

# MANUAL

## METAL SPRAY HELMET



# METAL SPRAY HELMET

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# METAL SPRAY HELMET

## HELMET AIR SUPPLY SYSTEM

### HELMET AIR SUPPLY SYSTEM

The helmet (hood) supplies air with a working pressure of up to 7 bar. For the full range of adjustments of breathing air and temperature, it is necessary to supply air with a pressure of minimum 6.5 bar and a minimum flow rate of 400 dm<sup>3</sup>/min.

In each case we advise using the breathing air treatment system i.e. Filter Set.

1. Compressed air with a pressure up to 7 bar obtained from a compressed air source or the compressor.
2. System of air treatment for breathing: Filter Set to treat air for breathing.
3. One can additionally use other filters as a final step for purification.
4. Regulation System NOVA RS. The appliance worn at the waist enables the worker to self-regulate the amount and temperature of breathing air supplied to the helmet, or
5. Air conditioner NOVA AIRCO used to regulate the amount and temperature of breathing air supplied to the helmet. The set enables the warming and cooling of air.

The Novablast supply system increases comfort and security at work. It is an invaluable piece of equipment for sandblasting, particularly in difficult conditions.

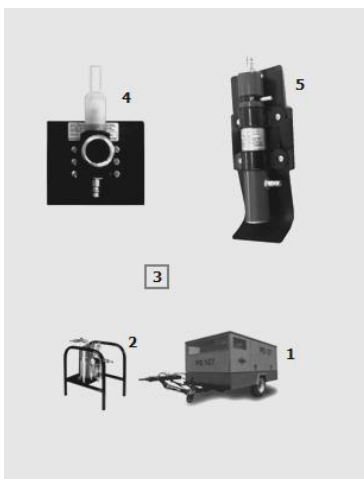
### IMPORTANT

- The helmet does not provide respiratory protection in the absence of incoming air.
- Always check the cleanliness and regularity of air for breathing.
- Before use, check the air source pressure and the flow rate of the air supplied to the user for compliance with the requirements set out in the rest of the manual and the instructions for the Filter Set which treats the air in the hose for breathing.
- Before use, read the instructions for use of the NOVA RS regulating system, check the condition of the air pollution silencers located in the NOVA RS respiratory system and the air inflow hose to the helmet. The occurrence of contaminants can cause the "clogging" of silencers and thus restrict the flow of air below the required level.
- Silencers should be changed at least once after every two months of use.
- Before use, connect the apparatus/helmet to the source of compressed air, place the helmet on your head and check the working of the respiratory air flow indicator installed inside the helmet (on the visor).
- In case of very intensive work, significant underpressure may appear in the facial part during inhalation.

# METAL SPRAY HELMET

## HELMET AIR SUPPLY SYSTEM

- In case of excessive humidity when breathing while working in temperatures below 4 °C, the air humidity should be controlled to avoid various parts of the helmet freezing.
- Do not use oxygen-enriched air.
- Use in temperatures between -10 °C /+35 °C.
- The air supply hose should be replaced two years after the date of production. Ensure that the breathing air temperature does not exceed 55 °C.
- Before using the NOVA AIRCO, the user should familiarize themselves with the instructions for use.
- Attention! The interior surface of the helmet visor is coated with a UV radiation-absorbing layer. Please refrain from touching this layer with wet fingers (hands) as it may lead to localized discoloration of the visor.
- Before use, the user should have specialist training dealing with the risks of blasting, which should be confirmed by proper documents.
- The manufacturer recommends that each helmet is used individually for each worker, as a piece of equipment for personal health protection.
- The level of noise reaching the ears of the user associated with the respiratory air flow through NOVA RS (at 150-165 dm<sup>3</sup>/min) does not exceed the value stipulated in EN 14594-2018 ie. 80 dBA the standard i.e. 80 decibels.
- The level of noise reaching the ears of the user connected with the air flow of the air conditioning system NOVA AIRCO at the level of 150-165 dm<sup>3</sup>/min, may exceed the value of 80 dBA. Always put noise reduction stoppers into ears. We recommend the use of helmets with in-built earmuffs.
- Due to the limitation of the field of view a user working in the helmet should be under constant surveillance by another person, who may, if necessary, provide assistance (according to recommendation by the Central Institute of Work Protection CIOP-PIB).
- Do not connect the hoses supplying air with hoses carrying abrasives.



