



rpb® 23 WELDING HELMET

CONTENTS

Read all instructions and warnings before using this product.
Keep this manual for future reference.

!WARNINGS!	4
RESPIRATOR OPERATION	6
SPECIAL OR CRITICAL USERS INSTRUCTIONS - BREATHING AIR PRESSURE TABLE	7
IMPACT LENS AND PROTECTION SCREEN REPLACEMENT	8
FACE SEAL REPLACEMENT	10
MOUNTING THE HOSE & CONNECTING THE AIR SUPPLY	12
CLEANING / REPLACING COMFORT PADDING & ADJUSTING HEAD HARNESS	13
AUTO DARKENING WELDING PROTECTION FILTER (OPERATION, USAGE, FIELD OF APPLICATION, FUNCTIONS)	14
RECOMMENDED SHADE LEVELS FOR VARIOUS WELDING APPLICATIONS	16
LIGHT TRANSMISSION CURVE	16
DESCRIPTION OF RPB FILTER FEATURES & TECHNICAL DATA	17
PARTS LIST	18

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Rev: 0



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TYPE C, CONTINUOUS FLOW, SUPPLIED-AIR RESPIRATOR
 THESE RESPIRATORS ARE APPROVED ONLY IN THE FOLLOWING CONFIGURATIONS

RESPIRATOR COMPONENTS																				
TC No.	Protection ¹	M O D E L	Visor	Face Seal	Alternate Lenses							Head Gear	Breathing Tube	Alternate Flow Control Devices			Alternate Hoses			CAUTIONS AND LIMITATIONS ²
			13-310	13-323	13-052	13-062	13-054	13-061	13-053	13-042	03-031	03-101	NV2016	NV2028	NV2029	NV2027				
TC-19C-0490	SA/CF	Z3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	ABCDEJMNS	

1. PROTECTION

CF – Continuous Flow SA – Supplied Air

2. CAUTIONS AND LIMITATIONS

- A - Not for use in atmospheres containing less than 19.5% oxygen.
- B - Not for use in atmospheres immediately dangerous to life or health.
- C - Do not exceed maximum use concentrations established by regulatory standards.
- D - Air-line respirators can be used only when the respirators are supplied with respirable air meeting the requirements of CGA G-7.1 Grade D or higher quality.
- E - Use only the pressure ranges and hose lengths specified in the User’s Instructions.
- J - Failure to use and maintain this product properly could result in injury or death.
- M - All approved respirators shall be selected, fitted, used and maintained in accordance with MSHA, OSHA, and other applicable regulations.
- N - Never substitute, modify, and, or omit parts. Use only exact replacement parts in the configuration specified by the manufacturer.
- O - Refer to user instruction and/or maintenance manuals for information about use and maintenance of these respirators.
- S - Special or critical User’s Instructions and/or specific use limitations apply. Refer to User’s Instructions before donning.

!WARNINGS!

BEFORE WELDING

1. Ensure that the helmet is correctly assembled and that it completely blocks any accidental light. In the front, light may enter the helmet only through the viewing area of the autodarkening welding filter.
2. Check the prescribed shade level for your welding application and adjust your autodarkening filter accordingly (see the table with recommended shade levels Pg 20).
3. Never place the helmet or the autodarkening welding filter on hot surfaces.
4. Scratched or damaged protection screens should be regularly replaced by genuine RPB replacement parts. Before using the new protection screen, make sure to remove any additional protection foil from both sides.
5. Use the RPB Z3 only within the temperature range of -10°C to +60°C.
6. Do not expose the autodarkening welding filter to liquids and protect it from dirt.
7. Improper use of this respirator or use not in accordance with this User Instruction Manual may cause injury or death. Improper use may also cause life threatening delayed lung, skin and eye disease. The RPB Z3 Welding Helmet is manufactured to protect the welder's face against spatters and hazardous ultraviolet and infrared rays emitted during the welding process. It is not intended to be used as a protection against impact, flying particles, molten metals, corrosive liquids or hazardous gases.
8. Materials which may come into contact with the wearer's skin could cause allergic reactions to susceptible individuals.
9. Welding helmet worn over standard spectacles may transmit impact, thus create a hazard to the wearer.
10. The RPB Z3 Welding Helmet does not provide hearing protection. Earplugs or earmuffs must be properly fitted when exposed to noise levels that exceed the OSHA permissible exposure levels.
11. Do not use this respirator until you have been trained in the respirators use, maintenance and limitations by a qualified individual (appointed by your employer) who has extensive knowledge on the RPB Z3 Respirator. All training must be in accordance with this Users Instruction Manual.
12. Before using this respirator ensure your employer has determined that airborne contaminant concentrations do not exceed those allowed by applicable OSHA, EPA or NIOSH regulations and recommendations for continuous flow supplied air respirators. Federal law requires that the employer measures and monitors airborne contaminant levels in the work area.
13. If this respirator is used in confined spaces ensure the area is well ventilated and that all contaminate concentrations are below those recommended for this respirator. Follow all procedures for confined space entry, operation and exit as defined in applicable regulations and standards.
14. DO NOT wear this respirator if any of the following conditions exist:
 - Atmosphere is immediately dangerous to your life or health
 - You CAN NOT escape without the aid of the respirator
 - Atmosphere contains less than 19.5% oxygen
 - Work area is poorly ventilated
 - Contaminants are in excess of regulations or recommendations
15. Do not modify or alter this respirator. Use only parts and components that are part of the NIOSH approved respirator assembly. The use of non RPB parts voids the NIOSH approval of the entire respirator assembly.
16. Inspect all components of the respirator daily for signs of damage or wear and tear that may reduce the level of protection originally provided.

