

Corrosion Protection

for Fisher™ Instruments

Wet Spray Coating - Instrument Paint

The Wet Spray Coatings applied to instruments are formulated to withstand extreme exposures to corrosive atmospheres and are tested to confirm this benefit.

Due to the excellent surface preparation and superior coatings applied to the prepared substrate, special coating systems are not necessary. The coatings used will withstand the toughest environments and will keep on performing for years to come.

Comparisons of other coatings and paints have shown no advantages over the standard wet spray coating. Because of the potential impact on instrument performance, we are unable to apply coatings or paints other than our standard.

Figure 1. Fisher FIELDVUE DVC6200 Digital Valve Controller with Wet Spray Coating



W9699

Table 1. Wet Spray Coating Specifications

Technical Specifications: Wet Spray Coating	
Surface Preparation	Clean, desmut, apply chromate conversion coating
Coating Thickness	31 to 37 microns / 1.25 to 1.5 mils
Standard Acceptance Test	Refer to the Wet Spray Coating Test Results in Table 2
Standard Color Specifications	Regal Gray

Wet Spray Coating Test Results

Standardized flat-panel tests show the effect of common chemical exposures and physical attributes. Tests were performed on chromate conversion coated aluminum alloy panels. For more information about test conditions, procedures, and results, contact your [Emerson sales office](#).

Table 2. Wet Spray Coating Test Results

Test	Result	Test	Result	Test	Result
10% HNO ₃	Slight loss of gloss to no effect	10% NH ₄ OH	No effect	Pencil Hardness ASTM D3363	PASSED
10% HCL	No effect	15% Xylene; 85% Mineral Spirits	Slightly lighter to no effect	Mandrel Bend ASTM D522	PASSED
3% H ₂ SO ₄	No effect	Unleaded Gasoline	No effect	Impact ASTM D2794	PASSED
10% NaOH	Slight loss of gloss to no effect	Cross-Hatch Adhesion ASTM D3359	PASSED	Salt Cabinet ASTM B117	PASSED Up to 500 hours: No rusting at scribe line. No loss of adhesion. No rust or blisters away from scribe.

Figure 2. Fisher Instrument with Standard Wet Spray Coating



W8049

Powder Coating - Instrument Paint

Powder coating is an electrostatically applied and baked-on finish consisting of a mixture of finely ground resin, pigments, and binders, very similar to wet-spray coatings. Unlike wet-spray coatings, however, powder coating is nearly 100% VOC free, thereby reducing some of the environmental concerns associated with wet-spray coatings.

Powder coating is the standard finish for DVC7K digital valve controllers. During the powder coating process, the part is cleaned, and a conversion coating is formed on the substrate. A seal coat is then applied over the conversion coating. These steps prepare the part surface for the application of the powder coating and improve the adhesion of cured powder to the part. This pretreatment process is the foundation for the powder coating and is critical in assuring the durability of this coating in corrosive environments.

Powder coating has many of the attributes of catalyzed epoxy and urethane finishes, but Emerson powder coating does not have the disadvantage of chalking or discoloring when subjected to ultraviolet light such as sunlight. Emerson has conducted extensive laboratory testing of powder coating, and this finish has been proven on valves in the field.

Figure 3. Powder Coating is Nearly 100% Free of VOCs



W7163

Figure 4. Fisher FIELDVUE DVC7K Digital Valve Controller with Powder Coating



Table 3. Powder Coating Specifications

Technical Specifications: Powder Coating	
Surface Preparation	Clean, apply conversion coating, and seal coat
Coating Thickness	50 to 150 microns / 2 to 6 mils
Standard Acceptance Test	Refer to the Powder Coating Test Results in Table 4
Standard Color Specifications	Fisher Green

Powder Coating Test Results

Standardized flat-panel tests allow a good comparison between different types of coatings. However, these tests do not reflect performance on actual products. Refer to Technical Specifications in Table 3 for the standard acceptance test for products. For more information about test conditions, procedures, and results, contact your [Emerson sales office](#).

