

2016 ARC Protection





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Elvex[®] is a leading manufacturer of safety solutions for millions of workers worldwide. For over thirty five years Elvex[®] has focused on developing innovative products with high quality features and benefits to our customers. Our sales reach in the electric power industry is extensive, with sales of more than 150,000 Electric ARC shields and distributors in over 60 countries worldwide.

As a respected industry leader, Elvex[®] serves a variety of industries including: electric power generation, mining, oil & gas, construction, forestry, chemical, pharmaceutical, aerospace and manufacturing. Our client list covers the majority of the Global 1000 companies such as Duke Energy, General Electric, Commonwealth Edison, Florida Power & Light, Pratt & Whitney, Shell Oil, Boeing, Exxon Mobil, Mittal and Ford Motor just to name a few.

Our mission is to offer our customers the highest quality safety products with the best service available in the industry. Elvex[®] is dedicated to serve our customers in a way that establishes long term, beneficial relationships. We pride ourselves on providing reliable customer service with a personal touch.

We hope that this ARC Flash Catalog makes your job easier in selecting the products best suited to your safety needs. If you need any assistance at all, please contact our International Sales and Customer Service team at 1.203.743.2488 or by email sales@elvex.com.

We appreciate your business and look forward to serving you in the future!

What is an Arc Flash?

It's a short circuit that flashes from one exposed live conductor to another, or to the ground resulting in electrical discharge that uses the air as a conductor. The process ionizes air which then becomes almost as conductive as metal. This sudden and massive release of energy is like an explosion generating temperatures reaching up to 20,000 degrees C which is 4 times hotter than the surface of the sun.

This enormous energy can melt or vaporize metal and other components blasting them with explosively hot gasses into the immediate region, destroying the electrical equipment involved and cause injury to persons working in the immediate vicinity.



What causes an ARC Flash?

Generally confined to electrical systems greater than 480 volts, components such as Low Voltage Switch Gear, switches, conductor termination, fuses, circuit breakers, relay contacts, phase bus bars and such that can become faulty through contamination by moisture, dust, corrosion or accidental contact through dropped tools.

Who Can Be Exposed?

It's usually *industrial electricians and utility distribution technicians* working on installations or repairing appliances who are in danger of being exposed to an arc flash.



What Are The Effects?

- » Rapid release of energy- a fire ball exploding outward
- » Rapid release of heat—can cause incurable burns
- » Blinding light– flash
- » Shock /Pressure wave– deadly, like a hammer hitting you in the chest
- » Sound wave– damaging ears– acoustic wave trauma
- » Sudden spray of molten metal droplets
- » Hot shrapnel flying in all directions



Where Do You Start?

Conduct an electrical system RISK ASSESSMENT analysis to determine what degree of arc flash hazard is present. It's all about the potential fault current and requires technical knowledge and understanding of each specific scenario. This must be performed by a qualified Electrical Engineer who is experienced in this field.

The risk assessment will determine the hazard risk category and level of Personal Protection Equipment (PPE) required.

How Can PPE Help Minimize Risk?

NFPA 70E standards details the safe working practices and are designed to minimize the occurrence of Arc Flash. This standard discusses the various hazard categories grouped by the potential energy release expressed in terms of calories per square centimeter (cal/cm²) or CALS and lists the appropriate Personal Protective Equipment (PPE) to be worn during certain work exercises. In addition, it provides workplace hazard risk assessment and methods to calculate the potential force of an arc blast.

NFPA 70E 2015 now refers to "Hazard Risk Categories" (HRC) as Personal Protective Equipment (PPE) categories. Fire Retardant (FR) clothing based on the cal/cm² rating and the ability to limit the injury to a curable burn at different levels of incident energy. See chart below:

Personal Protection Equipment (PPE)	Minimum ARC Rating
Category 1	4 cal/cm ²
Category 2	8 cal/cm ²
Category 3	25 cal/cm ²
Category 4	40 cal/cm ²

NOTE: cal = calorie per square centimeter cal/cm². Prior to 2015 HRC (Hazard Risk Category) is now PPE (Personal Protection Equipment).

