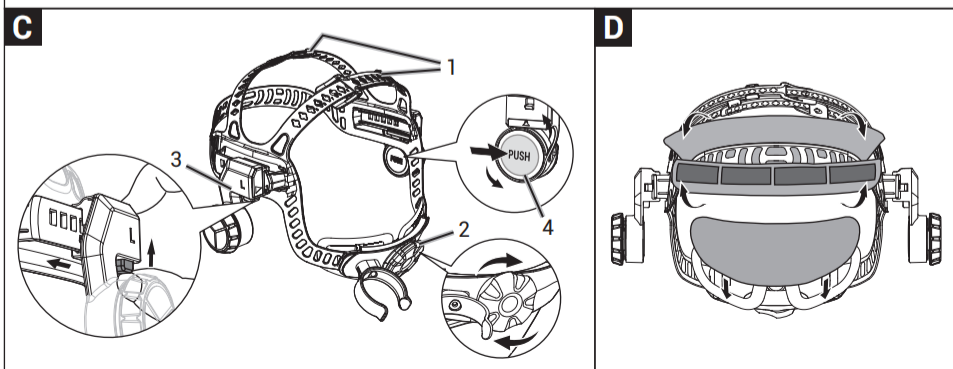
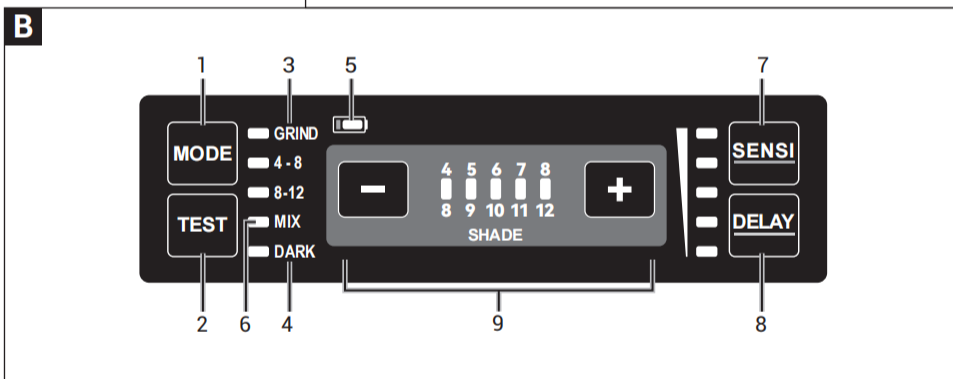
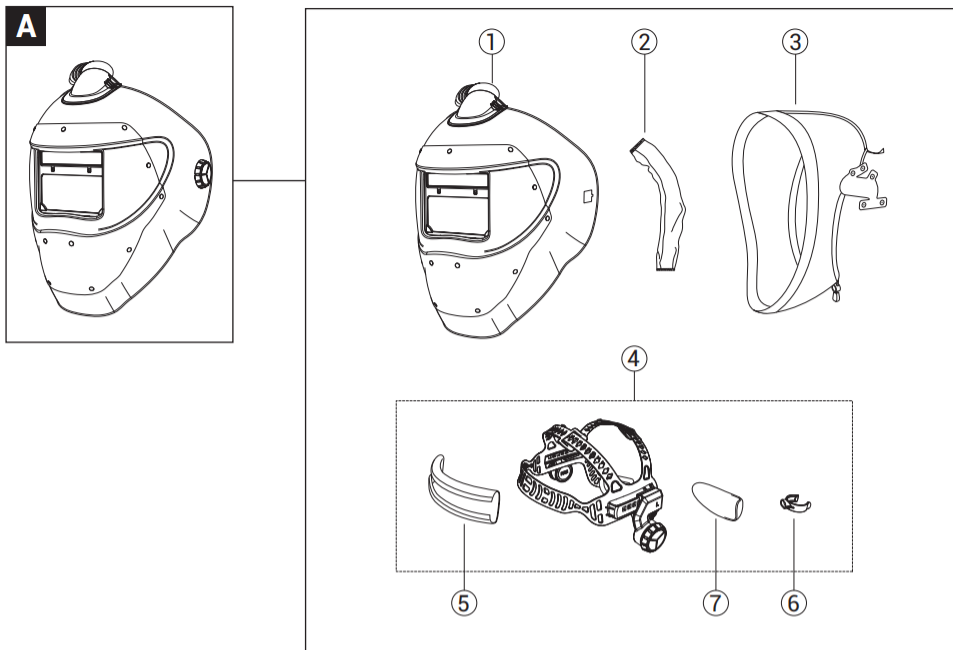


