation certifying that no hazardous materials used or produced in the plating process are discharged from the manufacturing site.

Following chrome plating, fittings shall be coated with LabGuard clear powder coated finish. Coating material shall be high-performance clear epoxy that is electrostatically applied in an environmentally-controlled cleanroom. Following coating, components shall be fully baked to permit curing. Clear finish shall be smooth and free of blemishes, with a minimum coating thickness of 3 mils and complete coverage of all corners and edges.

The process for creating WaterSaver's satin nickel plated finish with clear powder coating is similarly lengthy, requiring the following steps:

- 1.** Components are polished and buffed to a mirror-like surface.
- 2.** Components are electrochemically plated with an extra heavy layer of nickel.
- 3.** Following nickel plating, components are polished again to create a satin or "brushed" surface with fine grain lines.
- 4.** Components are cleaned in a multi-stage cleaning process.
- 5.** Components are powder coated with LabGuard clear powder coating.

The satin nickel plated finish with clear powder coating provides fittings with the look and feel of brushed stainless steel. It is a premium WaterSaver finish. It is a choice finish for laboratories in which appearance and durability are crucial, as this finish will not show fingerprints, watermarks or smudges. Sophisticated, high profile lab facilities around the world trust this finish to enhance the overall aesthetic of their labs.

Advantages

Appearance. Fittings with our satin nickel plated finish with clear powder coating have a slight yellow tint that is very close to the appearance of stainless steel.

Maintenance. The satin finish hides fingerprints, watermarks and smudges. The fittings will maintain their appearance with minimal cleaning.

Durability. Superior. The fitting has two separate finishes on it. Due to the dual finishes, the fitting will "last as long as the building."

Chemical Resistance. Superior.

Disadvantages

Cost. This finish costs slightly less than the satin chrome with clear coating finish, but more than colored powder coated finishes.

Sample Specification

Fittings shall have a satin nickel plated finish with clear powder coating. All exposed surfaces shall be polished and buffed, then cleaned to remove all dirt and impurities. Following cleaning, components shall be electroplated with an extra heavy layer of nickel. After nickel plating, components shall be polished to produce a fine grained surface.

The plating process shall be performed in compliance with all applicable governmental rules and regulations.



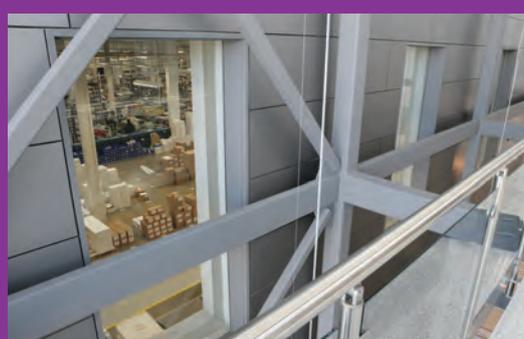
In addition, the manufacturer shall provide documentation certifying that no hazardous materials used or produced in the plating process are discharged from the manufacturing site.

Components shall then be cleaned to remove all impurities, thoroughly dried and coated with LabGuard clear powder coated finish. Coating material shall be high-performance clear epoxy that is electrostatically applied in an environmentally-controlled cleanroom. Following coating, components shall be fully baked to permit curing. Clear finish shall be smooth and free of blemishes, with a minimum coating thickness of 3 mils and complete coverage of all corners and edges.

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