17. Do not wear this respirator until you have passed a complete physical exam including a lung X-ray conducted by qualified medical personnel.
18. This respirator, when properly fitted and used, significantly reduces but does not completely eliminate the breathing of contaminants by the respirator wearer.
19. Be certain your employer has determined that the breathing air source provides at least a Grade D breathable air as specified in the compressed gas association commodity specification G-7.1. The respirator must be supplied with clean breathable air at all times. A carbon monoxide monitor must be used at all times. Contact your RPB distributor for a Radex 08-200 CO Monitor. Do not connect the respirator's air supply hose to nitrogen, toxic gases, inert gases or other unbreathable non Grade D air sources. Check the air source before using the respirator. This apparatus is not designed for use with mobile air supply systems i.e. cylinders. Failure to connect the supply hose to the proper air source could result in serious injury or death.
20. RPB Safety cannot accept any liability of whatsoever nature arising directly or indirectly from the use or misuse of RPB Safety products, including purposes that the products are not designed for. RPB Safety is not liable for damage, loss or expense resulting from the failure to give advice or information or the giving of incorrect advice or information, whether or not due to RPB Safety's negligence or that of its employees, agents or sub-contracters.
21. **Leave work immediately if:**
 - Any respirator component becomes damaged
 - Airflow stops or slows down
 - Breathing becomes difficult
 - You become dizzy, nauseous, too hot, too cold or ill
 - Vision is impaired

NIOSH - CAUTIONS AND LIMITATIONS

- A** Not for use in atmospheres containing less than 19.5 percent oxygen.
- B** Not for use in atmospheres immediately dangerous to life or health.
- C** Do not exceed maximum use concentrations established by regulatory standards.
- D** Air-line respirators can be used only when the respirators are supplied with respirable air meeting the requirements of CGA G-7.1 Grade D or higher quality.
- E** Use only the pressure ranges and hose lengths specified in the user's instructions.
- J** Failure to properly use and maintain this product could result in injury or death.
- M** All approved respirators shall be selected, fitted, used and maintained in accordance with MSHA, OSHA, and other applicable regulations.
- N** Never substitute, modify, add or omit parts. Use only exact replacement parts in the configuration as specified by the manufacturer.
- O** Refer to user's instructions, and/or maintenance manuals for information on use and maintenance of these respirators.
- S** Special or critical user's instructions and/or specific limitations apply. Refer to user's Instruction page 7 (breathing air pressure table) before donning.

RESPIRATOR OPERATION

AIR QUALITY

This respirator must be supplied with clean breathable air at all times. Breathable air must at least meet the requirements for Type 1 gaseous air described in the Compressed Gas Association Commodity Specifications G.7.1 (Grade D or higher) and as specified by Federal Law 42 CFR 84, subpart J.84.141(b) and 29 CFR 1910.134 (i) the RPB Z3 Welding Helmet does not purify air or filter contaminants.

When using a RPB Z3 Welding Helmet Supplied Air Respirator. It is recommended to use a Radex Airline Filter (p/n: 04-900) and a carbon monoxide monitor (p/n: 08-200).

AIR SOURCE

Locate the air source in a clean air environment, always use a filter on the inlet of your air source. Do not park vehicles beside your air inlet as this will cause carbon monoxide to be drawn into your air supply. Always use suitable after coolers / dryers with filters and carbon monoxide alarms to ensure clean breathable air is supplied at all times. The air should be regularly sampled to ensure that it meets Grade D requirements.

BREATHING AIR SUPPLY HOSES AND FITTINGS

RPB Safety air supply hoses and fittings must be used between the point of attachment and the respirator breathing air connection at the wearer's belt. The hose sections must be within the correct length and the amount of sections must be within the number specified in the breathing air pressure table on page 7.

