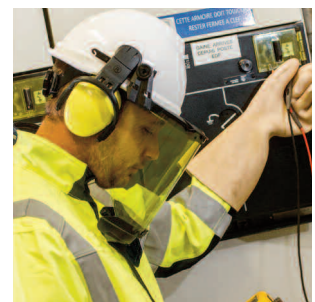
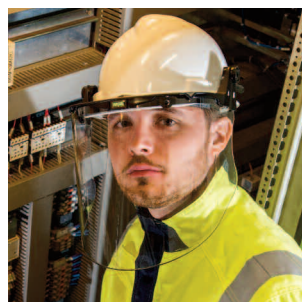
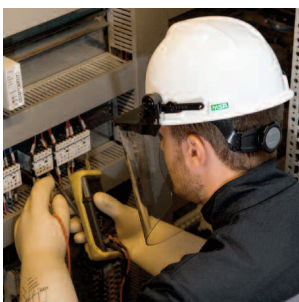


Head & Face Protection for Electrical Workers

Electrician Helmets, Arc Flash Visors, Liners & Ear Muffs



MSA has been in industrial head protection for over 50 years and is today the world's leader with more than 120 Million industrial helmets sold. For electrical workers MSA developed helmets, visors and accessories to protect against arc flashes and ensure insulation when in contact with live wires. This flyer explains the relevant norms and includes the MSA solutions designed for this challenging application.



*Because every life has a **purpose...***

The risks from arc flash include **high temperature, flying debris and powerful radiation**. Appropriate PPE is crucial even though there is no common global standard against arc flash hazards.

EN standards require **electrician's visors** to protect the face against **arc flashes** while **electrician's helmets** are tested to ensure **insulation when in contact with live wires**. Current EN standard arc flash protection requirements are for the face and do not include the helmet. MSA provides **head and face protection certified for all relevant EN standards**. They should be selected according to each individual risk assessment. leftRIGHT ear muffs can be easily added in visor combination when needed. MSAs optional liners offer protection against cold, flames and arc flash.



EN Standards for Helmets

440 V AC is an optional requirement from the helmet norm EN397. It is intended to provide protection to the wearer against short-term, accidental contact with live electrical conductors. The leakage test is performed in 3 different conditions. The voltage used for this test is 1200 V AC.

1000 V AC from EN 50365. Electrically insulating helmets for use on low voltage installations. This optional test ensures reliable protection against electric shock up to AC 1000 V or DC 1500 V. The voltage used for this test is 10 000 V. Helmets approved to EN 50365 should be marked with the triangle symbol and "Electrician class 0" inside the shell. MSA electrician helmets are engraved like this in the middle of the shell inside.



EN Standards for Visors

EN166 marking "8" indicates visors and frames which protect against an open circuit electric arc of 12 kA max, 380–400 V, 50Hz nominal for 1 sec max. The requirements are: metal free, defined face coverage, visor thickness minimum 1,4mm with a scale number of 2–1,2 or 2C–1,2. These specifications have been derived from a series of tests using these parameters. Visors certified today are not tested in an arc flash.

MSA offers five visor versions with this certification and marking. All MSA visor frames are approved in combination. In this flyer you find the frames for slotted helmets. More frame versions, e.g. universal for other helmets, are available.

GS-ET-29 "Supplementary requirements for the testing and certification of face shields for electrical works" first published in 2010 by german DGUV. This is "Arc-in-the-Box" testing with parameters of 400 V AC; 50 or 60 Hz for 500ms and has 2 classes:

Class 1: 4 kA, 135kJ/m³

Class 2: 7 kA, 423kJ/m³

The main different to EN166 "8" is that each visor needs to be tested in real arc flash. The temperature behind the visor at eye, mouth and chin level of the test head is measured – maximum safe temperatures are given, to ensure that users will not be injured. Please see the MSA website for the videos on GS-ET-29 arc flash testing. MSA also simulated that an arc flash occurring from the side (normally not required by GS-ET-29), using GS-ET-29 conditions. leftRIGHTs ear muffs were mounted, passing as well class 1.



Other Arc Flash Protection Standards – NOT applicable to helmets and visors

VDE 0680. "PPE, protective devices and apparatus for work on electrically energized systems up to 1000 V" is an old German standard using 1000 V and double triangle marking. Today it is valid only for insulating devices like self-sticking tapes, special covers, etc. but not for visors.

