



Oberon's TCG Series Arc Flash Suits

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Arc Flash Suit Care & Use



Oberon Introduction:

Oberon is the leading arc flash personal protective equipment (PPE) manufacture in the World. Located in New Bedford, Massachusetts, USA, Oberon manufactures arc-rated products used for protection from arc flash hazards. Oberon products are designed to help workers by keeping them safe and improving human performance using ultra-lightweight arc-rated fabrics and innovative shield technologies including its True Color Grey (TCG) faceshields and suit hood shield windows. Oberon has engineered its arc flash PPE to be the safest available products on the market.

Care & Use Training:

Standards for electrical safety in the workplace including NFPA 70E and CSA Z462 require care and maintenance of arc-rated clothing and arc-rated arc flash suits. Employers shall provide care and use training to any worker that needs arc flash PPE.

Arc flash PPE training requirements include:

- Sizing & Selection.
- Pre-Use Inspection.
- How to Wear an Arc Flash Suit.
- Manufacturer's Instructions.
- Storage.
- How to Disassemble/Assemble an Arc Flash Suit Hood.
- Cleaning & Repairs.

Caution:

Flammable contaminants will reduce the thermal performance of any flame resistant arc-rated garment. Wash garments to ensure that no greases, oil, soiling or other flammable contaminants are present when the garments are worn. Arc flash suits are engineered using multiple layers of fabric so if the garment becomes damaged only the manufacture can make repairs.

Do not reuse Oberon arc flash PPE after an arc exposure.

Important Warning:

Oberon arc flash suits are designed for arc flash protection and do not provide insulation (protection) from electric shock. Oberon arc flash suits when properly selected and worn are designed to provide protection from burn injuries resulting from an electrical arc flash in accordance with ASTM F1506 & NFPA 70E/CSA Z462 Standards. It is important to note that Oberon arc flash suits will provide limited or no protection against sound, pressure, projectiles and respiratory hazards which may result from an arc flash incident. Face protective products which are effective against the arc flash hazard can reduce visibility. NFPA 70E/CSA Z462 calls for the use of additional lighting if work conditions require.

Remember:

Always perform an arc flash risk assessment to determine the potential arc flash incident energy exposure level. Only use arc flash PPE with an arc rating (ATPV or E_{BT}) that is equal to or greater than your potential arc flash incident energy level.

Compliance:

Oberon arc flash PPE is compliant with every applicable Standard necessary as per NFPA 70E and CSA Z462.

This includes:

- ASTM F2178, Standard Test Method for Determining the Arc rating of Face Protective Products
- ANSI Z87.1, Practice for Occupational and Educational Eye and Face Protection.
- ASTM F1506, Standard Performance Specification for Textile Material for Wearing Apparel for Use by Electrical Workers Exposed to Momentary Electric Arc and Related Thermal Hazards.
- ASTM F1959, Standard Test Method for Determining the Arc Rating of Materials for Clothing.

Arc Flash Suit Hood Specification:

- Clear “True Color Grey” (TCG) hood shield window.
- Nomex thread on all seams and embroidery on the outside to identify the protection level and TCG Series.
- Hood shield window made of polycarbonate material providing high impact and high mass protection for maximum protection from shrapnel, projectiles and flying debris. ANSI Z87.1+ Certified.
- Anti-scratch coating on the outside of the shield window.
- Anti-fog coating on the inside of the shield window. Anti-fog coating must be activated before each use. See instructions below.
- Hanging loop on the top of the hood.
- Optional hood ventilation system (HVS) for fresh air to optimize worker comfort. External components constructed of FR plastic to prevent component ignition in the event of an arc flash accident.
- Optional LED head lamp for task lighting necessary in most work tasks.
- Oberon brand CSA Z94.1 certified Type 1 Class E hard hat with ratchet head suspension is included with all standard TCG Series hoods. Alternative adapters are available and might have been supplied. Adapters must match the hard hat otherwise they will not fit and/or break.

Arc Flash Suit Coat & Bib-Overall Specification:

- Nomex thread embroidery on the outside to identify the protection level and TCG Series.
- High visibility stripping on the arms and legs provide enhanced visibility in low light and helps rescue personnel identify a worker following an arc flash incident.
- Compliant label includes:
 - Manufacturer

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- Arc Thermal Performance Value (ATPV) or EBT rating in calories per square centimetre
- Care instructions
- Fabric fiber content (e.g. oz weight/sq yard) (optional)
- Garment size
- Manufacturer tracking code
- Meets requirements of Performance Specification ASTM F 1506
- Each item (Hood, Coat & Bib-Overall) are labeled with individual serial numbers and corresponding bar code for inventory, tracking and total accountability.
- Coat includes dual stage closure; Nomex® Velcro & Zipper Tape and High Temperature Delrin® Zipper.
- FR knit cuffs used on the coat arms at the wrist.
- Synch straps for fit adjustments made of Nomex® Velcro.
- Bib-Overalls include FR suspenders.
- Optional coat harness port allows for a fall protection harness under the arc flash suit.