BREATHING AIR PRESSURE

The air pressure must be continually monitored at the point of attachment. Air pressure must be read from a reliable pressure gauge whilst the respirator has air flowing through it.

WARNING: Failure to supply the minimum required air pressure at the point of attachment for the length of air supply hose could result in contaminants being inhaled as the pressure in the helmet may become negative due to peak inhalation flow when working at very high work rates. The RPB Z3 Breathing Air Pressure table on page 7 defines the air pressure ranges needed to provide the respirator with a volume of air which falls in the required range of 6-15cfm or 170-425 lts/min.

!WARNING!

Make sure you understand the Breathing Air Pressure table (*Figure 1.1*) before using this respirator.

- 1 Determine your air source (column 1)
- 2 Identify your breathing tube assembly (column 2)
- 3 Confirm the part number of the air supply hose you are using (column 3)
- 4 Check your RPB Safety Air Supply Hose is within the correct length (column 4)
- 5 Set the air pressure at the point of attachment within the range specified (column 6) for your breathing tube assembly, hose length and number of hose sections. (column 5)

Make sure air is flowing through your respirator when setting the air pressure.

SPECIAL OR CRITICAL USERS INSTRUCTIONS

BREATHING AIR PRESSURE TABLE

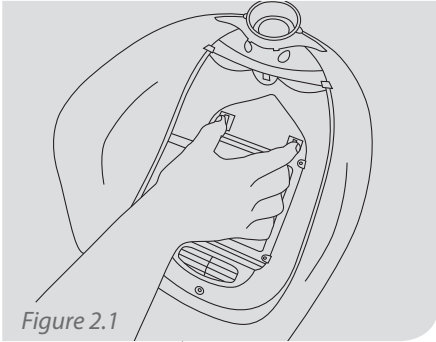
This table lists air pressure ranges needed to provide the RPB Z3 with the volume of air that falls within the required range of 6-15cfm or 170-425 lts/min according to U.S government regulations.

!WARNING! The RPB Z3 Supplied Air Respirator must be supplied with respirable air meeting the requirements of CGA G-7.1 Grade D or higher quality.

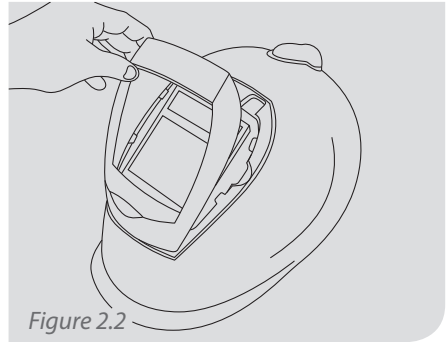
1. AIR SOURCE	2. BREATHING TUBE ASSEMBLY AND FLOW CONTROL DEVICES	3. AIR SUPPLY HOSE	4. SUPPLY HOSE LENGTH	5. MAX NUMBER OF SECTIONS	6. PRESSURE RANGE (PSIG AIR)
Portable or Stationary Compressor	03-031/ 03-101 Constant Flow Valve Assembly	NV2027(100ft) NV2028 (25ft) NV2029 (50ft)	25	1	10-11
			50	1	12-14
			100	2	17-19
			150	3	21-23
			200	4	25-27
			250	5	28-31
			300	6	31-34
Portable or Stationary Compressor	03-031 / NV2016 Flow Control Valve assembly	NV2027(100ft) NV2028 (25ft) NV2029 (50ft)	25	1	27 - 28
			50	1	28 - 29
			100	2	30 - 31
			150	3	33 - 34
			200	4	36 - 37
			250	5	38 - 39
			300	6	41 - 43

Figure 1.1

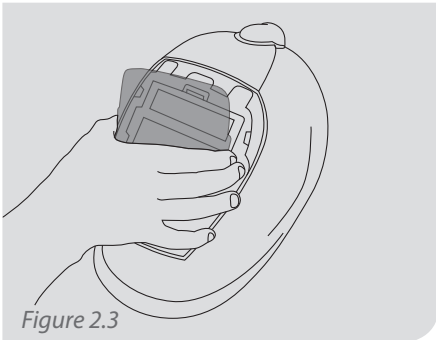
IMPACT LENS, ADF LENS AND PROTECTION SCREEN REPLACEMENT



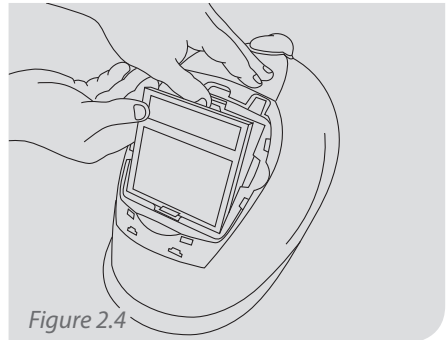
Squeeze the tabs inside the Helmet to release the outer shell.