# METAL SPRAY HELMET

## HEAD GEAR

### THE APPARATUS

The helmet takes the form of a shell. Its front section features a panoramic window with a curved, 2 mm thick polycarbonate glass. The inner surface of the window is coated with a golden-green UV-absorbing layer. The glass is securely installed within a seal attached to the helmet visor's edge. On the outer side of the glass, there is a single protective foil, which comes in various colors: transparent, silver-brown, silver-grey, and silver-blue. Users can select the color of the protective foil based on their specific working conditions and the method of metal spraying they are using.

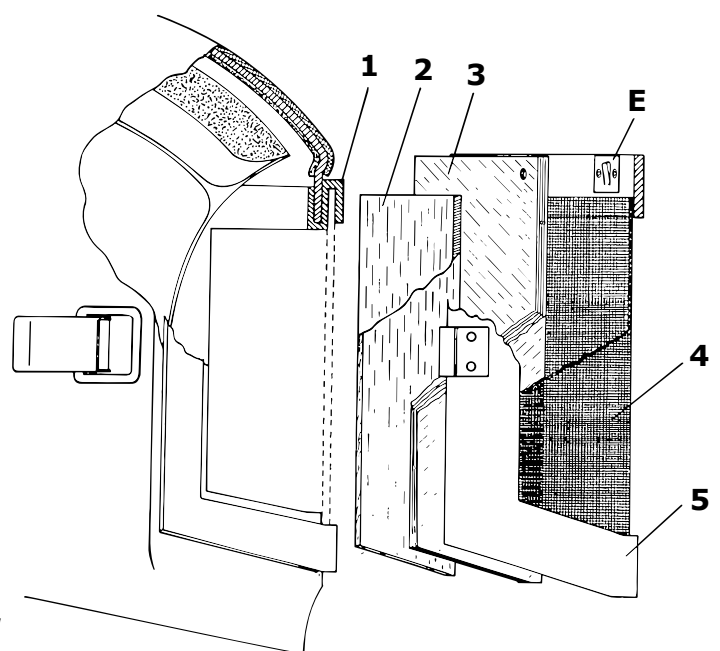
The visor is enclosed with a hinged frame. The glass, foils, frame, seal, and protective apron are all interchangeable. The apron is made from cotton fabric, additionally reinforced in the chest area with Kevlar-fiber fabric and covered with aluminum. The window protection foil is fastened using clamps on the inner side of the upper part of the frame. It is crucial to avoid wearing through this foil, as it could unintentionally damage the window.



### HELMET VISOR ASSEMBLY

1. The panoramic glass made of polycarbonate [2] is fitted within the profiled rubber sealer [1] that is affixed to the visor's edge. This arrangement provides protection for the worker's eyes and face.
2. A protective foil [3] for the viewfinder glass is affixed to the inner side of the frame. If the foil becomes scratched or becomes matte, it should be replaced promptly. Matting of the foil can result in a deterioration of visibility.
3. The viewfinder frame [5] is hinged and secured in place with a snap clamp.
4. Clamps are provided for mounting: Foil package, Single foil, Net.

In the event of damage, wear and tear to the glass, foil, frame, hinges, clamp, or sealer, it is imperative to replace these components with new ones.



# METAL SPRAY HELMET

## HEAD GEAR

### PRODUCT CHARACTERISTICS

The helmet (apparatus) provides protection for the face and torso of employees engaged in metal spraying operations while also safeguarding their respiratory systems from the dust and other substances generated during metal spraying. To ensure that workers can breathe comfortably within the helmet and to prevent the entry of dust particles, it is necessary to supply the helmet with clean compressed air. A set of filters should be used to purify the air. Additionally, a regulator for controlling the volume of supplied air is required. The volume of air supplied must maintain an overpressure inside the helmet relative to the surrounding environment, enabling unhindered breathing. The regulation system (NOVA RS) is attached to a hip belt and is responsible for delivering a consistent airflow of 165 dm<sup>3</sup>/min while maintaining specific parameters for the compressed air network.

When using a helmet with an air conditioner (NOVA AIRCO), users can personally adjust the temperature of the inhaled air. The air conditioner set guarantees the delivery of the prescribed amount of breathing air as determined by the manufacturer, typically ranging from a minimum of 150 to 165 dm<sup>3</sup>/min. The air conditioner is worn on the belt and leverages the physical principle of air compression and decompression to control air temperature.

