



1. Product Name

■ CAP-F Series Infrared and Visual Inspection Window

2. Manufacturer

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3. Product Description

CAP-F Series Infrared and Visual Inspection Windows for Curved Surfaces

The CAP-F Series is a custom built visually clear infrared (IR) transmissive viewing window specifically designed for use in curved surfaces such as electric motors and Isophase Bus Bar Systems. The system is designed to be easily removed to become an access point for routine critical maintenance of enclosed systems that are currently inaccessible. The exclusive patented, industrial-grade, reinforced Poly-View System™ polymer can be used by any make or model of infrared and ultraviolet camera.

Basic Use

The essential element for electrical safety is to protect personnel by ensuring that all equipment is in an electrically safe condition before any maintenance tasks are commenced. The CAP-F Series are specifically designed to allow essential infrared, ultraviolet and visual inspections of these critical assets to be completed whilst the energized system remains enclosed and in a safe condition ensuring workers are never exposed to the dangers of arc flash or electrocution. The additional benefit of the CAP-F Series is that it can be easily removed to allow maintenance of systems such as Isophase Bus Bar which are typically an enclosed (welded) system with no means of maintenance.

Materials and Finishes

The window housing and covers are constructed using the same material in which the original systems are manufactured, however if required custom materials may be specified by the

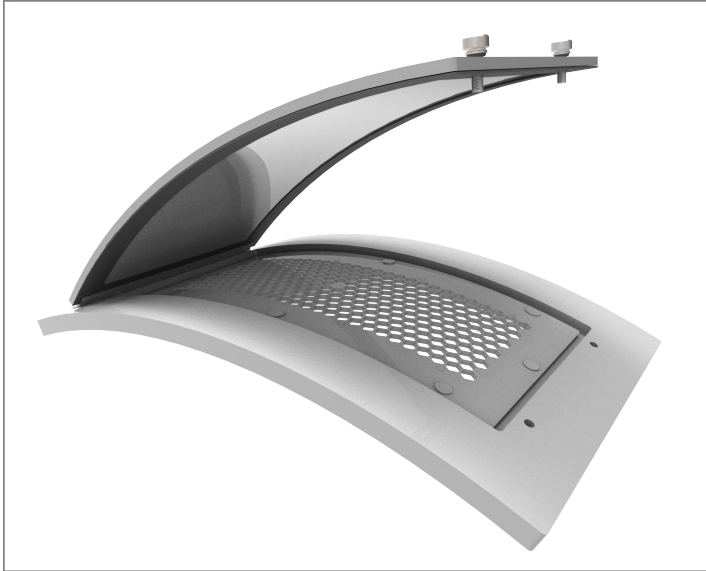


client, all fixing hardware, hinges and latches are 316 stainless steel. Gasket material is HT-800 closed cell, medium density silicone.

Infrared lens material is a reinforced visual, UV and IR transmissive polymer complying with UL and CSA requirements for infrared inspection windows.

Benefits

- Durable
- Fixed and stable transmission (FAST)
- Can be used both indoors and outdoors
- IR window construction materials and colors can be customized to client's specification
- The custom made CAP-F series rectangular viewing area provides an unparalleled field of view when compared to traditional round IR windows.
- The exclusive industrial-grade, reinforced Poly-View System polymer allows any model of IR and UV camera to monitor completely undisturbed energized components inside electrical equipment
- The CAP-B offers locking covers for areas of high traffic and protection from impacts, flying debris moisture and dust
- Water and dust ingress complies with system requirements up to IEC IP65 and NEMA 250 Type 6



Dimensions

Product is designed for custom applications and dimensions will vary according to the client's requirements.

Product Limitations

Not recommended for use in temperatures less than -40 degrees F (-40 degrees C) or greater than 617 degrees F (325 degrees C). For temperatures outside of these requirement speak with IRISS directly.