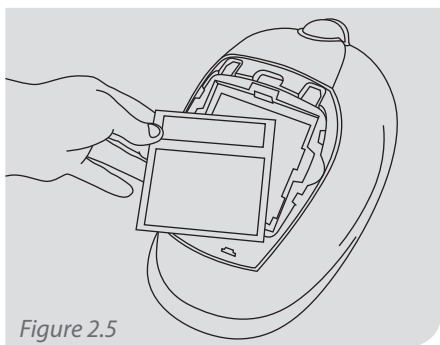
Remove the outer (green) shell.



Remove the clear Impact Lens by squeezing together the two tabs on either side. If you are just wanting to replace the Impact Lens then now put the new Impact Lens in and reverse steps starting at 2.3 to 2.1



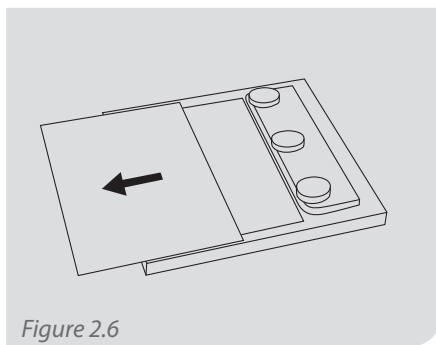
To remove the Auto darkening filter, lift the tab at the top of the to release it.



Remove the Autodarkening Filter completely. With the filter removed you can clean the visor to remove any contaminants.

NOTE

To put the RPB Z3 Welding Helmet back together reverse this process starting at 2.6 and finishing at 2.1



Slide out the Protection Screen and replace with a new one. Make sure you use genuine RPB Z3 parts or this will no longer be covered by the warranty.

FACE SEAL REPLACEMENT

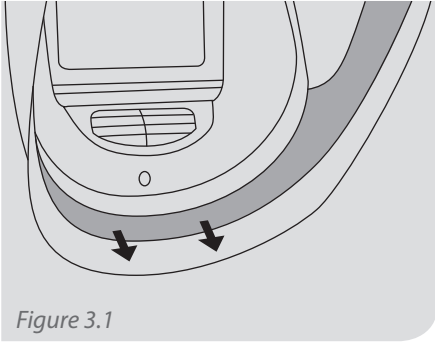


Figure 3.1
Pull the lower part of the face seal holder to release it from the airduct.

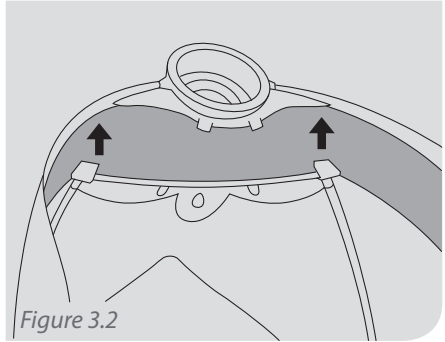


Figure 3.2
Pull the face seal holder from the two inside upper latches.

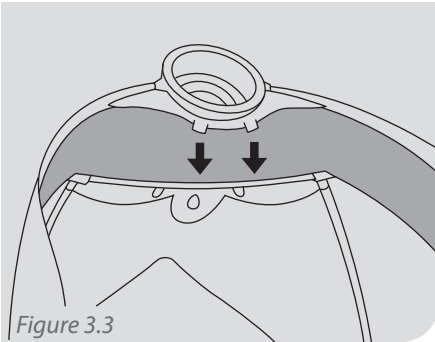


Figure 3.3
Release the face seal holder from the two outside upper latches.

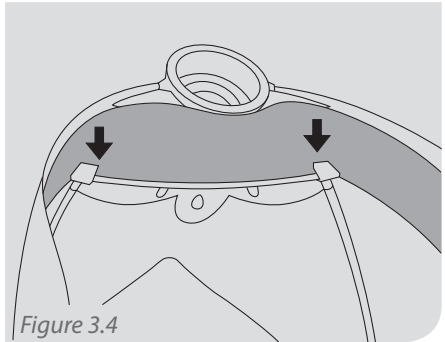
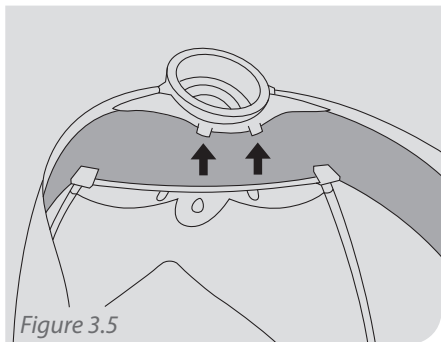
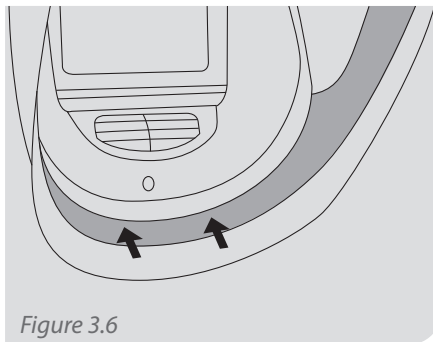