IMPORTANT SAFETY INFORMATION

- An Electric Arc Hazard Assessment is required to be performed by employers in accordance with NFPA 70E.
- ASTM F1959 provides detailed guidelines of tests to be performed to determine thermal protective values for each electric arc application and task.
- ASTM specifications require a minimum distance of 1" per 10,000 volts of A-C proof test between the edge of your rubber glove cuff and the edge of your protector cuff.



ELVEX® QUALITY & TEST STANDARDS

PPE/HRC 1 and 2 ARC KIT TEST STANDARDS:

- » ATPV arc ratings for Elvex[®] Arc Shields are to ASTM F2178-08 Test standards for Face Protective Products, certified by Kinectrics Laboratory.
- » New ArcFit 14™ shield is CE Short Circuit Electric Arc Class 2 Certified.
- » Elvex® Face Shield Light Transmission, UV and High Mass Impact ratings are certified by ICS Laboratory to ANSI Z87.1-2010 standard.



- » Elvex[®] Shield mounting accessories are certified for High Mass Impact and High Velocity ratings by ICS Laboratory to ANSI Z87.1-2010 standard.
- » Tectra Safety helmets ANSI Z89, Type 1, Class E, proof tested to 20,000 volts



PPE/HRC 3 and 4 ARC KIT TEST STANDARDS:

» Flash-Pro™ ATPV arc ratings for Hood System/Arc Shield to ASTM F2178-08 Test standards for Face Protective Products, certified by Kinectrics Laboratory.



- » Elvex® Face Shield Light Transmission, UV and High Mass Impact ratings by ICS Laboratory to ANSI Z87.1-2010 standard.
- » Flash-Pro™ Westex Ultrasoft Fabrics ATPV arc rating certified to ASTM F1959/F1959M-06 Standard that determines Arc Rating of materials for clothing at Kinectrics Laboratory.
- » Refer to ASTM D120-02 Standard for Rubber Insulating Gloves & ASTM F496-02 for In-Service Care of Insulating Gloves.
- » Refer to ASTM F696-02, Standard Specification for Leather Protectors and Insulating Gloves.







Flash-Pro™ 74 or 44 CAL ARC Protection Kits

For optimal thermal protection, ask for Elvex® Flash-Pro™ ARC Flash 74 or 44 protection kits by name. Designed for ARC Flash protection, these kits protect workers against thermal energy releases based on 2015 NFPA 70E standards for HRC PPE Category 4. The Para-Aramid fabric over Modequilt is 33% lighter than the traditional cotton fabric! Offering more mobility, lightweight comfort and flexibility that makes it ideal for hot climates.

Flash-Pro[™] 74 CAL ARC Protection Kit for HRC PPE 4 (with overalls)

Model FP-AG74-MS ARC Kit includes:

- >>> Flash-Pro™ HD-FS-ARC40-18 ARC Hood system, 74 cal/cm², of 7 oz. Para-Aramid over 10 oz. of Modequilt. System includes Elvex proprietary molded dual-layered ARC shield of polycarbonate material with thermal absorbers of .078" thickness for maximum impact and thermal protection. Visible Light Transmission (VLT) to 44%, provides high mass impact protection and 99.9% UV protection. Plus, our exclusive anti-fog coating prevents fogging and insuring visibility.
- » Flash-Pro™ jacket, 74 cal/cm², 32" long with zipper, velcro front closure, drawstring, no collar. Sizes S-XL, made of 7 oz. Para-Aramid fabric blend over 10 oz. Modeguilt.
- » Flash-Pro™ bib overall, 74 cal/cm², Size S-XL, made of 7 oz. Para-Aramid fabric blend over 10 oz. Modequilt.
- » Flash-Pro[™] Glove Kit (includes rubber insulating gloves, leather protector glove, bag), Class 2 rated 17,000 volts. Size 8, 8.5, 9, 9.5, 10, 10.5, 11, 12.. Rubber glove length is 14", Leather Protector length is 12".
- » Colors: Para-Aramid fabric Olive, Rubber Gloves Black, Leather Protectors white/orange.
- >> Elvex # 909-ARC Gear Bag lightweight fabric.



