

WELDING SHIELD

Weld Vison[®]

Welding Shield

Essential For Workplace Safety

Why Welding Shields Matter?

WeldVison™ range of welding shields are a crucial part of personal protective equipment (PPE) for anyone involved in welding activities. They protect the welder's face and eyes from severe hazards such as intense light, sparks, and harmful radiation. Proper use of welding Shields can prevent serious injuries and ensure a safer working environment.

Understanding the Importance

Welding produces intense ultraviolet (UV) and infrared (IR) radiation, as well as bright visible light that can cause eye injuries and skin burns. Prolonged exposure to these elements without adequate protection can lead to conditions like "welder's flash" (photokeratitis), cataracts, and long-term skin damage. Welding Shields provide a barrier against these dangers, making them indispensable for welders.

Types of Welding Shields

Passive Welding Shields

Fixed Shade Lens: These Shields have a fixed shade lens, usually shade 10, which provides constant protection. They are simple, durable, and often more affordable.

Manual Flipping: Welders must flip the Shield up to inspect the weld and flip it down before striking an arc, which can be cumbersome but ensures continuous protection during welding.



Auto-Darkening Welding Shields

Variable Shade Lens: These Shields automatically adjust the lens shade based on the arc intensity, providing flexibility and ease of use.

Sensitivity and Delay Controls: Allow customization of how quickly the lens darkens and returns to its normal state, which enhances comfort and productivity.

Battery-Powered with Solar Assist: Many auto-darkening Shields are powered by batteries, often supplemented by solar cells to extend battery life.



Key Features to Consider

● Lens Shade

Shade Range: Ensure the Shield covers the appropriate shade range for the type of welding you perform (typically shades 9-13 for most welding applications).

Adjustability: Variable shades offer flexibility for different welding processes and environments.

● Viewing Area

Size: Larger viewing areas provide better visibility and reduce the need for head movement, improving comfort and precision.

Clarity: Look for Shields with high optical clarity ratings (1/1/1/1 is the best rating) for clear and undistorted views.

● Safety Standards

Compliance: Ensure the Shield meets safety standards such as ANSI Z87.1 in the US or EN 175 in Europe, which certify the Shield's protective capabilities.

● Comfort and Fit

Headgear Adjustability: Well-designed headgear allows for adjustments to ensure a secure and comfortable fit.

Weight: Lighter Shields reduce neck strain during long welding sessions, improving overall comfort.

● Durability

Materials: Shields made from robust materials like polyamide or fiberglass offer enhanced durability and protection.

Impact Resistance: Ensures the Shield can withstand accidental drops and impacts without compromising safety.

Benefits of Using Welding Shields

● Eye Protection

Shields eyes from harmful UV and IR radiation, preventing injuries like welder's flash and cataracts.

● Facial Protection

Protects the face from sparks, spatter, and heat, reducing the risk of burns and other injuries.

● Improved Visibility

Auto-darkening Shields improve visibility and accuracy, enhancing the quality of work and reducing errors.

● Enhanced Comfort

Modern Shields are designed for comfort, with features like adjustable headgear and lightweight materials, making them suitable for extended use.

Welding Shield Standards: Ensuring Safety and Performance

Welding Shields are subject to various standards to ensure they provide adequate protection and performance. These standards specify requirements for optical clarity, impact resistance, switching speed, and more. Below are key standards relevant to welding Shields.

Key aspects of the EN 166 standard

Impact Resistance: Eyewear must provide adequate protection against high-speed particles and projectiles, ensuring they do not shatter upon impact.

Optical Quality: Lenses must have minimal optical distortion to provide clear vision without causing discomfort or eye strain.

Protection Against Ultraviolet (UV) Radiation: Some eyewear may offer UV protection to shield the eyes from harmful UV rays, which can cause long-term damage to the eyes and surrounding skin.

Frame Durability: Frames should be robust and capable of withstanding mechanical stresses without breaking or deforming.

Comfort and Fit: Eyewear should be comfortable to wear for extended periods, with adjustable features to ensure a secure and personalized fit for different users.

Resistance to Chemicals and Liquids: Eyewear may be tested for resistance to various chemicals and liquids, depending on the intended use and workplace hazards.

Marking and Labeling: Each piece of eyewear must be marked with relevant information, including the manufacturer's details, lens properties (e.g., optical class, UV protection), and compliance with the EN 166 standard.