Figure 3.4
Take the new face seal and push the inner upper side of the face seal holder into the two upper inside latches.



Push the outside upper part of the face seal holder into the two outside upper latches.



Slide the lower part of the face seal holder into the gap between the helmet and airduct.

NOTE

In order to be able to observe the details better, the assembly pictures show the face seal holder without the face seal in place (fabric part).

MOUNTING OF THE HOSE

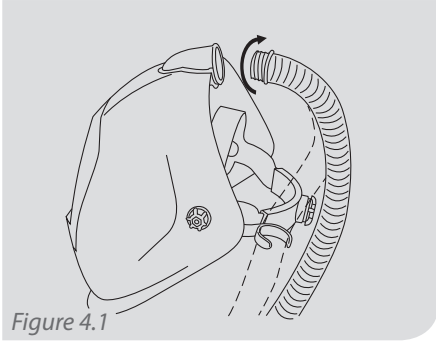


Figure 4.1

Screw in the running nut fitting of the breathing air tube as shown on the scheme. Adjust the length of the hose between the hose connector and the hose holder so you achieve the maximum comfort. We recommend this length to be 9-11 inches of non stretched hose, so the upper loop would not be too long, as the length should allow comfortable lifting of the helmet.

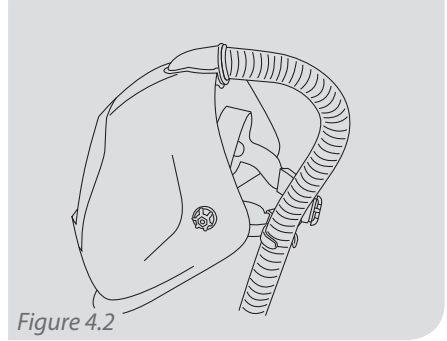


Figure 4.2

It is recommended that the length of the hose from the hose connector to the Flow control device is adjusted, so that the hose follows the user's back without being stretched. Once the hose is placed into the hose holder, adjust the height of the hose by simply pulling the hose through the hose holder upward or downwards. Fine adjustment of shape of the loop can be achieved by turning the hose left or right.

CONNECTING THE AIR SUPPLY

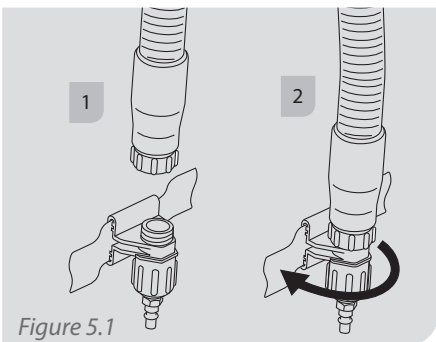
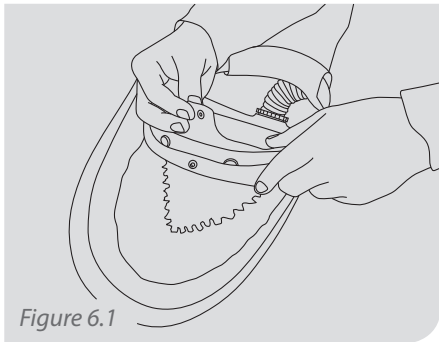


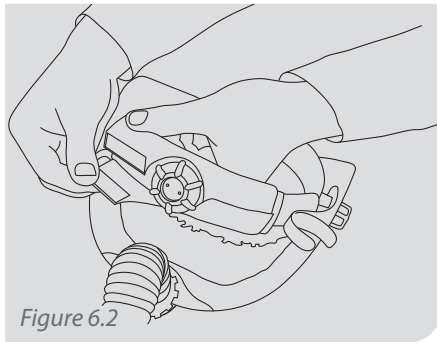
Figure 5.1

Thread the loose running nut of the 03-031 Breathing Tube on to the Flow Control Device (03-101 or NC2016). Screw the running nut in a clockwise direction until tight.