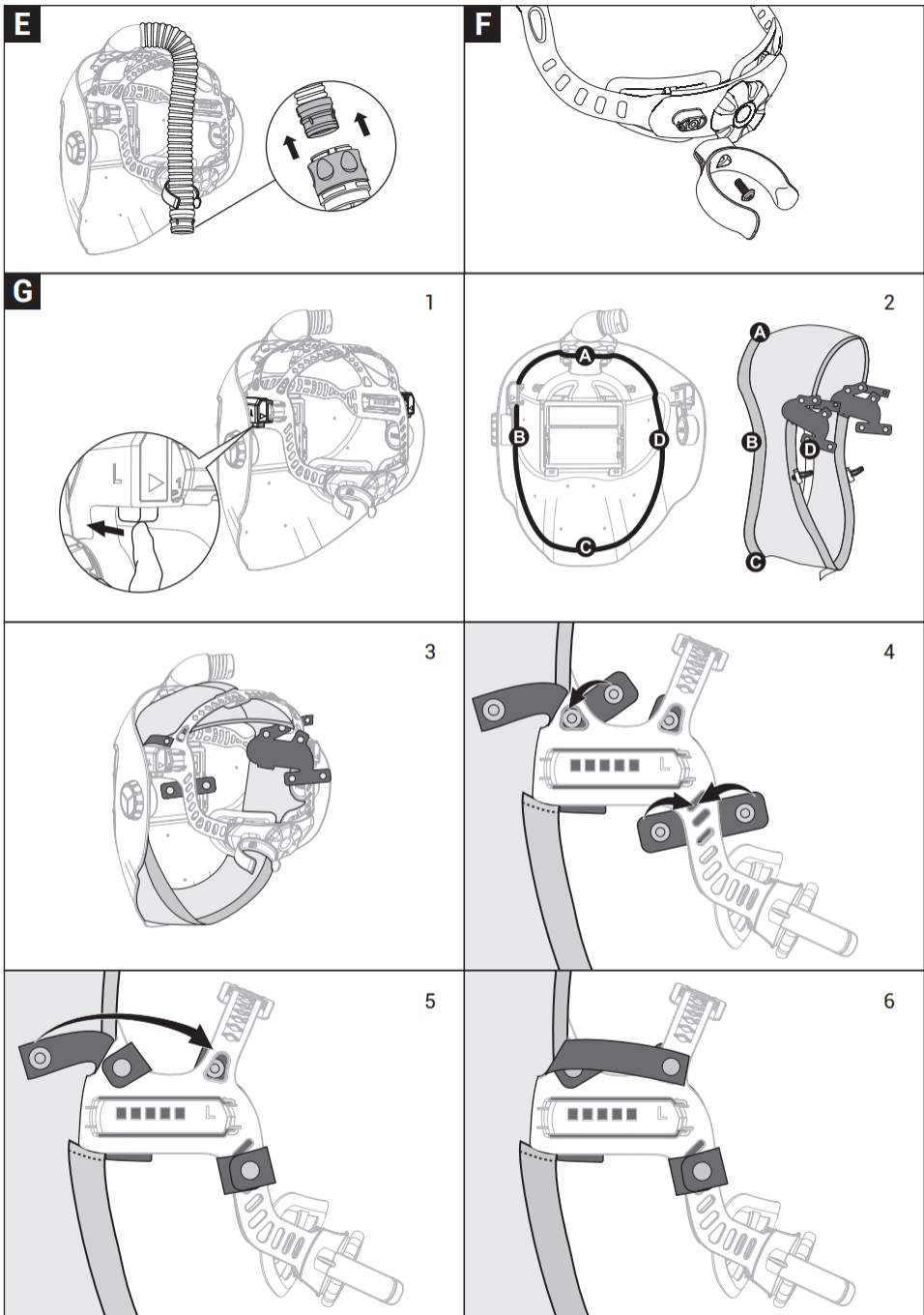


100LW

Laser Welding Helmet User Instructions







1. WARNING

1.1 Warning

- Always read and follow the User Instructions provided with each individual component of any welding helmet assembly. User Instructions include important warnings and use limitations. Failure to follow all User Instructions may result in injury or death.
- Test your color perception, especially your ability to recognize signal lights, when wearing the 100LW helmet or any additional laser protective eyewear. Ensure signal lights critical to safety are either clearly visible or monitored by others or alternative methods.
- Carefully inspect the complete 100LW before each use. Cracked, pitted, scratched, or discolored filter glass or protection plates can reduce vision and severely impair protection. Replace any damaged components immediately.
- Remove any protective film from the helmet before use.
- Ensure that laser work with the 100LW helmet is conducted only in enclosed, laser-protected environments, with no unprotected personnel present. Always adhere to relevant laser safety regulations and guidelines.
- Users should be trained in both laser welding and safety and must follow all instructions and safety warnings, safety labels on the product, and all applicable safety standards, laws and regulations. Any unapproved modification of the product can result in a permanent impairment of sight or other serious personal injury.
- Invisible reflected and scattered Class 4 laser beams can cause permanent eye damage and vision loss. Exposure to UV light, heat, and sparks generated during welding may pose a serious risk to eye health.
- Protection is only effective for angles of incidence up to 30°.
- Continued use of an auto-darkening filter that fails to switch to the dark state may result in permanent eye injury and vision loss. If the problem cannot be identified and corrected, do not use the auto-darkening filter.
- Only operate the auto-darkening filter at temperatures between -10°C (14°F) and 55°C (131°F). If used outside of this range, the filter may not perform as designed and may result in permanent eye injury and vision loss.
- The protection marked in accordance with this standard is only provided when all lens and retention components are installed according to the list or other manufacturer's instructions.
- Eye and face protectors that have been subject to an impact shall not be used and shall be discarded and replaced.
- The auto-darkening filter shall only be used in conjunction with the inner cover lens.
- This product is designed to protect against accidental, momentary exposure to scattered or diffused laser light, which can be caused by reflective surfaces, improperly aligned optical components or the eye protection device itself. It is not suitable for protection against direct, continuous or repeated exposure to the laser beam.
- Always ensure the wavelengths and protection levels specifications on the eye protection device match the laser source in use.