Inside the helmet, just above the visor, an air flow indicator is installed, which also functions as a warning device. This indicator assists users in equipment checks before use and during work by signaling when the minimum required air flow intensity is not met. The indicator features a movable element that becomes visible in the user's field of view when the required flow intensity is not achieved (or in the absence of airflow). Once the necessary flow intensity is established, the movable element retracts, disappearing from the user's sight.



#### WARNING

The indicator only works properly when the helmet is in the work position (i.e. on the user's head). See Figures 2 and 3.



**FIGURE 2**

Air flow < 165 dm<sup>3</sup>/min - indicator protruding



**FIGURE 3**

Air flow > 165 dm<sup>3</sup>/min - indicator tucked in

# METAL SPRAY HELMET

## INSIDE OF THE HELMET

### INNER LINING

The helmet features an interior insert with replaceable upholstery cushions securely held in place by fasteners. This design offers the advantage of conforming to the shape of the wearer's head. The method of securing the insert permits the easy removal of the upholstery cushions for replacement, washing, and cleaning the interior of the helmet.

Figure 4 illustrates an insert with upholstery, including fixing and adjustment elements.

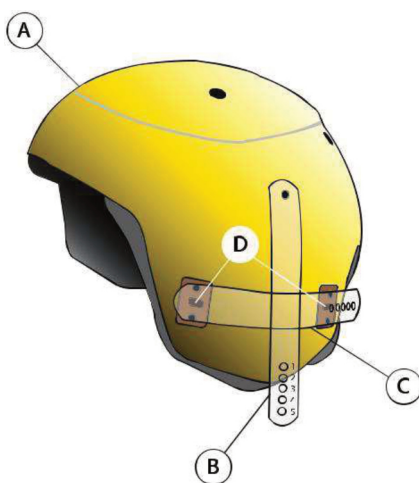


FIGURE 4

- A. Insert shell with upholstery
- B. Belt of holding the insert
- C. Belt of regulation of insert pressure to head
- D. Catch of pressure belt
- E. Screws fixing back part of insert

- Holes 1-5 in belt **B** enable holding the insert in helmet shell at the height required by the user
- Holes 1-5 in belt **C** depending on fixing on the „nail“ enable increasing or decreasing strength of pressure of insert to head. Insert in helmet shell is fixed by means of screws **E** and seals in back part and by means of screws by belt **B** to sides of helmet shell.



#### KEY CONSIDERATIONS

To maintain hygiene the user should wear a cotton cap on the head before starting work. The cap should be washed periodically in water with a mild detergent.



# METAL SPRAY HELMET

## HEARING PROTECTION

### NOVABLAST METAL SPRAY HELMET WITH HEARING PROTECTION

This helmet has a built-in insert with fixed hearing protection. The construction of the insert enables the user to easily put the helmet on and off the head. The system of insert pressure and way of fixing the hearing protection allows the user to easily fit the helmet to the head. The design of the insert allows it to be easily fitted and swiftly taken off (e.g. to clean the helmet inside).

Figure 5 depicts the inner lining of the insert with its components for fixing and regulation.

- A. shell of insert with hearing protection
- B. hearing protection [Protective ear shell]
- C. strap to hold in the insert
- D. adjustment strap for insert
- E. catch of pressure belt
- S. screw fixing inside shell to mounting strap

Holes 1-5 in strap C holds the insert in the helmet shell at the height required by the user.

Holes 1-5 in belt D allow the user to increase or decrease the strength of pressure of insert to head.

Ear muffs for hearing protection are fixed in the insert on independent rubber elements. This allows for the uniform distribution of pressure strength of earcap cushions around the ears and does not require the user to make further adjustments when putting on or taking off of the helmet/lack of headband/.

The insert in the helmet shell is fixed with screws F in the back part and screws through straps C to the sides of the helmet shell.

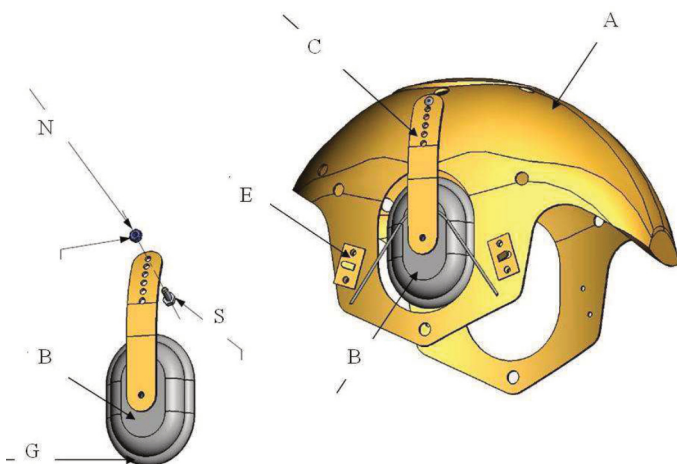


FIGURE 5



# METAL SPRAY HELMET

## HELMET APRON

An interchangeable apron is attached to the helmet's edge using velcro tape. This apron is composed of two fabrics: one that is dustproof and aluminum-coated, further reinforced against wear-through by a 6 cm wide rubber band where it connects to the helmet.