EN 61482-1-2. "Live working – Protective clothing against the thermal hazards of an electric arc" is relevant for clothing only. For a similar test method (directed arc box test) for visors please see GS-ET-29.

Standard for Liners

ASTM F 1959/F 1959M-06

This includes test method for determining the arc rating of materials for clothing. V-Gard Supreme liners offer protection for Arc Thermal Performance Value of 8 cal/cm², testing conducted by Kinectrics, Canada, report 1108P33/1106P17.

Helmet Model

Electrician Helmet Premium – V-Gard 500 and V-Gard 520



- V-Gard 500/520 unvented electrician helmets approved for EN 397 440 V AC and EN 50365, 1000 V
- V-Gard 500 helmet with standard peak
- V-Gard 520 helmet has NO peak for confined spaces and to ensure perfect upward vision when working at height
- EN 50365 Triangle symbol is marked inside both shells
- UV stabilised ABS helmet shells offering good resistance to scratches
- Provides lateral crush protection
- Built-in rain gutter for outdoor operations
- Standard slots and ideal shape to easily attach MSA visors and/or ear muffs
- Optional chinstraps 2- and 3-point versions, 4-point for V-Gard 520
- Antistatic tested for ATEX environments
- Up to 9 shell colours: white, yellow, red, blue, green, orange + grey, black (for V-Gard 500 only), high viz orange (for V-Gard 520 only)
- Optional: badge holder for the front, text or full colour picture printing on all helmet sides; individual naming stickers; reflective stickers
- Lifetime: 3 years storage, +5 years service time; MSA delivers stickers to note date of first use and stick to inside shell

or

Electrician Helmet Stylish – V-Gard 200



- V-Gard 200 electrician helmet approved for EN 397 440 V AC and EN 50365, 1000 V
- EN 50365 Triangle symbol is marked inside the shell with a label
- UV stabilised ABS helmet shells offering good resistance to scratches
- Lightweight, stylish design
- Short peak for improved upward vision
- Limited rain gutter
- Standard slots to easily attach MSA visors and/or ear muffs
- 2- or 3-point chinstraps available
- Antistatic tested for ATEX environments
- 6 shell colours: white, yellow, red, blue, green, orange
- Optional: badge holder for the front, text or full colour picture printing on all helmet sides; individual naming stickers; reflective stickers
- Lifetime: 3 years storage, +5 years service time; MSA delivers stickers to note date of first use and stick to inside shell

or

Electrician Helmet Basic – V-Gard



- V-Gard electrician helmet approved for EN 397 440 V AC and EN 50365, 1000 V
- EN 50365 Triangle symbol is engraved inside the shell
- Reliable, UV stabilised HDPE helmet shell
- Standard slots to easily attach MSA visors and/or ear muffs
- 2- or 3-point chinstraps available
- Antistatic tested for ATEX environments
- 6 shell colours: white, yellow, red, blue, green, orange
- Optional: badge holder for the front, text or full colour picture printing on all helmet sides; individual naming stickers; reflective stickers
- Lifetime: 2 years storage, +4 years service time; MSA delivers stickers to note date of first use and stick to inside shell

Fas-Trac III Ratchet Suspension (for all helmet models)



- Large wheel ratchet for quick adjustment even with gloves
- With over head straps made of woven polyester: providing high comfort and consistent shock absorption performance
- The lower nape strap increases balance and stability
- Innovative back part: cushioning and improved air flow
- 3 levels of nape height adjustment
- Premium replaceable sweatband sweat-wicking foam, washable (Alternative sewn in PVC wipeable)



Frame and Visors



Accessories

Visor Frame GS-ET-29 class 2 (7 kA) & EN166 "8"

5



- V-Gard frame designed to easily adapt complete MSA visor range
- Only 1 click to adapt reliable to helmet shell standard slot
- Can be used with or without ear muffs
- Robust and impact resistant at extreme temperatures EN166 "BT", marked "8" & "9" for arc flash and molten metals; Part of visor testing GS-ET-29 class 2 (7 kA)
- Sloped design makes it easy to clean the frame as rubbish just slides off the frame



Electrician Visors Premium GS-ET-29 class 2 (7 kA) & EN166 "8"

