

Enclosure Finishing

Blakley products are often installed in harsh environments. For this reason, the anti-corrosion protection applied to products (with enclosures fabricated from mild steel) is intended to provide protection to equipment used in typical Industrial or Site conditions i.e. ranging from damp conditions in the Winter to hot and humid conditions in the Summer, with the risk of some physical damage in normal use[#]. This Technical Data Sheet details the finishing systems that we apply to our standard products and describes the finishing systems that we can apply to non-standard products for use in particularly harsh or special environments. For extreme environments, or where longevity and low maintenance are required, we can fabricate many enclosures from a range of stainless steels. The anti-corrosion systems that we offer as standard for mild steel enclosures are:

Ref	Preparation	Pre-Treatment	Finish	Products	Type Testing
A	Automated process combining acid degrease, iron phosphate pre-treatment and water wash.		Coated in Polyester Powder, oven baked, with a *DFT of 60-100 microns.	"Yellow" Site Transformer and 110V Distribution Products.	Type Tested to BS EN 60439-4, Normal Pollution levels.
B(i) ##	Alkaline bath degrease and water wash.	Submersion in zinc phosphate to BS 3189.	Coated in Polyester Powder, oven baked, with a DFT of 60-100 microns.	Small to medium sized enclosures for all other Distribution and Industrial Transformer products (indoor or out).	Type Tested to BS EN 60439-4, Heavy Pollution levels (PTO for images taken after the test).
B(ii) ##	Manual degrease and light sanding to provide a key for undercoat.	Application of a zinc chromate etch undercoat.	Coated in Polyester Powder, oven baked, with a DFT of 60-100 microns.	Large enclosures for all other Distribution and Industrial Transformer products (indoor or out).	Type Tested to BS EN 60439-4, Heavy Pollution levels (PTO for images taken after the test).
D			Hot Dip Galvanized to BS1461 (natural).	Trackside transformers and other permanent outdoor equipment used in a harsh environment. Stands and frames.	No Type Tests carried out but over 10,000 Trackside Transformers have been installed on the UK Rail Network for up to 20 years
E	Blast cleaned in accordance with Standards SA2.5 and BS 7079 (near white metal).	Flame sprayed in zinc to BS 2569.	Coated in Polyester Powder, oven baked, with a DFT of 60-100 microns.	Dockside Equipment and other complex, high IP rating enclosures for permanent outdoor installation in harsh environments.	No Type Tests carried out but enclosures have been installed in exposed coastal locations for 10 years plus, with minimal signs of corrosion.
H	Alkaline bath degrease and water wash.	Submersion in zinc phosphate, to BS 3189.	Coated in "Interpon" powder paint, oven baked, with a DFT of 60-100 microns.	Transformers and other products for LUL.	LUL Approved for Section 12 Areas.
I	Alkaline bath degrease and water wash.	Two part polyamide cured epoxy primer.	Wet paint using E A Wood Copon, oven baked.	Platform sockets and other products for LUL.	LUL Approved for Section 12 Areas.

- Physical damage to mild steel enclosures should always be repaired ASAP. However, the use of effective pre-treatment systems will often limit corrosion to localised rusting and slow the spread of corrosion beneath the painted top coat.

- "B" Preparation and pre-treatment process is governed by size of enclosure. Both processes have been Type Tested to BS EN 60439-4 for heavy pollution levels. *Dry Film Thickness

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Corrosion Testing to BS EN 60439-4, Section 8.2.9.2 "Verification of resistance to corrosion in a heavily polluted atmosphere".

A) Principle of Test

The test is intended to assess the corrosive effects of an industrial atmosphere i.e. an atmosphere polluted with sulphur dioxide. The complete assembly shall be exposed to this atmosphere for ten days.

B) Method of test and test atmosphere

The complete assembly shall be tested in accordance with IEC 60068-2-42 (Environmental Testing).

C) Pass Criteria

- (i) No trace of corrosion is found either inside or outside (except for sharp edges);
- (ii) no damaging effect appears in the electrical installation, verified by applying a dielectric test 24 hours after removal of the assembly from the test chamber.

Results of Test

The tests were carried out by a NAMAS approved test house. Two assemblies were selected at random and submitted for the test. Both assemblies were finished using our Category B anti-corrosion system. The adjacent pictures were all taken after the test.

The external and internal surfaces of the enclosures showed no signs of corrosion, not even along edges.

The only signs of the test were on the lid and socket fixings. Some discolouration was visible but no corrosion.

The Equipment fitted within the enclosure showed no signs of discolouration or corrosion and the RCD functioned correctly and passed the dielectric test.

The assemblies were therefore deemed to have passed the test.

For information, when enclosures have a Category E finish (Shot Blast, Flame Sprayed in Zinc followed by polyester powder coating) we incorporate stainless steel fixings in place of our standard zinc and clear passivated fixings.