Key Aspects of ISO 16321-1:2021

● Adaptability to Emerging Risks:

ISO 16321-1:2021 addresses emerging risks, such as protection against ultraviolet and infrared radiation, which may not be fully covered by EN166:2001 but under other standards such as EN170, EN171. This guarantees more complete protection in constantly changing work environments since ISO 16321-1:2021 covers them all.

● Personalized Risk Assessment:

The new standard places strong emphasis on the assessment of specific risks in the workplace, allowing for more precise selection of protective devices. This leads to more effective and personalized protection for workers.

● Labeling & Marking Improvements:

ISO 16321-1:2021 establishes detailed requirements for the labeling and marking of eye protection devices, facilitating quick and clear identification of the safety features provided.

● Incorporating Technological Advances:

By integrating the latest technological advances and scientific discoveries, the standard ensures that eye protection products are at the forefront of safety, leveraging innovations for greater effectiveness.

● ANSI Z87.1 (American National Standards Institute)

Scope: This standard specifies the design, performance, and marking of eye and face protection devices, including welding Shields, used in occupational and educational settings.

Requirements:

Impact Resistance: Shields must withstand impact from high-velocity particles.

Optical Clarity: Ensures minimal distortion and high optical quality.

UV/IR Protection: Lenses must provide protection from ultraviolet (UV) and infrared (IR) radiation.

Auto-Darkening Filters: Specifies switching speed, shade range, and light state requirements for auto-darkening Shields.

● EN 175 (European Standard)

Scope: This standard specifies safety requirements and testing for equipment used to protect the eyes and face during welding and related processes.

Requirements:

Mechanical Strength: Shields must resist impact and penetration.

Field of Vision: Ensures a wide and clear field of vision for the welder.

Thermal Resistance: Shields must withstand high temperatures and flames.

Electrical Insulation: Ensures protection against electrical hazards during welding.

● EN 379 (European Standard)

Scope: This standard focuses on auto-darkening welding filters and specifies requirements for their optical and protective properties.

Requirements:

Optical Classes: Ratings for optical quality, diffusion of light, variations in luminous transmittance, and angle dependence of luminous transmittance.

Switching Speed: Specifies the time it takes for the filter to switch from light to dark state.

Shade Range: Defines the range of shades the filter can provide, typically from shade 5 to shade 13.

UV/IR Protection: Ensures constant protection from UV and IR radiation, regardless of the filter's state.

Additional Considerations

Shield Markings: Shields should have clear markings indicating compliance with relevant standards, the manufacturer's name, model number, and shade range.

Fit and Comfort: Standards often include requirements for adjustable headgear and ergonomic design to ensure a secure and comfortable fit.

Maintenance and Durability: Shields must be durable and easy to maintain, with replaceable parts like lenses and headgear to extend their lifespan.



Auto-Darkening Filter (ADF) Standards for Welding Shields

Auto-Darkening Filters (ADFs) are a critical component of modern welding Shields, providing dynamic protection by automatically adjusting their shade in response to welding light. Standards ensure that ADFs offer reliable protection, optical clarity, and durability. Below are key standards related to ADFs in welding Shields.

Key ADF Standards

● EN 379 (European Standard)

Scope: This standard specifies the requirements and testing methods for automatic welding filters (ADF).

Requirements:

Optical Classes: ADFs are rated for optical quality based on four criteria: optical clarity, diffusion of light, variations in luminous transmittance, and angle dependence of luminous transmittance. The best rating for each criterion is 1, with 1/1/1/1 being the highest overall rating.

Switching Speed: Specifies the time it takes for the ADF to switch from the light state to the dark state upon detecting the welding arc. Faster switching speeds provide better protection for the eyes.

Shade Range: Defines the range of darkness levels the ADF can achieve, typically from shade 5 to shade 13, suitable for various welding applications.

UV/IR Protection: Ensures continuous protection from ultraviolet (UV) and infrared (IR) radiation, regardless of the filter's state (light or dark).

Light State: Specifies the light state shade of the ADF when no arc is detected, usually between shade 3 and shade 4, for clear vision during non-welding activities.

Temperature Resistance: ADFs must perform consistently across a range of temperatures to ensure reliability in different working conditions.

● ANSI/ISEA Z87.1 (American National Standards Institute / International Safety Equipment Association)

Scope: This standard covers the performance and testing of eye and face protection devices, including ADF welding Shields.

Requirements:

Impact Resistance: ADFs must withstand impact from high-velocity particles to provide protection against physical hazards.

Switching Speed: Specifies the required speed for the ADF to switch from light to dark state to protect the eyes from the welding arc.