- If the luminous transmittance is below 20%, increase workplace illumination to ensure visibility.
- Never look directly into a laser beam, even with proper eye protection.
- Immediately replace the eye protection device if it shows any signs of damage from laser exposure.
- The product is in conformity with Directive 2001/95/EC, Regulation (EU) 2016/425 necessary as brought into UK law and amended, Annex II.

1.2 General information

- The 100LW is suitable for laser welding/cutting/cleaning.
- Workplace-specific hazards may require higher levels of protection, additional PPE, or modified procedures. A comprehensive hazard and risk assessment must be conducted and documented before starting any work.
- We recommend a use for a period of 5 years. The duration of use depends on various factors such as use, cleaning storage and maintenance. Frequently inspections and replacement if it is damaged are recommended.
- This protector is appropriate for the headform 1-M.
- The 100LW laser protective devices are labeled with the wavelength range and relevant protection level. These specifications are based on a maximum exposure time of 5 seconds as required by the European standard EN 207:2017.
- Always consult your laser safety officer to ensure the appropriate eye protection for the specific laser source in use.

2. DESCRIPTION

2.1 Product Overview (Fig.A)

Part List

ITEM	PART NO.	DESCRIPTION	QTY
A-1	SH100LW-V	100LW Helmet shell assembly (Including filter)	1
A-2	106346	Short hose cover (black)	1
A-3	106371	Face seal (black)	1
A-4	HG 2023010-V	Headgear (Including sweatband and soft pad and clamp)	1
A-5	SWTM025	Sweatband	1
A-6	03160709	Clamp	1
A-7	V3SP TM3 00	Soft pad	1

2.2 Intended Use

The 100LW Laser welding helmet is specifically designed for laser welding/cutting/cleaning application to protect users. The variable shade laser lens provides full protection against direct laser exposure, as well as reflection, scattering, diffraction, and divergence from the laser beam. Meanwhile, it offers protection against UV/IR/ blue light.

2 sensors on the front of the auto-darkening filters react independently at the moment the laser flash is struck and cause the filter to darken. The auto-darkening filter switches back to the light state after the welding arc has stopped. Protection from ultra-violet radiation (UV) and infrared radiation (IR) is continuous, whether the auto-darkening filter is in the light or the dark state.

The product allows the welder to view their work clearly and safely during set-up, during the weld and after without interruption and without the burden or delay of manually lifting the shield or filter.

3. INSTRUCTIONS FOR USE

3.1 Preparations Before Use

1. Low Battery Indicator

Replace the helmet immediately when the low battery indicator lights up (Fig.B-5).

2. Test

Press and hold "TEST" to preview shade selection before working (Fig.B-2). When released then viewing window will automatically return to the light state (Shade 2.0).