Flash-Pro™44 CAL ARC Protection Kit for HRC PPE 4 (with pants)

Model FP-AG44-MS ARC Kit includes:

- Flash-Pro™ HD-FS-ARC40-18 ARC Hood system, 44 cal/cm², of 5 oz. Para-Aramid over 7 oz. of Modequilt. System includes Elvex proprietary molded ARC shield of polycarbonate material with thermal absorbers of .078" thickness for maximum impact and thermal protection. Visible Light Transmission (VLT) to 49%, provides high mass impact protection and 99.9% UV protection. Plus, our exclusive anti-fog coating prevents fogging and insuring visibility.
- Flash-Pro[™] jacket, 44 cal/cm², 32" long with zipper and drawstring on bottom, no collar.
 Sizes S-XL, made of 5 oz. Para-Aramid fabric blend over 7 oz. Modequilt.
- Flash-Pro[™] pants, 44 cal/cm², Size S-XL, elastic waist, made 5 oz. of Para-Aramid fabric blend over 7 oz.. Note: pants offer better mobility when kneeling than bib overalls.
- Flash-Pro™ Glove Kit (includes rubber insulating gloves, leather protector glove, bag), Class 2 rated 17,000 volts. Size 8, 8.5, 9, 9.5, 10, 10.5, 11, 12. Rubber glove length is 14", Leather Protector length is 12".
- >> Colors: Para-Aramid fabric Olive, Rubber Gloves Black, Leather Protectors white/orange.
- >> Elvex # 909-ARC Gear Bag lightweight fabric.



Flash-Pro[™] 43, 32 or 21 CAL ARC Protection Kits

When electric ARC Flash protection is needed, choose Elvex® Flash-Pro™ 43, 32, or 21 protection kits. They provide protection against ARC flash exposure, meets 2015 NFPA 70E standards and tested by Kinectric High Laboratory.

Flash-Pro™ 43 CAL ARC Protection Kit for HRC PPE 4

Model FP-AG43 ARC Kit includes:

- » Flash-Pro™ HD-FS-ARC40-18 ARC Hood system, 43 cal/cm², of Westex Ultrasoft 9 oz. over 13 oz., system includes Elvex proprietary molded ARC shield of polycarbonate material with special thermal absorbers of .078" thickness for maximum impact and thermal protection. Visible Light Transmission (VLT) to 49%, provides high mass impact protection and 99.9% UV protection. Plus, our exclusive anti-fog coating prevents fogging and insuring visibility.
- >> Flash-Pro™ jacket, 43 cal/cm², 35" long with zipper and Velcro front closure. Sizes S-XL, made of Westex Ultrasoft 7oz. over 5.5. oz. over 7 oz.
- >> Flash-Pro™ bib overall, 43 cal/cm², Size S-XL, made of Westex Ultrasoft 7 oz. over 5.5. oz over 7 oz.
- >> Flash-Pro™ Glove Kit (includes rubber insulating gloves, leather protector glove, bag). Class 2 rated 17.000 volts. Size 8, 8.5, 9, 9.5, 10, 10.5, 11, 12. Rubber glove length is 14", Leather Protector length is 12".
- >> Colors: Ultrasoft Fabric Navy Blue, Rubber Gloves Black, Leather Protectors white/orange.
- >> Elvex # 909-ARC Gear Bag lightweight fabric.