Table 4. Powder Coating Test Results ⁽¹⁾

Test	Result	Test	Result	Test	Result
10% HNO ₃	PASSED No effect	10% NH ₄ OH	PASSED No effect	Pencil Hardness ASTM D3363	PASSED
10% HCL	PASSED No effect	15% Xylene; 85% Mineral Spirits	PASSED No effect	Mandrel Bend ASTM D522	PASSED No visible cracking or loss of adhesion.
3% H ₂ SO ₄	PASSED No effect	Gasoline	PASSED Slight color change and slight softening, but recovered.	Impact ASTM D2794	PASSED Up to 140 in/lb
10% NaOH	PASSED No effect	Cross-Hatch Adhesion ASTM D3359	PASSED No loss of adhesion. Rated 5B.	Salt Spray ASTM B117	PASSED Up to 500 hours: No rusting at scribe line. No loss of adhesion. No rust or blisters away from scribe

1. Surface Preparation: this coating was applied to chromated aluminum test panels.

Proprietary NCF (Non-Corroding Finish) Coating for Steel Fasteners

Standard steel fasteners such as bonnet bolting, actuator casing bolting, and steel fasteners for Fisher instruments have NCF (non-corroding finish) coating.

NCF coating was developed by Emerson to greatly improve resistance to corrosion from acids, bases, salts, and many other chemicals and to follow the parameters listed in ASTM F1136 (Standard Specification for Zinc/Aluminum Corrosion Protective Coatings for Fasteners). NCF coating is a polymer-based coating consisting of multiple coats applied to all surfaces of bolts, studs, and nuts. (NCF coating is not used on steel bolting for temperatures over 427 °C / 800 °F. NCF coating is silver or gray in color and the finish is dull when compared with zinc plating.

The effectiveness of this proprietary coating designed specifically for the control valve market has been proven by actual testing on offshore platforms and accelerated salt-spray tests in the laboratory. NCF coated fasteners remain easily maintainable after offshore exposure. Original replacement NCF bolting is only available from Emerson.

Figure 5. NCF-Coated Fasteners Exhibit Superior Performance in Accelerated Laboratory Tests



NOTE
All stainless steel / titanium housings use 316 fasteners instead of NCF Coated Steel Fasteners.

Table 5. NCF Coating Specifications

Technical Specifications: NCF Coating	
Surface Preparation	Pressure-retaining parts: Light blast Non pressure-retaining parts: Light blast or zinc plating
Coating Thickness	Approximately 0.025 mm (0.001 inches)
Standard Acceptance Test	No red rust after 500 hours of ASTM B117 salt-spray test conducted on products after assembly with a pneumatic impact wrench
Color	Light silver-gray

Heavy Zinc Plating for Hardware Items

For hardware items such as instrument feedback arms and stem connectors, heavy zinc plating is standard. Heavy zinc plating is used for non-threaded parts that require protection from corrosion.

Table 6. Heavy Zinc Plating Specifications

Technical Specifications: Heavy Zinc Plating and Chromate	
Coating Thickness	0.0155 mm $\pm$ 0.0025 mm / 0.0006 in. $\pm$ 0.000098 in.
Standard Acceptance Test	300 hours in ASTM B117 salt-spray test

Figure 6. Heavy Zinc Plating Specifications



DVC6200 Stainless Steel Alternative

As an alternative to painted instruments, the FIELDVUE DVC6200 digital valve controller can be furnished with a stainless steel module base, housing and an all-stainless mounting kit. The sealed terminal box isolates field wiring connections from other areas of the instrument and keeps water and harsh atmosphere away from electronic components.

The DVC6200 stainless steel version eliminates all diecast aluminum parts, which greatly increases its resistance to the tough, corrosive environments found on offshore platforms, within chemical plants, and inside refinery processing units.

Figure 7. Fisher FIELDVUE DVC6200 Stainless Steel Digital Valve Controller



X0350



Fisher.com



Facebook.com/FisherValves



LinkedIn.com/groups/3941826



X.com/FisherValves

D104167X012 © 2016, 2026 Emerson. All rights reserved. The Emerson logo is a trademark and service mark of Emerson Electric Co. Fisher and FIELDVUE are marks of an entity in the Emerson family of businesses. All other marks are the property of their respective owners.

Neither Emerson nor any of its affiliated entities assume responsibility for the selection, use or maintenance of any product. Responsibility for proper selection, use, and maintenance of any product remains solely with the purchaser and end user.

The contents of this publication are presented for informational purposes only, and while every effort has been made to ensure their accuracy, they are not to be construed as warranties or guarantees, express or implied, regarding the products or services described herein or their use or applicability. All sales are governed by our terms and conditions, which are available upon request. We reserve the right to modify or improve the designs or specifications of such products at any time without notice.

Emerson
Marshalltown, Iowa 50158 USA
Sorocaba, 18087 Brazil
Cernay, 68700 France
Dubai, United Arab Emirates
Singapore 128461 Singapore

www.Fisher.com

FISHER™


EMERSON™