**In order to change (when worn out) the apron or to take it off to wash one should:**

- remove the rubber band protecting the apron edge
- loosen the rope at the back (under the air inlet supply)
- remove the apron (start from the back)

**In order to put on the apron once again one should:**

- in case of damage to the woven line pull in the tunnel the new one with the use of a safety-pin.
- put the apron from the front part of helmet putting uniformly, pull the line in the tunnel of the apron and tie in a knot.
- put rubber tape at the back of helmet (under the inlet with hose) and pull it with hands in the direction of the front part of the helmet. It is advised that two persons undertake this action.
- precisely placing tape at the edge of the helmet (3-5 mm beneath the edge) protects the place connecting the apron to the helmet from being worn out and damaged.



**KEY CONSIDERATIONS**

Failure to pull together the tapes of the helmet apron causes its parts to loosely hang down, does not guarantee safety and may swiftly cause damage.

The replaceable apron provides protection for the worker's neck and torso. The helmet shell is constructed from a composite of fiberglass. In the version with hearing protection, the inner part of the helmet shell is bonded with a 3-4 mm layer of foam, which serves as both sound insulation and thermal insulation. This insulation is particularly crucial when using the NOVA AIRCO, which can heat or cool the delivered breathing air.

The user's head is accommodated within an internal insert featuring polyurethane foam 'cushions,' enhancing work comfort. These cushions are affixed to the inside of the helmet insert using fasteners. Periodically, they should be cleaned by washing them with a mild detergent and water. After drying, the cushions can be reattached in their proper positions.

Air is delivered to the helmet through an elastic air hose, ensuring a constant supply of air even during the necessary movements of the head while using the helmet.

# METAL SPRAY HELMET

## SILENCER DISASSEMBLY

\* The helmet is equipped with a noise silencer of the delivered breathing air. The silencer is at the back of the helmet. It is a component of the air inlet.

### SILENCER DISASSEMBLY

To disassemble the silencer from the socket of the inlet of breathing air (at the back part of the helmet) follow the instructions below:

1. By means of pliers or a pressure key take the inlet between the Norma tape and the protection of the socket (point #6) and unscrew from the socket.
2. Take the silencer out of the socket.
3. Place the seal (that is added to spare parts) precisely inside the socket.
4. Screw the inlet tightly into the socket.



#### ATTENTION

In case of using the air conditioning set NOVA AIRCO (because of the occurring drags of air flow on the silencer and at the same time the lowering of the air temperature delivered to helmet) it might be necessary to get rid of the silencer. To do this, the user must use the ear inserts together with the helmet or use other ones on the market with the **CE** certificate.

#### DESCRIPTION OF FIGURE 6:

1. Noise silencer
2. Inlet socket
3. Inlet
4. Rubber protection of inlet
5. Norm's pressure tape
6. At this place take the inlet during screwing out

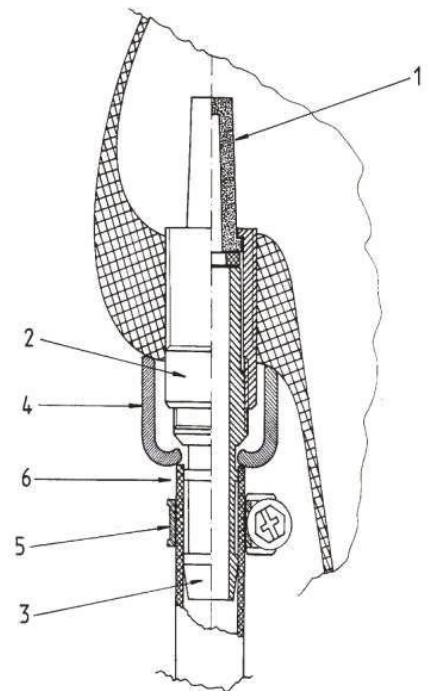


FIGURE 6

# METAL SPRAY HELMET

## HELMET SPECIFICATIONS

### TECHNICAL AND OPERATING PARAMETERS

The helmet offers comprehensive protection for the worker by safeguarding the head and body from material splatter during metal spraying, the face and respiratory system from dust and other hazardous substances generated during metal spraying, and the eyes from UV radiation. This protective function is achieved through a sealed visor and the maintenance of overpressure inside the helmet, preventing the ingress of contaminated air from the surroundings.