Flash-Pro™ 32 CAL ARC Protection Kit for HRC PPE 3

Model FP-AG32 ARC Kit includes:

- » Flash-Pro™ HD-FS-ARC40-18 ARC Hood system, 32 cal/cm², of Westex Ultrasoft 9 oz. over 13 oz., system includes Elvex proprietary molded ARC shield of polycarbonate material with special thermal absorbers of .078" thickness for maximum impact and thermal protection. Visible Light Transmission (VLT) to 49%, provides high mass impact protection and 99.9% UV protection. Plus, our exclusive anti-fog coating prevents fogging and insuring visibility.
- » Flash-Pro™ jacket, 32 cal/cm², 35" long with zipper and Velcro front closure. Sizes S-XL, made of Westex Ultrasoft 9 oz. over 7 oz.
- >> Flash-Pro™ bib overall, 32 cal/cm², Size S-XL, made of Westex Ultrasoft 9 oz. over 7 oz.
- >> Flash-Pro™ Glove Kit (includes rubber insulating gloves, leather protector gloves, bag), Class 2 rated 17,000 volts. Size 8, 8.5, 9, 9.5, 10, 10.5, 11, 12. Rubber glove length 14", Leather Protector length 12".
- >> Colors: Ultrasoft Fabric Navy Blue, Rubber Gloves Black, Leather Protectors white/orange.
- >> Elvex # 909-ARC Gear Bag lightweight fabric.

Flash-Pro™ 21 CAL ARC Protection Kit for HRC 1 & 2

Model FP-AG21 ARC Kit includes:

- » Flash-Pro™ HD-FS-ARC40-18 ARC Hood system, 21 cal/cm², of Westex Ultrasoft 13 oz., system includes Elvex proprietary molded ARC shield of polycarbonate material with special thermal absorbers of .078" thickness for maximum impact and thermal protection. Visible Light Transmission (VLT) to 49%, provides high mass impact protection and 99.9% UV protection. Plus, our exclusive anti-fog coating prevents fogging and insuring visibility.
- » Flash-Pro™ jacket, 21 cal/cm², 35" long with zipper & Velcro front closure. Sizes S-XL, made of Westex Ultrasoft 13 oz.
- >> Flash-Pro™ bib overall, 21 cal/cm², Size S-XL, made of Westex Ultrasoft 13 oz.
- >> Flash-Pro™ Glove Kit (includes rubber insulating gloves, leather protector gloves, bag), Class 0 rated 1,000 volts. Size 8, 8.5, 9, 9.5, 10, 10.5, 11, 12. Rubber glove length 12", Leather Protector length 12". Optional glove available for Class 1 applications rated 7,500 volts
- >> Colors: Ultrasoft Fabric Navy Blue, Rubber Gloves Black, Leather Protectors white/orange.
- >> Elvex # 909-ARC Gear Bag lightweight fabric.







Flash-Pro™ 12 CAL and 14 CAL ARC Protection Kits

Elvex[®] offers a range of ARC Head/Face Protection Kits for PPE/HRC 1 & 2 in accordance to NFPA 70E-2012 applications. There are 6 Arc Kits available that include: Tectra[™] hard hat, Arc face shield with visor bracket, balaclava, hearing protection choice of the QuickSnap[™] cap mounted ear muffs with 25 NRR or Quattro[™] reusable ear plugs with 27 NRR.

CU-ARC-1 includes Quattro[™] Ear Plugs



CU-ARC-4 includes HM-20 muffs



CU-ARC-2 includes HM-20 Muffs



CU-ARC-5 includes Quattro[™] Ear Plugs



CU-ARC-3 includes Quattro[™] Ear Plugs



CU-ARC-6 includes Quattro[™] Ear Plugs







Kit No. (cal/cm² Rating)	Safety Helmet	Arc Shields	Balaclava	Visor Bracket/ Slot Adaptor	Eye Protection	Hearing Protection
CU-ARC-1 (12 cal)	Tectra cap, SC-50-6R	FS-18ARC10	HD-ARC-FR3	VB-30/SA-29	SG-14C	Quattro Ear Plugs*
CU-ARC-2 (12 cal)	Tectra cap, SC-50-6R	FS-18ARC10	HD-ARC-FR3	VB-30/SA-29	SG-14C	Cap Mount Muff s HM-20
CU-ARC-3 (12 cal)	Tectra cap, SC-50-6R	FS-20ARC10 w/chin protector	HD-ARC-FR3	VB-30/SA-29	SG-14C	Quattro Ear Plugs*
CU-ARC-4 (12 cal)	Tectra cap, SC-50-6R	FS-20ARC10 w/chin protector	HD-ARC-FR3	VB-30/SA-29	SG-14C	Cap Mount Muff s HM-20
CU-ARC-5 (12 cal)	Tectra cap, SC-50-6R	FS-20ARC10 w/chin protector	HD-ARC-FR3	VB-60	SG-14C	Quattro Ear Plugs*
CU-ARC-6 (14 cal)	Tectra cap, SC-50-6R	ArcFit 14™ FS20CPARC10 w/chin protector	HD-ARC-FR3	VB-60	SG-14C	Quattro Ear Plugs*