- ⚠ If the auto-darkening filter does not function as described above, do not use and immediately contact your supervisor.
 - ⚠ The auto-darkening filter may not turn dark if the sensors are blocked or the laser arc is totally shielded. Flashing light sources (e.g. safety strobe lights) can trigger the auto-darkening filter making it flash when no welding is occurring. This interference can occur from long distances and/or from reflected light. Welding areas must be shielded from such interference.
 - ⚠ The auto-darkening filter will automatically turn off after a period of inactivity.

3.2 Auto-darkening Filter Function

1. Shade (Fig.B-9)

The following areas are preset:

- Grind mode: Darkening state 2.0 (cannot be changed)
- 4-8 mode: Darkening states 4 to 8
- 8-12 mode: Darkening states 8 to 12

2. Sensitivity (Fig.B-7)

The sensitivity of the sensor can be adjusted to accommodate a variety of laser welding methods and workplace conditions. The sensitivity time can be set to 5 positions as you require. As a simple rule, for optimum performance, it is recommended to set sensitivity to the maximum at the beginning and then gradually reduce it, until the filter reacts only to the laser flash and without annoying spurious triggering due to ambient light conditions (direct sun, intensive artificial light, neighbouring welder's arcs etc.).

3. Delay (Fig.B-8)

When laser welding/cutting/cleaning ceases, the delay function should be used to set the recovery delay time of the filter from the dark to light state according to the welding application and current. The delay time can be set to 5 positions as you require.

4. Dark (Fig.B-4)

When the auto-darkening filter is set to DARK mode, it functions solely as a dark glass and does not provide auto-darkening. The shade number in DARK mode can be selected based on your specific configuration.

5. Grind (Fig.B-3)

This setting is intended for grinding or other non-welding activities. When the auto-darkening filter is locked in the light state (shade 2.0) the LED under the symbol will flash every 3 seconds to alert the user. The auto-darkening filter must be changed to an appropriate shade before laser welding.

6. Mix Mode (Fig.B-6)

This mode is applicable for tack welding and high-power laser welding. It helps reduce eye fatigue caused by abrupt changes in shade.

The MIX mode consists of 3 periods:

1. The delay from the dark state to intermediate shade number;
2. Shade gradient phase;
3. The delay from the intermediate shade number to light state.

3.3 Auto-darkening Filter Adjustments

1. Selecting Shade Level

Press the MODE button to select the shade range (4-8/8-12). Use "-" or "+" to adjust the shade number.

2. Setting Sensitivity

Press the SENSI button repeatedly until the LED shows the desired setting.

3. Selecting Delay Time

Press the DELAY button repeatedly until the LED shows the desired setting.

4. Switching Mode

Press the MODE button repeatedly until the LED shows the desired setting (GRIND/MIX/DARK).

3.4 Helmet Adjustments

1. Adjusting the Headgear Tightness

- To adjust the headgear's top for a proper fit, push the small button through the current slot, slide it to the desired slot, and snap the small button into place (Fig.C-1).
- Adjust the headgear by turning the adjusting wheel (Fig.C-2) to match your head circumference.
- Once you've put on the helmet, move your head to ensure it sits securely and stably.

2. Adjusting the Distance Between the Filter and the Face

- Press down and hold the buttons on both sides (Fig.C-3) so the headgear can be slide back and forth.
- Release the buttons to snap the pins into slots. Make sure the distance between the lens to both eyes are the same.

3. Adjusting the Viewing Angle

- Angle adjustment is located on the right side of the helmet. Press the "PUSH" button (Fig.C-4) and swing the helmet up and down to the desired position. Release the "PUSH" button to lock the helmet in place when you finish.

4. Connect Hose to Helmet

- Pull the head of hose to connect it to protruding connector of helmet, and then release the head of hose to complete the fixing (Fig.E).

4. MAINTENANCE

4.1 Changing the Sweatband

- Remove sweatband and padding from the hook-and-loop strap (Fig.D).
- Place a new sweatband around the front headgear, then close the hook-and-loop fastener.
- Attach new padding to the hook-and-loop strap on the back of the headgear.

4.2 Replacing the Clamp (Fig.F)

- Unscrew the middle screw at the back of the headgear to remove the clamp.
- Replace it with a new clamp and tighten the screw.