Sizing & Selection:

Only wear an arc flash suit that fits you correctly. Use an Oberon Sizing Kit or refer to the Oberon Sizing Chart.

- Oberon Coats and Bib-Overalls are available in 8 standard sizes from Small up to 5XL in regular and custom sizes short, tall and extra-tall.
- When using a sizing kit it's important to make sure you have the same PPE on that you would when using the suit. Don't wear street clothing during sizing.
- If you intend on using a cooling vest then make sure this is on first before you select any sizes.
- Depending on your body shape sometimes it's necessary to use a different size coat versus bib-overall.
- Never wear a suit that is too tight or too baggy.
- If you're in between two sizes you should round up.
- You should be able to move freely without any obstruction caused by the bibs or coat.
- The hood is one size.
- Inside the hood the hard hat should have an adjustable suspension.
- If the hard hat doesn't fit you contact Oberon for help.

Pre-Use Inspection:

Workers are required to complete a pre-use inspection of all electrical specific PPE, tools and equipment. While inspecting your arc flash suit if you identify a problem do not use the product until the issue has been repaired, cleaned or replaced. When pre-use inspecting your Oberon arc flash suit you should inspect each item one at a time.

Starting with the hood;

- Inspect the shield window for excessive scratching, cracks or other damage; replace if necessary.
- The outside surface has an anti-scratch coating.

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- If it's dirty use soap and water and dry it with a clean soft cloth.
- If you only need to clean finger prints, try gently exhaling to create moisture on the outside surface and cleaning the lens with a clean microfiber cloth, similar to how you clean your sunglasses.
- Make sure the shield window snaps are closed both on the top and bottom.
- The inside of the hood the shield lens has an anti-fog coating. Never use detergent or chemicals such as Windex on the inside surface of the shield.
- **Anti-fog instructions:** Humidity activates the properties so pull the hood towards you and breathe on the inside surface. It's important for your shield to be at room temperature for best results. You need to activate the anti-fog coating before every use.
- Consider using a hood ventilation system that circulates air to your breathing zone. Oberon's system delivers the external air directly down the inside of the hood shield window to reduce fogging in extreme conditions.
- The hood requires an approved hard hat for compliance. Check the hard hat itself including the suspension to make sure nothing is broken or out of place.
- The hard hat inside of the hood is connected to the shield using adapters.
- Make sure the hard hat is securely installed and the adapters are not broken. These parts are made with plastic so if they break it's easy to buy replacements.
- Inspect the fabric inside and out to make sure it's not ripped, frayed, no holes, any damage or contamination.
- For hoods equipped with a Hood Ventilation System (HVS) inspect to make sure the fan is still locked in place and flip the switch to check if the "AA" batteries still work.
- The same with the optional LED headlamp, make sure it is securely mounted on the strap and check to make sure the batteries still work.

Once you've completed inspecting the hood, place it down in a safe location that is clean and dry. If that's hard to find, place it back inside the storage bag temporarily.

Inspect the coat;

- Inspect the fabric to make sure there are no signs of damage such as rips, holes, fraying or contamination.
- Check the zipper to make sure it's functional.

Inspect the bib-overalls;

- Inspect the fabric again, inside and out.
- Check the buckles and suspenders for any damage.
- **TIP:** It's easier if you keep the buckles closed for when you go to put on the bib-overalls.
- When holding your bib-overalls check the suspenders to make sure they aren't twisted.

How to Wear an Arc Flash Suit:

Before donning (putting on) your arc flash suit check to make sure you're ready. The Standards require that you wear natural fiber clothing or arc-rated garments under your arc flash suit. Never wear clothing that contains meltable fibers. If you need a cooling vest or fall protection harness make sure to put them on before donning your arc flash suit.

The first step to don your suit is to start with the bib-overalls.

- Make sure the Nomex® Velcro® adjustment straps are open at the waist and the ankles.
- If you don't have a chair nearby try using a wall to rest your back against. This helps keep your balance when sliding your feet through the leg openings. Use this same technique for both putting on and taking off your bibs.
- Hold open your bib-overalls and push your feet through. If you have big footwear you'll need to remove that to complete this step. Otherwise point your toes to the bottom of the legs and push each leg through.
- Pull up the bib-overalls over top of your clothing.
- Pull up the suspenders over your shoulders with the buckles closed.
- Once in place, adjust the suspenders if necessary for the best fit.
- Next step is to close the adjustment straps. The waist adjustment is optional. The straps at your ankles should always be closed to keep the bottom of the legs from sliding down under your footwear.