Shade Range and Consistency: Ensures the ADF provides the appropriate shade levels for various welding operations and that the shade is consistent across the viewing area.

UV/IR Protection: Continuous protection from UV and IR radiation, irrespective of the ADF's state.

Power Source: ADFs can be powered by batteries, solar cells, or a combination of both, with standards ensuring reliable operation.

Welding Shields With PAPR Integration: Enhancing Safety And Comfort

Welding Shields integrated with Powered Air-Purifying Respirators (PAPR) offer enhanced protection by combining respiratory and facial protection into one system. This integration is particularly beneficial in environments where both welding fumes and particulate matter are present. Here's a guide to understanding and choosing welding Shields with PAPR integration.

Benefits of PAPR-Integrated Welding Shields

● Comprehensive Protection:

Respiratory Protection: PAPRs provide filtered air, protecting the welder from harmful fumes, gases, and particulate matter.

Facial and Eye Protection: Integrated welding Shields protect against intense light, UV/IR radiation, and physical hazards like sparks and spatter.

● Improved Comfort:

Reduced Breathing Effort: PAPRs deliver a steady flow of clean air, reducing the effort needed to breathe and enhancing comfort during extended welding sessions.

Lower Heat Stress: The air supplied by the PAPR can help keep the welder cooler, reducing heat stress and discomfort.

● Enhanced Visibility:

Auto-Darkening Filters: Combined with PAPR systems, auto-darkening welding Shields offer clear visibility and automatic adjustment of the lens shade in response to welding light.

Wide Viewing Area: Many PAPR-integrated Shields have larger viewing windows, improving the welder's field of vision and precision.

● Increased Safety:

Constant Air Supply: Continuous airflow helps to dilute and remove contaminants, reducing the risk of respiratory issues.

Compliance with Safety Standards: Ensures both respiratory and facial protection meet relevant safety regulations and standards.

Key Features to Consider

● PAPR System Specifications:

Filter Type and Efficiency: Ensure the PAPR system has appropriate filters for the contaminants present in the welding environment (e.g., HEPA filters for particulates, activated carbon filters for gases).

Airflow Rate: Check that the airflow rate meets the recommended standards for comfort and protection (typically between 6 to 10 liters per minute).

Battery Life: Consider the battery life of the PAPR unit, which should be sufficient for the duration of your work shifts.

● Shield Integration:

Comfort and Fit: Ensure the Shield integrates well with the PAPR system, offering a comfortable and secure fit.

Ventilation: The Shield should be designed to work effectively with the PAPR's airflow system to prevent fogging and ensure clear vision.

Weight and Balance: The combined weight of the Shield and PAPR unit should be balanced to avoid strain on the neck and head.

● Optical Quality:

Auto-Darkening Features: Look for Shields with high optical clarity ratings (e.g., 1/1/1/1) for clear and distortion-free vision.

Shade Range: Ensure the auto-darkening filter offers the appropriate range of shades for various welding tasks (usually shades 9-13).

● Maintenance and Durability:

Filter Replacement: Choose a system with easy access for filter replacement and maintenance.

Shield Durability: The Shield should be made from durable materials to withstand welding conditions and provide long-lasting protection.

● Compliance with Standards:

Safety Standards: Ensure the Shield and PAPR system comply with relevant standards, such as EN 12941 for PAPR systems, EN 175 for welding Shields, and ANSI/ISEA Z87.1 for eye and face protection.



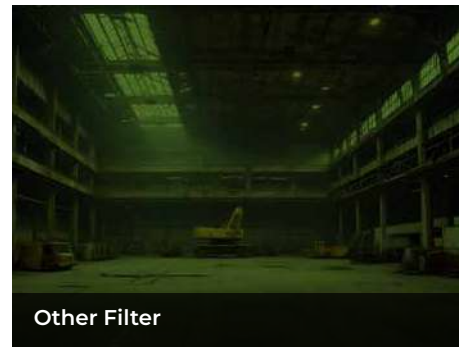


TRUE COLOUR TECHNOLOGY

Auto-darkening filters with the original WeldVison™ Technology are of the highest optical class 1 /1 /1 /1 DIN rating. Instant switch from bright to dark state, protecting eyes from all directions.

Users are able to enjoy true-to-life color recognition and exceptional high definition with our WeldVison™ Technology. No glare or interference, we provide the industry-leading eye-protection to help every user better concentrate on producing quality welds while improving their efficiency.