6



- Patented injection moulded blend of dyes and nano particles in a polycarbonate matrix
- Superior protection from electric arc, convective heat, high temperatures, flying debris and UV radiation
- Certifications: GS-ET-29 Class 2 (7 kA), EN166, EN 170, PPE category 3, double triangle 1000 V marked
- Very light green - offers highest visual light transmission according to GS-ET-29 [VLT Class 0] providing maximum light transmittance and colour recognition
- Optically corrected to give a very clear view and reduce fatigue during use
- Good face coverage in the most compact design
- Anti-fog coating
- 2 visor versions: ear muff compatible or with extended ear protection
- Retractable chinguard certified in combination to protect the neck

or

Electrician Visors Modern GS-ET-29 class 1 (4 kA) & EN166 "8"

7



- Made of 2.5 mm thick moulded polycarbonate
- Protects from electric arc, molten metal, chemical splashes, high temperatures, flying debris and UV radiation
- Resistant to impacts EN166 "B" at extreme temperatures "T"; electric arc and molten metal EN166 "8" & "9" and GS-ET-29 Class 1
- Optically corrected to give a very clear view and reduce fatigue during use
- Premium anti-fog and anti-scratch coatings approved EN166 "KN" on both sides
- Two versions: standard and extended coverage
- Ergonomically shaped to perfectly fit with helmet-mounted ear muffs

or

Electrician Visors Basic EN166 "8"

8



- Visors protect against impact, electric arc, chemical and molten metal splash and UV radiation
- Reliable but economical sheet polycarbonate 1.5mm
- Visor sides are contoured towards face for a closer fit and improved resistance to impact and splash hazards
- Two versions feature a premium Antifog/Antiscrash coating on both sides, certified EN166 "KN", to provide higher comfort, improved safety and increased lifetime
- Ergonomically shaped to perfectly fit with helmet-mounted ear muffs
- Specific visor version to adapt V-Gard chin protectors is available

Chin Protectors

9



Retractable chin protector

features unique retractable plates to allow greater flexibility of head movement, both up and down, as well as side to side

Compact for confined space
GS-ET-29 class 2 (7 kA) & EN166 389 BT

Standard chin protector is compact and lightweight

Ear Muffs leftRIGHT

10



- Only 1 click to adapt reliable to helmet shell standard slot
- Unique muffs designed to account for the anatomical individuality of the user
- Individual ear cups, left and right, for most comfortable protection on the market
- 3 distinct wearing positions
- 3 attenuations levels
- 4 colours: blue, white, yellow, black

In the GS-ET-29 laboratory, tests were performed simulating that an arc flash occurs from the side: leftRIGHTs passed in combination with MSA visors and helmet the class 1 (4 kA)

Liners

11



- V-Gard Supreme Liner range feature multiple layers for superior warmth, flame and arc flash retardant fabric, water repellent for cold operating conditions
- Easily attached to helmet suspensions to offer proper stability and position
- Adjustable hook and loop closure on neck
- Integrated pocket to place a warming packet for enhanced warmth

Supreme Liner: features adjustable ear flaps which fold back on rear velcro when in use with ear muffs

Supreme Liner 2 piece: with a robust zipper you can easily add or take off the lower part while the upper part stays in helmet on the head

Electrical Sets: Ready to go Solution

Electrician Kit Basic EN 166

Components are pre boxed. Ideal for applications with limited arc flash risks.

- Helmet, V-Gard white with Push-Key suspension, PVC sweatband (EN 397 440 V AC and EN 50365)
- V-Gard frame (EN 166: 389 BT)
- Electrician visor basic – V-Gard sheet visor, 203x432x1,5mm (EN 166 2C-1,2 1B 389)

Part No	Description
GV111-0024000-000	Basic Electrician Kit



Electrician Kit Premium EN166 & GS-ET-29 class 2 (7 kA)

Probably the most compact arc flash set GS-ET-29 class 2 available today!

Components are pre boxed. Ideal set for applications requiring arc flash protection, especially in confined spaces.

- Helmet, V-Gard 520 white with Fas-Trac III ratchet suspension, replaceable foam sweatband (EN 397 440 V AC and EN 50365, Part of visor testing GS-ET-29 Class 2)
- V-Gard frame (EN 166: 389 BT; Part of visor testing GS-ET-29 Class 2)
- Electrician visor Premium – V-Gard arc flash visor compatible with earmuffs, retractable chin guard (EN166 & GS-ET-29 Class 2, EN166 2C-1.2 1 B 8 - 2 - 0 3)

Part No	Description
GV919-0029000-000	Premium Electrician Kit EN166 & GS-ET-29 class 2



MSA arc flash set before "arc-in-the-box testing" 7 kA



Arc flash 7 kA




GS-ET-29 class 2-7 kA certification passed.
Head and face combination protects the wearer.