4. Technical Data

Applicable Standards

American Society of Testing and Materials (ASTM)

- **ASTM F2281-2004(2012)** Standard Specification for Stainless Steel and Nickel Alloy Bolts, Hex Cap Screws and Studs, for Heat Resistance and High Temperature Applications

Canadian Standards Association (CSA)

- **CSA-C22.2 No. 14-13** Industrial Control Equipment – 12th Ed.
- **CSA-C22.2 No. 94-M91** Special Purpose Enclosures – 4th Ed.
- **CSA-C22.2 No. 94.1-07** Enclosures for Electrical Equipment
- **CSA-C22.2 No. 94.2-07** Enclosures for Electrical Equipment

Institute of Electrical and Electronics Engineers (IEEE)

- **IEEE C37.20.2.a.3.6** mandatory impact and load test requirements for visual viewing panes for Metal-Clad and Station Type Cubicle Switchgear

International Electrochemical Commission (IEC, IP Code)

Custom designs are manufactured to meet the following environmental test requirements:

- **IP67/NEMA 6** Enclosures constructed for either indoor or outdoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment

- **IP22/IP2X** Minimum requirements for the design of electrical accessories for indoor use
- **ANSI/IEC 60529-2004 (R2011)** Degrees of Protection Provided by Enclosures (IP Code 65)

International Standards Organization (ISO)

- **ISO 9001:2008** Certificate No. 74 300 3797

National Electrical Manufacturers Association (NEMA)

- **Type 1**
- **Type 3:** Viewport may be marked Raintight
- **Type 3R:** Viewport may be marked Rainproof
- **Type 2, 5, 12, 12K and 13:** Viewport may be marked driptight or Dusttight.

Ratings above are when installed on a flat surface of a suitably rated enclosure.

Underwriter's Laboratories (UL) and Canadian Underwriters Laboratories (cUL)

- **UL 50V** Infrared Viewports
- **UL 50E** Enclosures for Electrical Equipment, Environmental Considerations
- **UL 746C** Polymeric Materials - Use in Electrical Equipment Evaluations
- **UL 1558** Metal-Enclosed Low-Voltage Power Circuit Breaker Switchgear
- **UL 508A/ANSI UL 508A** Industrial Control Panels
- **UL 94-2013** Tests for Flammability of Plastic Materials for Parts in Devices and Appliances
- **UL 746A-2012** Polymeric Materials - Short Term Property Evaluations

Custom designs can be manufactured to meet the following Arc Containment Test Requirements:



- IEC 62271-200 Arc Flash Spectest 1.1 Second Duration
- IEC 60262271-200: 63kA, 15kV for 30 cycles at 60Hz
- IEC 60298 Appendix A: 63kA, 15kV for 30 cycles at 60Hz
- IEE C37.20.7 Type 2B: 63kA, 15kV for 30 cycles at 60Hz

Environmental Considerations

IRISS Inc. uses recycled metals in the production of CAP-B Series frames.

IRISS Inc. uses recycled packaging materials for all IRISS product lines.

5. Installation

- Install CAP-F Series visual inspection window in accordance with the CAP-B Series Installation Guide

The CAP-F Series is a custom designed product that has two mounting systems:

Welded system:

- This system has a welded saddle that is welded in place and the CAP-F Series IR Window is then bolted into the saddle (this system is designed primarily for use in Isophase Bar Bus Systems)

Bolted System:

- This system is bolted straight onto the curved surface (no need for welded saddle) (this system is more suitable to applications like motor and generator set cowling)

Delivery, Storage and Handling

Deliver CAP-F Series infrared visual inspection window and accessories in manufacturer's original packaging with project identification information clearly shown. Instruction for storage and handling will be provided upon shipment.

6. Availability and Cost

Availability

CAP-F Series Custom products are delivered within 20–25 business days. Contact IRISS Inc. directly for delivery times for products using custom materials or sizes.

Cost

Contact IRISS Inc. directly for material cost.

7. Warranty

Unconditional lifetime warranty for the period of the installation applies not only to the workmanship of the window housing but also applies to the durability and stability of the optic in the proposed environment.

8. Maintenance

Regular cleaning to ensure glazed area is clear. Little maintenance is required if the door is kept closed.

9. Technical Services

As well as offering the CAP-F Series in standard stock materials,

10. Filing Systems

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- Additional product information is available from the manufacturer upon request ↪