LIGHT STATE



When not welding, the ADF restores true colors for a clear and comfortable view. You can adjust the welding machine without needing to remove the helmet.

DARK STATE



During welding, it enhances user visibility of the weld pool and seam, leading to more precise welding.

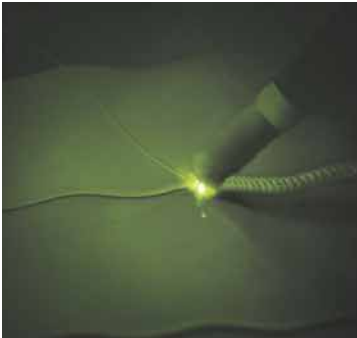
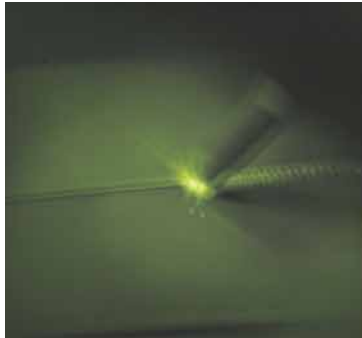
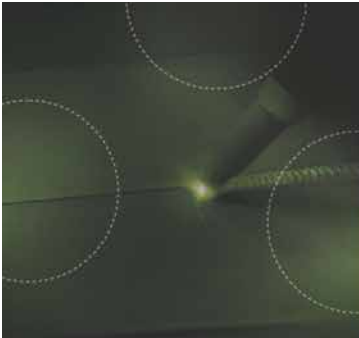
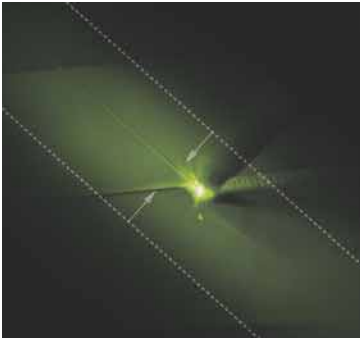
TRUE COLOUR TECHNOLOGY

Highest Optical Class

1/1/1/1

What Does 1 / 1 / 1 / 1 Mean?

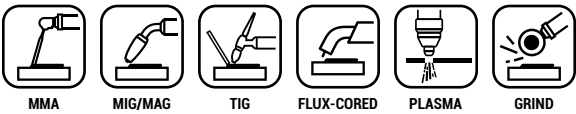
- The four parameters of welding filters: optical class, light diffusion, light homogeneity and angle dependence.
- Each parameter is ranked on a scale from Class 1 to 3, with Class 1 being the best, and Class 3 representing the lowest tier (which is the minimum level required to meet the CE standard).

Optical Class	Light Diffusion	Light Homogeneity	Angle Dependence
<div>Highest Class</div> <div>1/X/X/X</div> <div>Optical class indicates optical quality of the ocular.</div>	<div>Highest Class</div> <div>X/1/X/X</div> <div>Light diffusion class (adjustable filters only) 1, 2 or 3 indicates light diffusion class of the filter lens.</div>	<div>Highest Class</div> <div>X/X/1/X</div> <div>Variations in luminous transmittance class 1, 2 or 3 indicates shade variability in the dark state of the filter.</div>	<div>Highest Class</div> <div>X/X/X/1</div> <div>Angle dependence of luminous transmittance class 1, 2 or 3 indicates the shade remains consistent when looking at any angle.</div>
<div>Worst Class</div> <div>3/X/X/X</div> <div>Bad optical class quality will cause visual distortion.</div>	<div>Worst Class</div> <div>X/3/X/X</div> <div>Bad diffusion will cause double visual and headaches.</div>	<div>Worst Class</div> <div>X/X/3/X</div> <div>Bad Homogeneity, some lighter area will not be able to provide enough protection.</div>	<div>Worst Class</div> <div>X/X/X/3</div> <div>Bad Angle Dependence will cause uneven darkness when eyes have some angles with the lens.</div>
			





W200



Passive Welding Shield with Shade Glass Lens SGL100

Product Specification

Viewing Area	110 x 90 mm (4.33" x 3.54")
UV/IR Protection	Up To Shade 13 at all times.
Dark State	Shade 9/10/11 /12/13
Total Weight	470 g
Approved	CE, ANSI Z87. I, EN 175, EN 166, EN 169

