Optical Filters
Handling, Inspecting and Cleaning of Dontech Optical Filters

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Handling, Inspecting and Cleaning

• Introduction

In accordance with PSB00-1211, PSB01-1011 & PSB00-0911, this instruction serves to provide proper handling, inspecting and cleaning instructions for Dontech Optical Filters.

Reference the appropriate Product Service Bulletin for additional information.
Handling, Inspecting and Cleaning

- Inspection Station

Laminar Flow Hood Inspection Station or equivalent:
These areas provide a clean environment and the proper lighting for inspection.

Wipe down work surfaces daily with alcohol and a cleanroom wipe. Do not touch anything with your bare hands that could come in contact with the parts or your gloved hands.
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- Equipment and Materials

Equipment
- Latex Gloves/ Nitrile Gloves
- Surgical Facial Mask
- Smock/ Lab coat
- Filtered Ionized Air

Materials
- Anti-Tarnish Tissue Paper or Cleanroom Tissue
- Cleaning Cloth- disposable, soft, low-lint tissue
- Solvents- Isopropanol, Denatured Alcohol, Acetone and Naphtha
A mask is worn to protect the optics from moisture and contaminants from being blown onto the optics. The mask MUST cover both the nose and mouth. Typically a “surgical mask” is used.

Masks must be worn when handling vacuum coated material.

Masks are to be put on before gloves.
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• Proper Glove Handling

The proper method for donning gloves is to minimize contact with the outer surface of the glove, with particular care to avoid touching the finger areas. Improper handling of gloves will transfer the oils and other contaminants from your hands to the outer contact surfaces of the gloves, making the glove a source of contamination. Once a glove becomes contaminated, remove and dispose the gloves and get a new pair.

• Improper Glove Handling
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- Smocks/ Lab coats are worn as needed to minimize the presence of dust from clothing and/or for ESD (Electrostatic Discharge) compliance. Smocks should not be worn outside the production or inspection areas.

A Cleanroom ESD lab coat
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• General Handling

• Replace gloves that come in contact with any source of contamination (e.g., do not touch hair, clothing, skin). Oil from bare hands may not be apparent immediately but could cause a thin film coating reject or degrade certain coatings over time.
• Handle the parts by the outside edges only, even with gloved hands.
• Avoid allowing anything to come in contact with the surface of the part, with the exception of clean protective tissue or masking.
• Do not slide the part across any surface.

Placing a part on a pad of clean tissue paper.
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- Ionized Air

- Prior to wiping the part, use a stream of ionized compressed air (approximately 30-50 PSI) for the removal of any lint or other surface debris. Doing this prior to wiping the filters may be the only thing necessary to clean the part.

- Do not use canned air. Residue can damage coatings.
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• Improper Inspection

Please Note - Do not inspect the filter in this manner.

This is referred to as ‘edge lighting’ or ‘ghosting’ a filter. The inspection is performed by looking through the filter at the darker area just below a distant light source or by holding the filter up to ceiling light sources. It will surface many minor blemishes that will not be visible during the filter’s intended use.

Improper inspection techniques or over-inspecting can create false rejects, which increase cost and hinder production.
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• The following slides depict examples of inspection techniques. Only perform the various inspections if required by the blemish specification to which the part was manufactured.

Common Dontech Specifications include:
• S113: General Optical Filter and Display Enhancement Component Specification - General White-Mode with Non-Critical Text or Graphics
• S132: General Optical Filter Specification - Display Windows with Moving Critical Text or Graphics
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• Black Background Reflection Inspection, Front Surface Inspection

• By holding the part against a black background and reflecting the light from the inspection station light source, the part is scanned for front surface blemishes (and internal, reflective blemishes such as air bubbles). The part is to be inspected through the front surface only.

• Note: Only perform this type of inspection if stated in the Purchase Order specification
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• Black Background Reflection Inspection, Front Surface Inspection

• Alternately, if available, the part should be placed over a clean, inactive display supplied by the customer in place of the black surface. This should be done for both the Front Surface Inspection (see previous slide) and the Internal and Rear Inspection (see the next slide).

• Note: Only perform this type of inspection if stated in the Purchase Order specification.
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- **Black Background Transmission Inspection, Internal and Rear Surface Inspection**

  Holding the part vertically (with no surface reflections), at a distance of approximately 22” from the observer or as stated in the specification, the part is inspected over a black background or display for lightly colored blemishes (e.g., lint). The part is to be inspected through the front surface only.

  • Note: Only perform this type of inspection if stated in the Purchase Order specification.
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- White Background Transmission Inspection, Internal and Rear Surface Inspection

Holding the part vertically (with no surface reflections), at a distance of approximately 22” from the observer or as stated in the specification, the part is inspected over a white background for dark colored, opaque blemishes. The part is to be inspected through the front surface only.

- Note: Only perform this type of inspection if stated in the Purchase Order specification
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• Measuring a Blemish
  • If a blemish is found, carefully mark it with a Sharpie or a Pilot Super Color Marker. Avoid marking a conductive coating; the marker could cause damage.
  • Using an eye loupe or a contact reticle, measure the blemish according to the specification requirements. This method can quickly determine if the blemish can be disregarded or cause for rejection.
  • Take care not to slide the measuring device across the part to avoid scratching.
  • If the magnification of the eye loupe or contact reticle is not precise enough to determine Accept/Reject status, use a higher magnification device such as the SmartScope to verify the blemish size.
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- Measuring a Blemish
- Correct Crosshair Alignment
- Incorrect Crosshair Alignment

- If measuring length and width, measure such that the x and y dimensions are at the best possible fit.
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• Measuring a Blemish

• Correct

• Incorrect

If the specification requires the measurement of the diameter of a blemish, use the circle feature of the magnification and measuring device if available. Be sure that the magnification is high enough to tightly and accurately adjust the diameter of your circle to obtain an accurate measurement.
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• Cleaning

With light pressure and small circular motions, a tissue cleaning pad moistened with solvent can be used to clean the surface of the material. Always start cleaning the material with alcohol. Acetone may be used to remove residual stains. Do not allow acetone to come in contact with conductive acrylic or polyester busses or screenprinting or raw polycarbonate.
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• Cleaning

• *Never* use a dry cloth to clean the surface.
• *Do not* apply the solvent directly on the surface of the part.
• To avoid streaking discard the cleaning pad regularly.
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- Installation or Wrapping

Carefully cover the parts in clean tissue or masking for storage. When using polymask, avoid bubbles as air trapped under the bubbles can leave staining on certain coatings. Take care not to fingerprint polymask as it will transfer to the part.

The completed parts are ready for storage or installation.
For more information about proper handling of optical filters, visit Dontech on the web at
www.dontech.com

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