CLEANING / REPLACING COMFORT PADDING

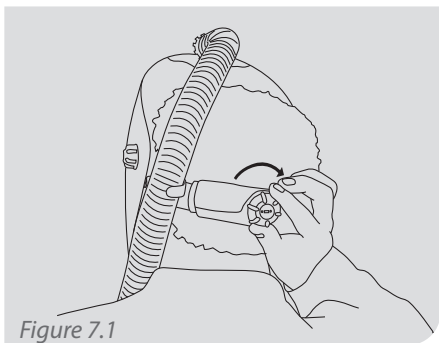


The Comfort Padding can be washed in a normal Washing Machine. First remove the Comfort padding from the front of the Head Harness by undoing the Domes.

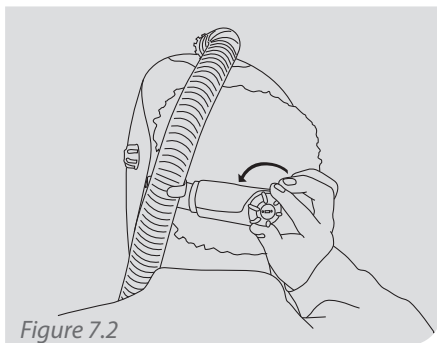


Next remove the Comfort padding from the back of the Head Harness by undoing the Velcro.

ADJUSTING THE HEAD HARNESS



To adjust the Head Harness, push in the dial on the back and then turn Right to tighten.



Or push in and turn left to loosen. A tight but comfortable fit is ideal.

AUTODARKENING WELDING PROTECTION FILTER

OPERATION

RPB autodarkening welding protection filters operate on the basis of a liquid crystal light shutter that protects the welder's eyes against intense visible light emitted during the welding process. In combination with the permanent passive IR/UV filter, it protects against hazardous infrared (IR) and ultraviolet (UV) light. The protection against harmful radiation is present regardless of the shade level or potential malfunction of the filter, beyond the darkest shade number marked on each specific model.

RPB autodarkening welding protection filters are manufactured according to ANSI Z87.1, EN 379 requirements and are CE, DIN as well as DIN Plus certified. They are not intended to be used as a protection against impacts, flying particles, molten metals, corrosive liquids or hazardous gases.

Replace potential malfunctioned (check that the autodarkening filter turns dark if you strike the welding arc) or physically damaged autodarkening welding filter.

!WARNING!

Protection screens, both internal and external, must be used in conjunction with the autodarkening filter in order to protect it against permanent damage.

USAGE

An autodarkening welding protection filter built into a welding helmet is considered to be Personal Protection Equipment (PPE) protecting the eyes, face, ears and neck against direct and indirect hazardous light of the welding arc. In case that you have only bought a filter without the helmet, you need to select the appropriate helmet designed to be used in combination with an autodarkening welding protection filter. It has to allow the filter, including the internal and external protection screens, to be adequately mounted into the helmet. There should be no tension on the ADF Lens caused by the mounting frame or mounting system, as it could cause severe damage to the filter. Make sure that solar cells and photo-sensors are not covered by any part of the helmet, as this could prevent the proper operation of the filter. If any of these conditions occur, the filter may not be suitable for use.

FIELD OF APPLICATION

RPB Auto darkening filters are suitable for all types of electro-welding: covered electrodes, MIG/MAG, TIG/WIG, plasma welding, cutting and laser welding, except for gas welding.

FUNCTIONS

RPB filters are supplied ready for use. Check the degree of required protection for specific welding procedure and select the recommended shade, light sensitivity as well as opening time delay.

SHADE ADJUSTMENT

Our models (PLUS and ULTRA) enable shade adjustment range from 9 to 13. It can be adjusted by the knob »Shade« which is located on the filter.

ADJUSTMENT OF SENSITIVITY

Most welding applications can be performed with welding light sensitivity set to maximum. The maximum sensitivity level is appropriate for low welding current work, TIG, or special applications. The welding light sensitivity has to be reduced only in some specific surrounding lighting conditions in order to avoid unwanted triggering. 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 welding light flashes and without annoying spurious triggering due to ambient light conditions (direct sun, intensive artificial light, neighboring welder's arcs etc).

OPENING TIME DELAY ADJUSTMENT:

The opening time delay can be adjusted from 0.1 to 1.0 seconds. It is recommended to use a shorter delay with spot welding applications and a longer delay with applications using higher currents and longer welding intervals. Longer delay can also be used for low current TIG welding in order to prevent the filter opening when the light path to the sensors is temporarily obstructed by a hand, torch, etc.