Next is the coat;

- Make sure the zipper is open, then pull it on each arm, one at a time.
- Then completely close the zipper and placard.

At this point do a quick check to make sure the coat and bibs fit comfortably.

- If the suit doesn't fit right do not proceed to wear it.
- The FR knit cuffs should fit to your wrists.
- The pant leg bottoms should be long enough to completely cover your legs down to your ankles.
- You're only as well protected as your lowest point exposed to an arc flash. If you have visible gaps or clothing that shows you must adjust the fit or try another suit size.

Next step is to put on your hood;

- Before going any further you need to wear hearing protection and safety glasses. Selection is required and determined based on your risk assessment.
- Pick up the hood and turn it around so you can see inside.
- Reach in and open the hard hat suspension by adjusting the ratchet so it's larger than your head.
- When you go to put the hood on you will need to reach up inside the back of the hood and adjust the ratchet suspension so it fits snug on your head.
- The hood is worn with the shield lens facing forward.
- Either before or after putting on the hood you can turn on your hood ventilation system and LED headlamp.
- After the hood is on you should pull the bottom of the fabric to make sure it's lying flat and not bunched up. For the hood to provide the intended protection it must be on correctly with sufficient overlap on top of your coat.

When doffing (taking off) your arc flash suit follow the above steps in reverse order as follows; 1) Hood, 2) Coat and 3) Bib-Overalls. As you remove each item place it in a storage bag as per the following instructions.

Instructions on Storage:

- Use a storage bag or storage locker in a clean, dry environment. Never store with sharp objects, or in dusty areas. Oberon #KITBAG Storage bag is recommended.
- To avoid colour fading and loss of strength never store under direct sunlight or other UV light sources (UV-radiation does not affect heat and flame protection).
- Front flap of the hood should be used to protect the window inside of the storage bag. Otherwise hood storage bags are available.
- Recommend folding or rolling the arc flash suit garments before placing them in storage.
- Be sure all powered components are turned off before storage including the fan unit and LED lamp to avoid unnecessary battery drain.
- To ensure the hood ventilation system fan does not turn on while using a storage bag, disconnect the fan unit from the coupling (turn fan counter clockwise), open battery storage compartment cover and remove one battery. Replace the battery compartment cover and store in a pouch (not included) inside of the overall storage bag.

Hood Disassembly Instructions:

The hood requires disassembly before it can be cleaned. The fabric hood shell is the only thing you will launder. You can clean the hard hat by following the manufactures instructions.

- At the back of the hood, remove the fan unit by twisting the hose coupling to the left, detach the fan, remove the fan pack from the mounting strap, and then place it aside. Pay attention to which direction you need to twist so you don't break the plastic.
- At the front of the hood remove the LED headlamp.
- Turn the hood so the inside is facing you, reach in and remove the hard hat.
- You need to "un-click" the finger prongs from the adapter and push/pull the prongs until the hard hat is fully released.
- When installing or removing any hard hat be careful not to scratch the inside of the shield lens with the front brim.
- Once the hard hat is removed, unzip the ventilation system. Then pull the hose through the port hole and inside the hood, past the inner flap. Pull out the ventilation system parts and set them aside.
- Next, turn the hood inside out.
- Remove the hard hat adapters from the shield lens. Keep these parts together as you set them aside. You may even want to take a picture as a reminder of how to reassemble this. It's a good idea to have replacement parts available should something break.
- Then un-snap the fabric from the shield lens and remove it from the hood.
- To finish, turn the hood shell outside in so the black side is on the outside when laundering.

How to Assemble after Washing:

After cleaning your arc flash suit the hood must be reassembled before it can be used.

- Start with the hood shell inside out so the yellow side is on the outside.