Eyewear & Balaclava included in all kits



SG-14C HD-ARC-FR3

Product Features





- >> Industry-leading 0.078" thickness for optimal thermal & impact protection.
- >> Dual-sided anti-fog coating for long term performance.
- >> Light green shield tint provides excellent visible light transmission (VLT).
- >> All components certified at Kinectrics High Current Laboratory.



NOTE: For an ARC Wear Kit- please specify Flash-Pro™ Coveralls from pg.11 and add CU-ARC Kit above when ordering.

Elvex® ArcFit 14™ Face Shield

The ArcFit 14[™] face shield is an all-new ARC face shield with an ASTM F2178 arc rating of 14 cal/cm² and certified to CE Short Circuit Electric ARC Class 2 requirements. Featuring a newly designed and improved chin guard that provides extended protection under the chin while allowing a greater range of head movement compared to other competitive models.

How Does ArcFit 14™ Stack Up to the Competition?

- 1. Higher VLT
- 2. 12% Lighter in Weight
- 3. Higher cal/cm² Rating 14 cal/cm²
- 4. Slimmer by 2.5 inches
- 5. Better Chin Protection Clearance
- 6. Improved Head Mobility

Product Features:

- Arc rating of 14 cal/cm² for use in NFPA 70E PPE Category 1 & 2 protection levels.
- » CE Short Circuit Electric Arc Class 2 Certified. GS-ET 29:2011-05
- Dual-sided anti-fog and anti-scratch coating for long term performance.
- » Light green shield tint provides 55% of visible light transmission (VLT).



- » Industry-leading 0.078" thickness for optimal thermal and impact protection.
- Proprietary molded polycarbonate design with thermal spectral absorbers.
- » All components tested and certified at Kinectrics High Current Laboratory.

Product No.	Description
FS20CPARC10	ARC Shield w/Chin Guard ArcFit 14, 10" x 20", Single Layer, AF/PC, Molded, NFPA 70E Risk CAT 2 (14 cal/cm²) and CE Electric Arc Class 2.

The Elvex® Center Positioning Visor Bracket VB-60



Elvex® VB-60 is ideal for ARC shields, offering an overhead centering position feature that balances and distributes the weight of the shield evenly.

- » Made of high strength TRIAX 1120 high for impact resistance and strength.
- >> Higher temperature resistant than ABS, 185°C vs. 105°C.
- » Newly design head-strap attachment end provides a strong and secure fit on most all caps without the need for a adjustment.
- » Designed for mounting Elvex face shields to major brands of safety caps, including non slotted caps.
- » The VB-60 is included in our CU-ARC-6 and CU-ARC 5 Kit. It may be also used with our new ArcFit 14[™] face shield. Visor Available for separate purchase.
- » Universal hole pattern.



Product No.	Description
VB-60	Dielectric Visor Bracket that directly attaches to most Safety Caps for Non-Conductive Applications. Ideal for slot-less safety caps.

Elvex® Arc Flash Face Shields

Elvex[©] offers a range of specialty face shields for Arc Flash Hazards in extreme thermal energy conditions. Key benefits of ELVEX[©] ARC Shields are the following:

- Proprietary molded polycarbonate design with special spectral absorbers.
- Industry-leading 0.078" thickness for optimal thermal and impact protection.
- » Arc shields are ANSI Z87.1 Compliant.

- » Anti-Fog coating for long term anti-fog performance.
- » Light green shield tint provides excellent visible light transmission (VLT).
- » All components tested and certified at Kinectrics High Current Laboratory.



