

PRODUCT DATA SHEET

ESD CLEANROOM HEADGEAR

ESD Cleanroom Headgear, including caps and hoods, is designed to provide effective electrostatic discharge control while maintaining strict cleanliness standards in controlled environments. Constructed from low-lint, anti-static materials, these head coverings help minimize particle contamination and ensure compliance with cleanroom requirements. By maintaining continuous grounding through conductive threads or integrated ESD components, the headgear protects both sensitive equipment and personnel from static-related hazards.

The materials used in these head coverings are low-lint and designed to minimize particle shedding, supporting stringent cleanroom cleanliness standards. This ensures that both the wearer and the surrounding environment are protected from contamination, maintaining operational integrity in sensitive manufacturing and laboratory settings. Comfort and fit are also central to the design of ESD caps and hoods.



Features

- Anti-static protection for sensitive equipment.
- Low-lint fabric reduces contamination.
- Lightweight and breathable for comfort.
- Cleanroom compliant for reliable ESD performance.

Lightweight, breathable fabrics allow for air circulation and reduce heat buildup during long working hours. Adjustable features, such as elastic edges or secure closures, help maintain a snug and secure fit without compromising mobility or ESD protection.

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SECTION 2: Cleanroom Headgear System Standards

2.1 Fabric Typical Standards Specifications (Cont.)

BESTO ESD Technology Headgear are available in four types, designed to control electrostatic discharge and reduce particle contamination in cleanroom environments. Made from 99% polyester fabric with 1% carbon conductive filament, they provide anti-static, low-lint, breathable performance and are suitable for electronics, semiconductor, pharmaceutical, and other controlled industries.



Details & Specifications:

Model	: ESD Baseball Cap (One Color)
Sizes	: Free Size (Unisex)
Fabric	: 99% Polyester + 1% Carbon : Conductive Filament
Properties	: Anti-Static, Low-Lint, Breathable, : Sterilizable, Lightweight
Application Industry	: Electronics, Semiconductor, : Pharmaceuticals, Cleanrooms
Performance	: ESD Dissipation, Particle Control, : Comfortable Fit, Industrial Washable
Production Standard	: ANSI/ESD S20.20, IEC 61340, ISO 14644-1
Colors	:     Upon Request



Details & Specifications:

Model	: ESD Cap Extra Lip
Sizes	: Free Size (Unisex)
Fabric	: 99% Polyester + 1% Carbon : Conductive Filament
Properties	: Anti-Static, Low-Lint, Breathable, : Sterilizable, Lightweight
Application Industry	: Electronics, Semiconductor, : Pharmaceuticals, Cleanrooms
Performance	: ESD Dissipation, Particle Control, : Comfortable Fit, Industrial Washable
Production Standard	: ANSI/ESD S20.20, IEC 61340, ISO 14644-1
Colors	:     Upon Request





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SECTION 2: Cleanroom Headgear System Standards

2.1 Fabric Typical Standards Specifications (Cont.)



Details & Specifications:	
Model	: ESD Baseball Cap (Duo Color)
Sizes	: Free Size (Unisex)
Fabric	: 99% Polyester + 1% Carbon : Conductive Filament
Properties	: Anti-Static, Low-Lint, Breathable, : Sterilizable, Lightweight
Application Industry	: Electronics, Semiconductor, : Pharmaceuticals, Cleanrooms
Performance	: ESD Dissipation, Particle Control, : Comfortable Fit, Industrial Washable
Production Standard	: ANSI/ESD S20.20, IEC 61340, ISO 14644-1
Colors	:     Upon Request



Details & Specifications:	
Model	: ESD Hood
Sizes	: Free Size (Unisex)
Fabric	: 99% Polyester + 1% Carbon : Conductive Filament
Properties	: Anti-Static, Low-Lint, Breathable, : Sterilizable, Lightweight
Application Industry	: Electronics, Semiconductor, : Pharmaceuticals, Cleanrooms
Performance	: ESD Dissipation, Particle Control, : Comfortable Fit, Industrial Washable
Production Standard	: ANSI/ESD S20.20, IEC 61340, ISO 14644-1
Colors	:     Upon Request

BESTO ESD Technology Headgear are designed to provide reliable electrostatic discharge control and particle contamination reduction in cleanroom and ESD-controlled environments. Proper selection, correct use, regular inspection, and recommended care ensure consistent performance, cleanroom compliance, and user safety throughout the product lifecycle.

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SECTION 3: Design & Safety Features

3.1 Standard Product Features

ESD Baseball Cap (One Color)



Front



Side



Back Side



Back

ESD Cap Extra Lip



Front



Side



Back Side



Back

ESD Baseball Cap (Duo Color)



Front



Side



Back Side



Back

ESD Hood



Front



Side



Back Side



Back

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SECTION 4: Headgear Care, Storage & Risk Management

4.1 Risk Reduction

BESTO ESD Cleanroom Headgear, including caps and hoods, is designed to reduce the risk of electrostatic discharge (ESD) and particle contamination in cleanroom and ESD-controlled environments. Proper selection, correct fitting, and consistent use help protect sensitive electronic components and maintain cleanroom integrity.

To ensure continuous protection, ESD Cleanroom Headgear should be regularly inspected for wear, damage, or contamination. Headgear that is damaged, excessively worn, or no longer compliant should be replaced to maintain effective ESD performance and cleanroom standards.

4.2 Storage

Proper storage of BESTO ESD Headgear is essential to preserve anti-static properties and cleanliness performance. ESD Headgear should be stored in a clean, dry, and well-ventilated area away from direct sunlight, heat, moisture, and chemical exposure.