4.3 Replacing the Face Seal (Fig.G)

- The face seal can be used to facilitate cleaning after disassembling from the shell, but it must be replaced if it is damaged.
- Press the small button on cantilevered components and push the headgear in the direction of arrow to separate headgear from the helmet (Fig.G-1).
- In accordance with the order of A-D in the figure, align the face seal with the velcro inside the helmet shell and make sure the face seal is closely attached to helmet shell (Fig.G-2).
- Then press the small button on cantilevered components to install the headgear to the helmet (Fig.G-3).
- Fasten the side snaps in the specified order and positions (Fig.G-4/5).
- The correct final configuration is depicted (Fig.G-6).

5. MARKING

MARKING

The shell and the auto darkening filter are marked accordingly. Classification for eye and face protection is following EN ISO 16321-1:2022, EN ISO 16321-2:2021 and EN 207:2017.

TECMEN Laser welding helmet 100LW

	16321	TECMEN	W	2	/	4-8 / 8-12	V2
Number of this standard							
Manufacturer's identification							
Filtering performance code letter							
Light shade							
Dark shade range							
Angle dependence of luminous transmittance							

EN207 requires that filters endure a 5-second pulse for continuous wave lasers or 50 pulses/5 seconds for pulsed lasers without losing protection. Filters meeting these criteria are marked with the protection level (LB) for the relevant wavelengths.

	1000-1100	D	LB7 +	IR	LB8	CE
Wavelength range for which the eye-protector gives protection						
Test condition in accordance with Table 4						
Scale number in accordance with Table 1						
Test condition in accordance with Table 4						
Scale number in accordance with Table 1						
Certification mark						

*Table 1 & Table 4 according to EN 207:2017

- D: Continuous wave laser with a pulse duration under 5 s;
- I: Pulsed laser with a pulse duration between 1 μs and 0.25 s;
- R: Q switch pulsed laser with a pulse duration between 1 ns and 1 μs.

*Refer to BS EN 207:2017 for more details.

Marking on helmet:

16321 TECMEN W15 E 1-M

16321: Number of this standard
TECMEN: Manufacturer' s identification
W15: Maximum shade number
E: Impact level E (120 m/s)
1-M: Applicable head size

	1000-1100	D	LB4	+	IR	LB7	CE
Wavelength range for which the eye-protector gives protection							
Test condition in accordance with Table 4							
Scale number in accordance with Table 1							
Test condition in accordance with Table 4							
Scale number in accordance with Table 1							
Certification mark							

*Table 1 & Table 4 according to EN 207:2017

Marking on protection shield 100LW:

	1000-1100	DIR	LB8	CE
Wavelength range for which the eye-protector gives protection				
Test condition in accordance with Table 4				
Scale number in accordance with Table 1				
Certification mark				

*Table 1 & Table 4 according to EN 207:2017

Marking on front cover lens:

TECMEN E CE

TECMEN: Manufacturer' s identification
E: Impact level E (120 m/s)
CE: Certification mark

Marking on inside cover lens:

TECMEN C CE

TECMEN: Manufacturer' s identification
C: Impact level C (45 m/s)
CE: Certification mark



CE Mark / PPE Regulation
Notified body 1883
ECS GmbH
Huettfeldstrasse 50
73430 AALEN
GERMANY

6. CLEANING AND STORAGE

6.1 Cleaning

- Clean the welding helmet with mild soap and lukewarm water.
- Use mild disinfection solution to disinfect the protector. Do not use solvents.
- Clean the auto-darkening filter with a clean, lint-free tissue or cloth.
- Do not immerse auto-darkening filters in water or spray directly with liquids.

6.2 Storage

Store the welding visor fully assembled in a place that is dry and free of dirt. Protect from direct sunlight and thermal radiation.

7. SPECIFICATIONS

Model	100LW
Viewing Area	96 x 46.5 mm (3.78" x 1.83")
Cartridge Size	110 x 90 x 9 mm (4.33" x 3.54" x 0.35")
Optical Class	1 / 1 / 1 / 2
Number of Sensors	2
Power On / Off	Automatic On / Off
Dark Shades	4-8/8-12
Light State	Shade 2.0
Switching Speed	1/25,000 s. from Light to Dark
Special Modes	GRIND / MIX / DARK
Sensitivity Control	Low - High, LED and button control
Delay	0.1-1.0 s, LED and Button Control
UV / IR Protection	Up to Shade DIN16 at all times
Operating Temp.	-10°C to 55°C (14°F to 131°F)
Storing Temp.	-20°C to 70°C (- 4°F to 158°F)
Laser Protection	1000-1100 D LB7 + IR LB8
Optical Density (OD)	OD 8@1000-1100nm OD 10+@1064nm OD 8+@1070nm
Approvals	CE (EN 207, EN ISO 16321)