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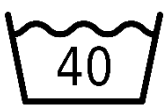
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- Install the shield window in to the fabric pocket design. Make sure the snaps are facing the front of the hood. Then snap it together with the hood.
- Re-install the hard hat adapters which consist of five parts, the biggest part are the fingers that will click into the hard hat, a threaded bolt, a white shield stop, rubber washer and black nut.
- Take the finger part and white shield stop and put these on the inside of the shield with the fingers pointing back away from the shield. The angled shield stop fits on the inside of the shield first. The finger parts are labeled “LEFT” and “RIGHT”.
- Push the bolt through the hole from the inside and turn until it fits inside the hexagon shaped depression.
- Then on the other side of the shield install the rubber washer by screwing it down the threaded bolt.
- Last step is to screw on the black nut until it is tight. Don't over tighten the nut otherwise it will be much harder to disassemble next time.
- Repeat these steps on the opposite side to completely install the hard hat adapters.
- Next you will need to turn the hood outside in so the black side is on the outside.
- Install the optional hood ventilation system by working from the inside of the hood, pull the FR hose out the port hole.
- There is a protective flap inside the hood so find the top and pull the hose down.
- Reach around on the outside at the back and pull the coupling and hose through.
- Inside the hood at the top, start the zipper and pull it all the way around until its completely zipped.
- Still looking inside the hood, push your hand inside to make space for the hard hat. Then carefully install the hard hat with the brim forward facing the shield.
- Carefully insert one of the finger parts into the side slot and push until it clicks. Then install the opposite side.
- When installing the hard hat try not damage the inside of the shield.
- Then turn the hood around and re-install the optional fan unit at the back. Install the fan in the mounting strap before connecting the coupling. Turn the coupling to the right until the fan is secure.
- On the front of the hood you can re-install the LED headlamp.
- Complete a pre-use inspection of the hood. Clean the shield lens if necessary by using a clean microfiber cloth. Never use Windex or detergents on the inside surface of the shield. Remember to activate your anti-fog coating before using the hood. Follow the provided instructions for how to pre-use inspect the arc flash suit components.

Laundry Instructions:

NOTE: Always follow the instructions on the care label found inside of your Oberon PPE.



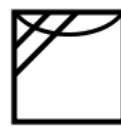
Wash at or
below 40 C



Do Not
Bleach



Tumble
Drying at
Low Temp.



Line Dry
in the
Shade



Do Not
Wring



Do Not
Iron

Cleaning & Repairs:

Keep your arc flash suit clean and dry. Use common sense to tell if it's too dirty. In particular you should never wear a suit that has been contaminated with hydrocarbons or anything that burns. If your suit is WET then make sure its dry before use. When an arc-rated fabric is wet the protection has been compromised. Always follow the label for instructions on how to launder your arc flash suits.

If you need fabric repairs such as rips or holes these must only be completed by Oberon. An arc flash suit is highly engineered using multiple layers of fabric so you can't just sew this yourself. If the shield has been damaged then source a replacement lens. All of the arc flash suit hood components can easily be replaced without sending anything back to Oberon.

Arc flash suit preparation before laundering:

- To clean the hood only the fabric shell can be laundered. Follow the provided instructions for how to disassemble the hood.
- Before laundering the coat and bib-overalls you should make sure everything is closed.
- That includes the coat zipper, FR Velcro placard, bib-overall buckles and adjustment straps.
- If you don't close all of the FR Velcro it could become plugged by lint. If this has already happened comb out the hook side of the FR Velcro.
- Follow the Oberon label for instructions on how to properly launder your suits.

General cleaning requirements:

- Wash Arc Flash PPE regularly.
- Always completely disassemble your hood before laundering (see instructions below). Do not launder hood with window, hard hat, hood ventilation system and LED lamp in place.
- Close all hook & loop fasteners before laundering to avoid unwanted pilling or clogging the hook portion of the fastener.
- Suits shall always be washed or cleaned separately from any other clothing.

Washing procedures:

- Only load the washing machine 2/3 of the volume of the drum.
- Wash at temperatures of up to 40°C with a washing bath relation of 1:10.
- The wash bath detergent should have a ph-value <10.
- General commercial detergents for colored clothing can be used and proportioned according to the detergent manufacturers` information.
- Full detergents contain brighteners and are therefore not suitable.
- Do not use bleaching agents or products which contain bleaching agents.
- Do not use fabric softener.
- After washing, PPE shall be rinsed carefully in order to remove all remains of alkaline and/or possibly flammable residues of the detergent. Up to 2-3 rinsing cycles may be necessary.
- Garments may be spin-dried and dried in a cylinder drying machine with low or normal temperatures until a remaining humidity of 10-20%.
- Do not iron.

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- Dry Cleaning/Chemical drying is recommended when clothing becomes very dirty by e.g. oil or grease.
- Dry cleaning shall be done according to the care labeling by usual 2-bath procedure.
- Boosters should only be used in extreme situations and only with reduced mechanism.
- Dry cleaning shall only be done by experts.
- Before PPE is re-used it shall be completely free of solvents. Therefore the clothing should ventilate for at least one day after being cleaned.