STORAGE

When not in use the Auto Darkening Filter should be stored in a dry place within the temperature range of -4°F (-20°C) to +149°F (65°C). Prolonged exposure to temperatures above 113°F (45°C) may decrease the battery lifetime of the autodarkening welding filter.

It is recommended to keep the solar cells of the autodarkening welding filter in the dark or not exposed to light during storage in order to maintain power down mode. This can be achieved by simply placing the filter face down on a storage shelf.

MAINTENANCE AND CLEANING

It is always necessary to keep the solar cells and the light sensors of the autodarkening welding filter free of dust and spatters: cleaning can be done with a soft tissue or a cloth soaked in mild detergent (or alcohol).

Never use aggressive solvents such as acetone. RPB filters should always be protected from both sides by protection screens, which should also be only cleaned with a soft tissue or cloth. If protection screens are in any way damaged, they must be immediately replaced.

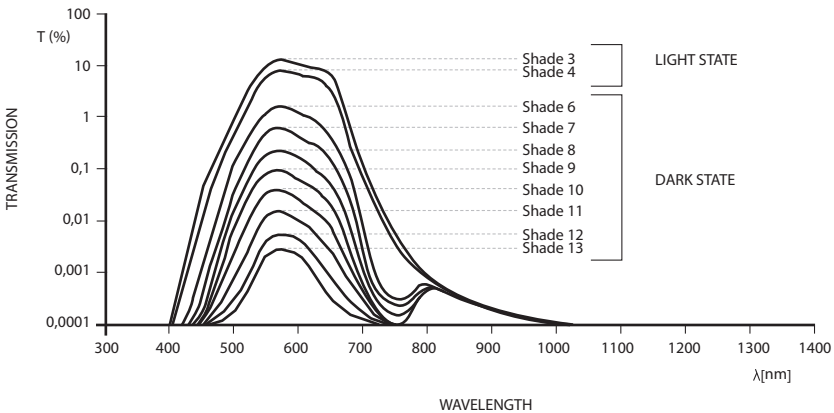
WARRANTY

The warranty period of RPB Z3 ADF Lens is three years. Failure to follow these instructions may invalidate the warranty. RPB does not accept responsibility for any issues, which may arise from applications other than welding.

RECOMMENDED SHADE LEVELS FOR VARIOUS WELDING APPLICATIONS

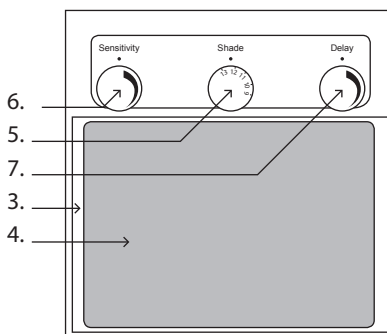
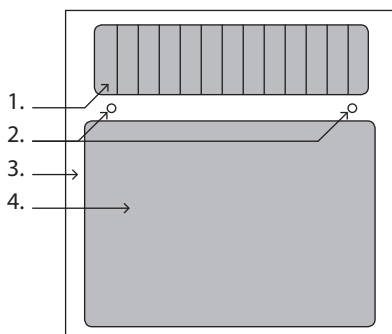
Welding Process	CURRENT IN AMPERES																	
	6	10	15	30	40	60	70	100	125	150	175	200	225	250	300	250	400	
MMA	8				9			10			11			12			13	
	PLUS, ULTRA																	
MAG	8				9			10			11			12				
	PLUS, ULTRA																	
TIG	8			9			10			11			12			13	14	
	PLUS, ULTRA																	
MIG heavy metals	9						10			11			12		13			
	PLUS, ULTRA																	
MIG light metals Stainless, Al	10								11			12		13				
	PLUS, ULTRA																	
Plasma Cutting	9							10		11	12		13					
	PLUS, ULTRA																	
Micro plasma welding	4	5	6		7	8	9	10		11		12		13				
	PLUS, ULTRA																	

LIGHT TRANSMISSION CURVE



DESCRIPTION OF RPB FILTER FEATURES

1. Solar Cells
2. Photo-sensors (Photo diodes)
3. Filter housing
4. Liquid crystal shutter viewing area
5. Shade adjustment
6. Sensitivity adjustment
7. Opening time delay adjustment