8. TROUBLE SHOOTING

Fault	Cause	Remedy
The auto-darkening filter flickers or does not auto-darken.	Dirty arc sensors.	Clean the arc sensors.
	Arcs not bright enough to trigger auto-darkening.	Use higher power lasers.
Darkening is uneven.	The distance between eyes and auto-darkening filter is different for each eye.	Check the headgear settings.
The response time is too long.	The ambient temperature is too low.	Use only within the specified temperature range (above -10°C or 14°F).
Poor vision quality.	The wrong shade number was selected.	Select the right shade number.
	The protective film has not been removed.	Remove the protective film.
Welding helmet slips.	Incorrect headgear settings.	Adjust the headgear.

SHADE GUIDE TABLE				
GUIDE FOR SHADE NUMBERS				
OPERATION	ELECTRODE SIZE 1/32 in. (mm)	ARC CURRENT(A)	MINIMUM PROTECTIVE SHADE	SUGGESTED ⁽¹⁾ SHADE NO. (COMFORT)
Shielded metal arc welding	Less than 3 (2.5)	Less than 60	7	—
	3-5 (2.5-4)	60-160	8	10
	5-8 (4-6.4)	160-250	10	12
	More than 8 (6.4)	250-550	11	14
Gas metal arc welding and flux cored arc welding		Less than 60	7	—
		60-160	10	11
		160-250	10	12
		250-500	10	14
Gas tungsten arc welding		Less than 50	8	10
		50-150	8	12
		150-500	10	14
Air carbon Arc cutting	(Light)	Less than 500	10	12
	(Heavy)	500-1000	11	14
Plasma arc welding		Less than 20	6	6 to 8
		20-100	8	10
		100-400	10	12
		400-800	11	14
Plasma arc cutting	(Light) ⁽²⁾	Less than 300	8	8
	(Medium) ⁽²⁾	300-400	9	12
	(Heavy) ⁽²⁾	400-800	10	14
Torch brazing		—	—	3 to 4
Torch soldering		—	—	2
Carbon arc welding		—	—	14
PLATE THICKNESS				
	in.	mm		
Gas welding				
	Under 1/8	Under 3.2		4 or 5
	1/8 to 1/2	3.2 to 12.7		5 or 6
Heavy	Over 1/2	Over 12.7		6 or 8
Oxygen cutting				
	Under 1	Under 25		3 or 4
	1 to 6	25 to 150		4 or 5
Heavy	Over 6	Over 150		5 or 6

⁽¹⁾ As a rule of thumb, start with a shade that is too dark, then go to a lighter shade which gives sufficient view of the weld zone without going below the minimum. In oxyfuel gas welding or cutting where the torch produces a high yellow light, it is desirable to use a filter lens that absorbs the yellow or sodium line the visible light of the (spectrum) operation.

⁽²⁾ These values apply where the actual arc is clearly seen. Experience has shown that lighter filters may be used when the arc is hidden by the workpiece.

EU DECLARATION OF CONFORMITY

The manufacturer :

TECMEN ELECTRONICS CO., LTD

NO. 8 HUYUE EAST ROAD, LONGCHI STREET, LUHE DISTRICT, NANJING 211599, P.R.CHINA

declares that the new PPE described hereafter:

FreFlow V1 with 100LW



This declaration of conformity is issued under the sole responsibility of the manufacturer.

The product is in conformity with Regulation (EU) 2016/425, and the harmonized standards EN 12941 : 1998 + A1 : 2003 + A2 : 2008 , EN ISO 16321-1:2022, EN ISO 16321-2:2021, EN207:2017.

The notified body

Apave Exploitation France SAS

6 Rue du Général Audran, 92400 Courbevoie, France

Notified Body number : 0082

performed the EU type-examination (Module B) and issued the EU type-examination certificate:
N° 0082/3979/079/12/24/0686.

The notified body

ECS GmbH

Huettfeldstrasse 50, 73430 AALEN, GERMANY

Notified Body number : 1883

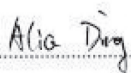
performed the EU type-examination (Module B) and issued the EU type-examination certificates
C4049.1TECMEN(100LW).

Product Category:

This product is Category III and is subject to **Module D Conformity to type based on quality assurance of the production process** and is under the surveillance of CCQS Certification Services Limited. (NB2834).

Done at Nanjing, China , on Nov. 18th, 2024

TECMEN ELECTRONICS CO., LTD


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