FS-18ARC10



FS-ARC40-18-V





FS20CPARC10



FS-20ARC10



FS-ARC40-V



Product No.	Description
FS-18ARC10	ARC-Shield 10" x 18.5" x.078", Molded Cylinder Lexan AF/PC NFPA 70E Risk Category1 (12 cal/cm²)
FS-20ARC10	ARC-Shield w/Chin Protector, 10" x 18.5" x .078" Molded Cylinder Lexan" AF/PC, NFPA 70E Risk CAT 2 (12 cal/cm²)
FS-ARC40-18-V	ARC Shield, Single Layer AF/PC, w/Sewn on Hook Velcro, 56 cal/cm² (Use w/ARC Rated Hoods)
FS-ARC40-V	Dual Layer AF/PC ARC Shields w/Sewn on Hook Velcro, 80 cal/cm²(Use w /ARC Rated Hoods)
FS20CPARC10	ARC Shield w/Chin Guard ArcFit 14, 10" x 20", Single Layer, AF/PC, Molded, NFPA 70E Risk CAT 2 (14 cal/cm²) and CE Electric Arc Class 2.

Face Shield Accessories

Elvex® SGB-100 microfiber bag is ideal to prevent scratching of your arc shield and yet it may be also used as cleaning cloth.



Flash-Pro™ ARC Switch & All Day Use Coveralls

Elvex® Flash-Pro™ switch coveralls are heavy duty, flame resistant and are required to be worn in conjunction with electric ARC shields, safety helmet, and other ARC rated PPE equipment. The coveralls protect the whole chest area, arms and legs against PPE/HRC 1 & 2 applications.

Flash-Pro™ FP-CO-12 Switch FR Coveralls with reinforced bar tacks for durability. Features Velcro® leg slits that fits easily over boots/shoes and Velcro® front closure for easy on and off. Made with 9 oz. of blended cotton Ultra Soft fabric and Nomex® thread for greater arc flash protection.

ATPV ARC Rating: NFPA 70E PPE/HRC 2, 12cal/cm², certified to ASTM F1959/ F1959M-04 standards.

» Size/Color: S, M, L, XL. Navy Blue only.

Product No.	Description
FP-CO-12-ARC	ATPV rated 12 cal/cm² FR coveralls. Ultra Soft fabric, Navy Blue, S, M, L , XL sizes available

Flash-Pro™ FP-CO-10 FR Coveralls for all day use made of Indura® 9 oz. fabric sewn with Nomex® thread. Front zipper with concealed top snap. Also, features two chest, waist and back pockets. Plus, covered snap cuffs and comfortable banded elastic waist.

- » ATPV ARC Rating: NFPA 70E PPE/HRC 2, 10 cal/cm², certified to ASTM F1959/F1959M-04 standards.
- » Size/Color: S, M, L, XL. Navy Blue only.

Product No.	Description
FP-CO-10-ARC	ATPV rated 10 cal/cm² FR coveralls, Indura fabric, Navy Blue, S, M, L , XL sizes available

NOTE: For complete Arc Wear Kit specify CU-ARC Kit from pg. 8 and add Flash-Pro™ coveralls when ordering.

Flash-Pro™ Clothing: Work Shirts & Pants

Elvex® Flash-Pro™ FR rated Shirts and Pants are another option for PPE/HRC 1 & 2 applications.

Flash-Pro™ Work Shirts are made of 7 oz. Ultrasoft material, rated 8.7 ATPV for PPE/HRC 2 applications. Two front pockets with cover flaps.

>> Size/Color: S, M, L, XL. Blue or Khaki

Product No.	Description
FP-625	HRC 2 work shirts. Blue or Khaki colors. S, M, L , XL sizes available

Flash-Pro™ Work Pants are made of 9 oz. Ultrasoft material, rated 12.4 ATPV for PPE/HRC 2 applications.

» Size/Color: S, M, L, XL. Navy Blue only.

Product No.	Description
FP-606	HRC 2 work pants. Navy Blue only color. S, M, L , XL sizes available





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