Discover online our arc flash testing videos using the QR code.



Ordering information

Helmets					
Description		Part No	Approvals		
1	Electrician Helmet Premium: V-Gard 500 unvented, white, Fas-Trac III ratchet, Premium foam sweatband	GV519-0000000	For all: • EN397= -30°C; Electrical Insulation "440Vac" • EN50365: 1000 V • Part of GS-ET-29 class 1+2 visor testing (except V-Gard 200) • Antistatic EN13463, ATEX hazardous zones 1, 2, 20, 21, 22 For V-Gard 500/520/200: Lateral Deformation "LD"		
2	Electrician Helmet Premium NO peak: V-Gard 520, white, Fas-Trac III ratchet, Premium foam sweatband	GV919-0000000			
3	Electrician Helmet Stylish: V-Gard 200, white, Fas-Trac III ratchet, Premium foam sweatband	GV719-0000000			
4	Electrician Helmet Basic: V-Gard, white, Fas-Trac III ratchet, Premium foam sweatband	GV119-0000000			
For other shell colours, sliding suspension PushKey or other sweatbands please see the V-Gard brochure.					
V-Gard Frames and Visors					
Description		Part No	Approvals		
5	Standard V-Gard Frame HDPE for slotted helmets	10121266	Tested with visors and helmets passing: EN 166 389 BT & Part of GS-ET-29 class 1+2 visor testing		
			EN166 "8"	GS-ET-29 class1	GS-ET-29 class2
6	Electrician V-Gard Visors Premium (please order as well retractable chin protector 10115828) • Certifications: GS-ET-29 Class 2 (7 kA), EN166, EN 170, PPE category 3 • Marked: EN166 2C-1.2 MSA 1 B 8-2-0 3 CE 1883, double triangle 1000 V • 203 x 438 x 1.7 mm (retractable chin protector: add 75 mm in height) Compatible with earmuffs With extended ear protection (NOT earmuff compatible)	 10163457* 10163456*	■	■	■
7	Electrician V-Gard Visors Modern AF/AS EN166 certified & marked: 2C-1,2 1BT 389 KN; Tested but not marked: GS-ET-29 class 1 (4 kA) 235 x 432 x 2.5 mm 264 x 432 x 2.5 mm	10115844 10115853	■	■	
8	Electrician V-Gard Sheet Visors Basic EN166 certified & marked: 2C-1,2 1B 389 203 x 432 x 1.5 mm Electrician V-Gard Sheet Visors Basic AF/AS EN166 certified & marked: 2C-1,2 1B 389 KN 203 x 432 x 1.5 mm (retractable chin protector: add 75 mm in height)	10115840 10154949 10154950*	■		
* For chin protector adaptation.					
Accessories					
Description		Part No	Approvals		
9	Standard Chin Protector 75 mm high Retractable Chin Protector 45–75 mm high	10115827 10115828	Tested with visors: part of testing: EN 166 389 BT part of testing: EN 166 389 BT & GS-ET-29 class 1+2		
10	left/RIGHT, Ear Muffs Yellow, Medium Attenuation	10087428	EN352 SNR 28dB (H=29, M=25, L=17dB) Tested with visors passing GS-ET-29 class 1		
11	V-Gard Supreme Liner Extended, 3 layers; Arc resistant; Flame retardant; Water repellent; with earmuff flaps (pack of 3) V-Gard Supreme Liner, Extended; 2-piece 3 layers; Arc resistant; Flame retardant; Water repellent; (pack of 3)	10118425 10118427	Arc Thermal Performance Value of 8 cal/cm ² ASTM F 1959/F 1959M-06; Flame retardancy ISO EN 14116: 2008; Water repellent grade 3 AATCC 22-2010 JTC		
For other frames (Elevated Temperature or Universal), other ear muffs and liners please see the V-Gard brochure.					

Note: This Bulletin contains only a general description of the products shown. While uses and performance capabilities are described, under no circumstances shall the products be used by untrained or unqualified individuals and not until the product instructions including any warnings or cautions provided have been thoroughly read and understood. Only they contain the complete and detailed information concerning proper use and care of these products.

ISO 06-402.2 GB/00

Subject to changes without notice



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