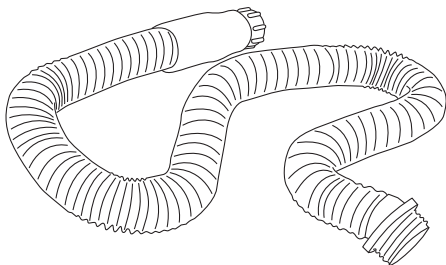
TECHNICAL DATA

Model	ULTRA	PLUS
Viewing Area	3.77 x 2.69 inches	3.77 x 1.83 inches
Weight	4.4oz	3.8oz
Open state shade	4	4
Closed state shade	9-13	9-13
Shade adjustment	yes / internal	yes / internal
Sensitivity adjustment	yes / internal	yes / internal
Delay adjustment	yes / internal	yes / internal
Grinding Mode	no	no
Switching time at 23°C	0.15ms	0.15ms
Clearing time	0.1-1.0 s	0.1-1.0 s
UV / IR protection	UV16 / IR 16	UV16 / IR 16
Temperature range	14°F - 140°F	14°F - 140°F
TIG detection	enhanced	enhanced
Energy supplied	solar cells / no battery charge	

rpb[®] Z3 WELDING HELMET

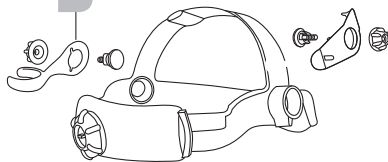
PARTS LIST

1



2

3



11

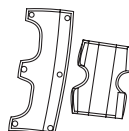
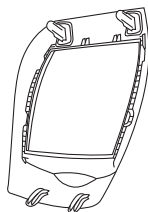
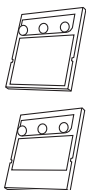
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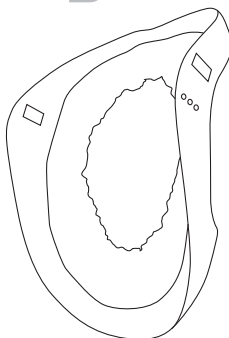
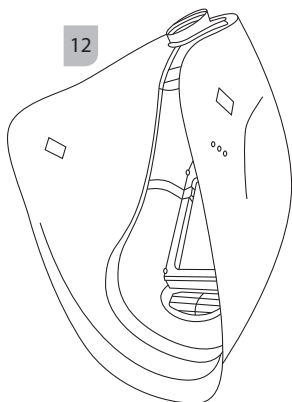


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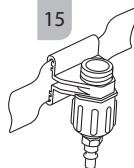
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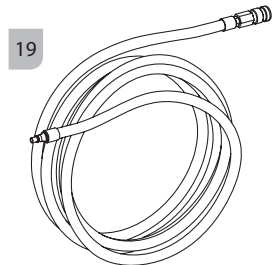
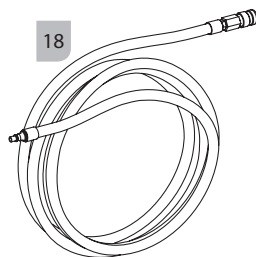
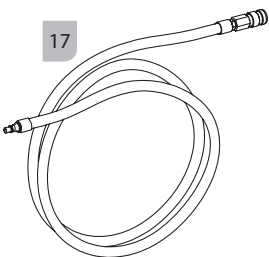
16



15



Item Number	Description	Part Number
1	Breathing Hose	03-031
2	Hose Holder	13-041
3	Ratchet Suspension Complete (Including 13-041, 13-043)	13-042
4	Comfort Padding	13-043
5	Outer Lens Frame Washers	13-051
6	Outer Lens Frame	13-050
7	Impact Lens	13-052
8	ADF Plus	13-061
9	Plus Rear Lens	13-053
10	ADF Ultra	13-062
11	Ultra Rear Lens	13-054
12	Z3 Welding Shield (Including 13-050, 13-051)	13-310
13	Flexi Face Seal	13-323
14	Constant Flow Valve	03-101
15	Flow Control Valve	NV2016
16	Coupler	NV2025
17	25ft Air Supply Hose	NV2028
18	50ft Air Supply Hose	NV2029
19	100ft Air Supply Hose	NV2027



OTHER PRODUCTS

ISO9001
ACCREDITED COMPANY

AIRLINE FILTRATION

The RPB® RADEX AIRLINE FILTER™ offers increased capacity, versatility and filtration. This optional equipment combines the versatility of either floor or wall mounting with increased filtration capacity, enabling customization to meet worker's needs and working environments.



AIR TEMPERATURE CONTROL

The RPB® 4000-01 Cool Air Tube cools compressed breathing air coming into the respirator by up to 30°F while the RPB® 4000-20 Hot Air Tube will heat the compressed air by up to 30°F. These maximize worker comfort and increase productivity in hot or cold climates.



AIR QUALITY MONITORING

The RPB® RADEX CO MONITOR™ helps ensure worker safety with a unique traceability feature that monitors and records carbon monoxide levels, and temperature. This data that provides certainty of monitor functioning and can be stored for up to two years allowing analysis of plant and field air quality.



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