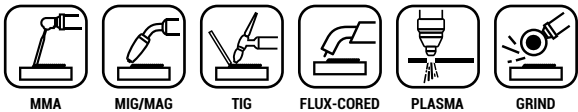
Packaging Information

1 Piece / Box

Product SKU	Size	Colour	Inner pack UPC
BLSH-FPWH-W200	OSFM	Black	810148535322



W250



Auto Darkening Welding Shield with ADF600S

Product Specification

Optical Class	1/1/1/2
Viewing area	96 × 40mm(3.78" x 1.57")
Size of cartridge	110 * 90 * 9 mm(4.33"*3.54"*0.35")
Lens shade	Variable Shade 9-13
Light State	DIN 3.5
Shade control	External
Sensors	2
On/Off	Automatic On / Off
Power Supply	Solar cell, no need to change battery
Switch time	1/16,000 sec. from Light to Dark
Sensitivity Control	Low~High, by infinitely dial knob
Delay time(dark to light)	0.1~1.0s by infinitely dial knob
Low TIG amps rated	210 amps(DC); ≥10 amps(AC)
Mode	Yes, external
Operating Temperature	-10°C~+ 55C(14°F~131 F)
Storing Temperature	-20°C~+ 70°C(-4°F~158°F)
Standard	CE, ANSI, CSA, AS/NZS approved

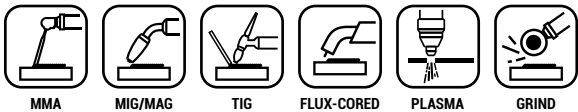
Packaging Information

1 Piece / Box

Product SKU	Size	Colour	Inner pack UPC
BLSH-ADWH-W250	OSFM	Black	810148536848



W300



Auto Darkening Welding Shield with ADF800SG

Product Specification

Optical Class	1 / 1 / 1 / 1
Viewing Area	97 x 62 mm (3.82" x 2.44")
Cartridge Size	133 x 114 x 9 mm (5.25" x 4.50" x 0.35")
Arc Sensor	4
Light State	DIN 3.5
Dark State	Variable Shade 5 ~ 8 / 9 ~ 13
Shade Control	Internal, Variable Shade
Power On/Off	Automatic On / Off
Sensitivity Control	Low ~ High, by infinitely dial knob
UV/IR Protection	Up to Shade DIN16 at all times
Power Supply	Solar cell. Battery replaceable, 2 x CR2450 lithium battery
Switching Time	1/25,000 s. from Light to Dark
Dark to Light	0.1 ~ 1.0 s by infinitely dial knob
Low Amperage TIG Rated	≥ 2 amps (DC); ≥ 2 amps (AC)
Grinding	Yes
Battery Capacity Test	Yes
Operating Temp.	-10 °C ~ +55 °C (14 °F ~ 131 °F)
Storing Temp.	-20 °C ~ +70 °C (-4 °F ~ 158 °F)
Helmet Material	High Impact Resistance Nylon
Total Weight	490 g
Approved	CE, ANSI, CSA, AS/NZS, EAC

Packaging Information

1 Piece / Box

Product SKU	Size	Colour	Inner pack UPC
BLSH-ADWH-W300	OSFM	Black	810148535339



W400

CE

ANSI
Z87.1



Side Lens



MMA

MIG/MAG

TIG

FLUX-CORED

PLASMA

GRIND

Auto Darkening Welding Shield with side lens with ADF900G

Product Specification

Optical Class	1 / 1 / 1
Viewing Area	107 x 75 mm (4.21" x 2.95")
Cartridge Size	156 x 123 x 33 mm (6.14" x 4.84" x 1.30")
Arc Sensor	4
Light State	DIN 4
Grind State	DIN 4
Cutting Shade	Shade No. from 5 to 8
Welding Shade	Shade No. from 9 to 13
Shade Control	Internal, Digital Display Control
Power On / Off	Automatic On / Off
Sensitivity Control	Low ~ High, Digital Display Control
UV / IR Protection	Up to Shade DINI 3 at all times
Power Supply	Solar cell. Battery replaceable, 2 x CR2450 lithium battery
Switching Time	1 / 25,000 s. from Light to Dark at 55 °c (131 °F)
Grinding	Yes
Delay (Dark to Light)	0.1 ~ 1.0 s, Digital Display Control
Low Amperage TIG Rated	≥ 2 amps (DC); ≥ 2 amps (AC)
Operating Temp.	-5 °C ~ +55 °C (23 °F ~ 131 °F)
Storing Temp.	-20 °C ~ +70 °C (-4 °F ~ 158 °F)
Helmet Material	High Impact Resistance Nylon
Total Weight	778 g
Approved	CE, EN175, EN 379, EN166, ANSI Z87.1, CS A Z94.3, AS/NZS 1338.1