When not in use, ESD caps and hoods should be stored flat, on a clean surface, or hung in dedicated cleanroom storage containers to maintain shape and prevent contamination. Avoid storing with non-cleanroom garments or materials that may compromise ESD or cleanliness performance.

4.3 Washing & Care Instruction

Washing Method	: Machine wash or cleanroom laundry.
Washing Temperature	: Cold to warm water ($\leq 40^{\circ}\text{C}$).
Fabric	: 99% Polyester + 1% Carbon Conductive Filament.
Properties	: Anti-Static, Low-Lint, Breathable, Sterilizable.
Application Industry	: Electronics, Semiconductor, Pharmaceutical, and others.

The effectiveness of ESD Headgear may be affected by improper laundering, excessive heat, or chemical exposure. To maintain ESD performance and cleanroom compliance, headgear should be washed under controlled conditions using appropriate cleanroom or machine-washing procedures.

Use mild, neutral detergents only and wash with cold to warm water ($\leq 40^{\circ}\text{C}$). Avoid bleach, fabric softeners, or chlorine-based chemicals. Rinse thoroughly and dry using air drying or low-heat tumble drying. Regular inspection after washing is recommended to ensure the headgear remains clean, intact, and compliant with ESD standards.

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SECTION 5: Safety, Handling & Protective Measures

5.1 General Measures

First-Aid Measures

- **Skin Contact:** Generally safe; remove if irritation occurs.
- **Eye Contact:** Rinse with water if fibers or dust enter eyes.
- **Inhalation:** No known hazard.
- **Ingestion:** Not applicable.

Fire-Fighting Measures

- **Extinguishing Media:** Water spray, foam, dry chemical, CO₂.
- **Special Hazards:** Burning fabric may release smoke, carbon monoxide.
- **Protective Equipment:** Use SCBA and protective clothing.

Accidental Release Measures

- **Skin Contact:** Generally safe; remove if irritation occurs.
- **Eye Contact:** Rinse with water if fibers or dust enter eyes.
- **Inhalation:** No known hazard.
- **Ingestion:** Not applicable.

Handling and Storage

- Wear as instructed in cleanroom or ESD-controlled areas.
- Avoid contact with sharp objects.
- Store in a clean, dry area away from sunlight or chemicals.

Warning: ESD Cleanroom Headgear is intended for use only in controlled cleanroom and ESD-protected environments. It should not be exposed to open flames, high heat, sparks, or potentially flammable or explosive conditions, as the materials are not fire resistant.



CLEANLINESS PERFORMANCE

Low-lint fabric construction helps reduce particle contamination, suitable for cleanroom and controlled environments.



STERILIZABLE & WASH-RESISTANT

Lightweight fabric allows air circulation, ensuring comfort during long working hours.



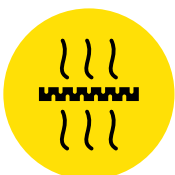
ELECTROSTATIC DISCHARGE

Specially engineered material dissipates static electricity to protect sensitive electronic components.



FULL BODY COVERAGE

The hood provides extended head and neck coverage to reduce direct contact and minimize contamination.



BREATHABLE & COMFORTABLE

Lightweight materials promote airflow, reducing heat buildup and ensuring comfort during prolonged use.



EASY WEAR

Allows quick wearing and removal while maintaining full-body protection.

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SECTION 6: Exposure Control & Personal Protection

6.1 Exposure Controls / Personal Protection

- **ESD Protection:** Dissipates static electricity to protect sensitive components.
- **Low Contamination:** Low-lint materials reduce particle release.
- **Secure Coverage:** Ensures consistent head coverage for cleanroom compliance.

SECTION 7: Maintenance & User Responsibility

7.1 Maintenance, Inspection & Disposal

- **Inspection:** Examine headgear routinely for fabric thinning, stitching failure, deformation, or loss of electrostatic control. Remove from service if performance is affected.
- **Maintenance:** Protect headgear from physical damage, aggressive substances, and excessive temperatures. Clean only using approved processes to preserve cleanroom and ESD function.
- **Disposal:** Headgear that is no longer fit for use should be discarded following applicable safety and environmental requirements. Incineration is not recommended due to potential emission of harmful fumes.
- **Usage Monitoring:** Basic tracking of wear duration and cleaning cycles is advised to support performance consistency and compliance.
- **Sustainability:** Where facilities allow, materials may be sorted for appropriate recycling to reduce waste impact.

7.2 Training And User Responsibility

- **Proper Use & Handling:** Users must be trained to correctly wear, remove, and handle ESD headgear to maintain both personal safety and ESD protection.
- **Inspection:** Check headgear for damage, contamination, or wear before and after each use. Report any defects immediately.
- **Compliance:** Always follow established cleanroom procedures and ESD protocols while wearing the headgear.
- **Record Keeping:** Maintain simple logs of usage and washing to ensure ongoing ESD performance and traceability.

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BESTO ESD TECHNOLOGY

CLEANROOM HEADGEAR



SGS

CTI

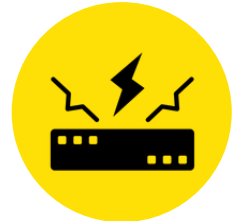
CENTRE TESTING INTERNATIONAL

High-quality cleanroom headgear from BESTO ESD Technology, proven and certified by SIRIM, SGS, and CTI Lab Tested.



Critical Connectivity Points for Grounding & Continuity

1. Neck Interface
2. Face Opening / Visor Area
3. Ear Area with Mesh Opening
4. Front Closure Seam



Critical points on the ESD cleanroom headgear ensure continuous grounding, safely dissipating static electricity to protect both the wearer and sensitive equipment.