Packaging Information

1 Piece / Box

Product SKU	Size	Colour	Inner pack UPC
BLSH-ADWH-SL-W400	OSFM	Black	810148535346

Welding Shield

WeldVison® Series



W400 Air



Side Lens



MMA



MIG/MAG



TIG



FLUX-CORED



PLASMA



GRIND

Auto Darkening Welding Shield with side lens with ADF900G - Air Version

Product Specification

Optical Class	1 / 1 / 1 / 1
Viewing Area	107 x 75 mm (4.21" x 2.95")
Cartridge Size	156 x 123 x 33 mm (6.14" x 4.84" x 1.30")
Arc Sensor	4
Light State	DIN 4
Grind State	DIN 4
Cutting Shade	Shade No. from 5 to 8
Welding Shade	Shade No. from 9 to 13
Shade Control	Internal, Digital Display Control
Power On / Off	Automatic On / Off
Sensitivity Control	Low ~ High, Digital Display Control
UV / IR Protection	Up to Shade DIN13 at all times
Power Supply	Solar cell. Battery replaceable, 2 x CR2450 lithium battery
Switching Time	1/25,000 s. from Light to Dark at 55 °C (131 °F)
Grinding	Yes
Delay (Dark to Light)	0.1 ~ 1.0 s, Digital Display Control
Low Amperage TIG Rated	≥ 2 amps (DC); ≥ 2 amps (AC)
Operating Temp.	-5 °C ~ +55 °C (23 °F ~ 131 °F)
Storing Temp.	-20 °C ~ +70 °C (-4 °F ~ 158 °F)
Helmet Material	High Impact Resistance Nylon
Total Weight	778 g
Approved	CE, EN175, EN 379, EN166, ANSI Z87.1, CS A Z94.3, AS/NZS 1338.1

Packaging Information

1 Piece / Box

Product SKU	Size	Colour	Inner pack UPC
BLSH-ADWH-ASL-W400	OSFM	Black	810148535353

Welding Shield

WeldVison® Series



W500 Air

CE **ANSI**
Z87.1



Side Lens



MMA



MIG/MAG



TIG



FLUX-CORED



PLASMA



GRIND

Flip-up Auto Darkening Welding Shield with side lens with ADF900S

Product Specification

Optical Class	1 / 1 / 1
Viewing Area	107 x 75 mm (4.21" x 2.95")
Cartridge Size	156 x 123 x 33 mm (6.14" x 4.84" x 1.30")
Arc Sensor	4
Light State	DIN 4
Grind State	DIN 4
Cutting Shade	Shade No. from 5 to 8
Welding Shade	Shade No. from 9 to 13
Shade Control	Internal, Digital Display Control
Power On / Off	Automatic On / Off
Sensitivity Control	Low ~ High, Digital Display Control
UV / IR Protection	Up to Shade DIN 16 at all times
Power Supply	Solar cell. Battery replaceable, 2 x CR2450 lithium battery
Switching Time	1 / 25,000 s. from Light to Dark
Grinding	Yes
Delay (Dark to Light)	0.1 ~ 1.0 s, Digital Display Control
Low Amperage TIG Rated	≥ 2 amps (DC); ≥ 2 amps (AC)
Operating Temp.	-10 °C ~ +55 °C (23 °F ~ 131 °F)
Storing Temp.	-20 °C ~ +70 °C (-4 °F ~ 158 °F)
Helmet Material	High Impact Resistance Nylon
Approved	CE, UKCA, UKNI, ANSI Z87.1, Z94.3, AS/NZS 1338.1, EAC

Packaging Information

1 Piece / Box

Product SKU	Size	Colour	Inner pack UPC
BLSH-FADWH-ASL-W500	OSFM	Black	810148535360

T

R

E

D

X

E

For all your product availability & distribution related queries

South Region : south@bisonlife.com

North Region : north@bisonlife.com

East Region : east@bisonlife.com

West Region : west@bisonlife.com

Technical Queries **Ask the Expert**



www.bisonlife.com



Global Corporate Headquarter

Bison Life®
375 Winkler Drive,
Suite E, Alpharetta,
GA 30004, United States

Regional Headquarters India

Bison Life® India Private Limited
#137/34, HMG Ambassador Building,
10th Floor, Residency Road,
Bengaluru-560025, India

Regional Headquarters UK

Bison Life® UK
124 City Road, London,
EC1V 2NX, UK