The visor glass is equipped with a UV-absorbing filter layer [designated as filter 3-3]. The helmet effectively isolates the worker from unsuitable atmospheric conditions for breathing. Ensuring the correct volumetric airflow is a vital factor for the helmet's effective respiratory protection. Using the NOVA RS Adjustment System, the user can personally regulate the inflow of air.

When the valve knob is fully closed and the pressure specified in point 3 is maintained, the NOVA RS allows the minimum required airflow. An air flow indicator, positioned within the worker's field of vision, signals the proper air supply. The user should increase this airflow as necessary, especially during strenuous activities.

#### 1. Technical and operating parameters of the helmet.

HELMET (PART)	WEIGHT
Weight of the complete helmet	2.55 KG
Weight of the replaceable apron	0.75 KG
Weight of helmets with hearing protection	2.60 KG
Weight of air inlet	0.17 KG
Weight of the regulation system	0.35 KG

- Minimum requirements of the air flow intensity to the helmet (with the regulation above): 165 dm<sup>3</sup>/min.
- The source of the supply of compressed air treatment for breathing aims with the pressure of 7 bar with the possibility of pressure regulation/ pressure reducer/ to value 6.5 bar.
  - the scope of the regulation of air supply by the NOVA RS regulation system: from 165 (±10) dm<sup>3</sup>/min to 280 (±10) dm<sup>3</sup>/min.
  - by pressure of delivery: min. 6.5 bar (for a 10-meter-long airhose) / min. 7 bar (for a 50-meter-long airhose).



#### ATTENTION

The value of pressure on the reducers is set after the fixing of the hose to the NOVA RS (opening of air flow) regulation system.

# METAL SPRAY HELMET

## WORKING WITH THE HELMET

### DETERIORATION OF VISIBILITY

#### To replace the protective foil:

1. Open the viewfinder frame.
2. Remove the protective foil.
3. Mount the new protective foil.
4. Attach the foil and close the frame.

#### To replace the panoramic glass:

1. Open the viewfinder frame.
2. Remove the glass from the profiled sealer.
3. Insert the new glass.
4. Lock the viewfinder with the snap clamp.

It's crucial to avoid touching the inner side of the glass with wet fingers (hands) during the glass replacement process. The inner side of the panoramic glass is coated with a UV filter layer, which absorbs ultraviolet radiation. Touching the filter may result in localized discoloration of the glass.

### HEARING PROTECTION



#### ATTENTION

If there is excessive noise at a workplace it is advisable to use the helmet equipped with hearing protection.

Due to the high noise levels typically exceeding established standards at worksites, each helmet is equipped with protective ear inserts for additional hearing protection, such as 3M 1100, authorized for use with helmets as per the certification C€€. This configuration establishes a dual protective barrier against noise entering the worker's ears. It consists of the helmet shell, along with the upholstered insert surrounding the user's head (acting as the initial barrier), and the aforementioned ear inserts. By employing these mentioned inserts, along with others possessing similar characteristics, the necessary level of protection is achieved. For low-frequency noise, the acoustic effectiveness of the protective inserts ( $S_f$ ) is 24 dB, and for high-frequency noise, it is 31 dB. Across the entire spectrum of sound frequencies (noise), the overall silencing level ( $Z_r$ ) is 31 dB. This means that using the mentioned ear inserts reduces the internal ear noise level to below 85 dB(A).

In summary, to determine the noise level inside the helmet, you should subtract the value of silencing ( $Z_r$ ) in dB(A) as provided in the ear insert usage instructions.

### METHOD OF USE

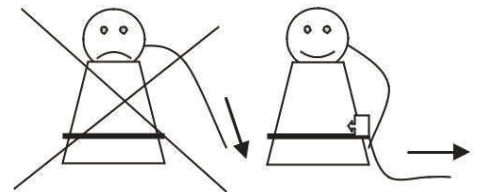
Before use, one should fit the helmet and straps of the removable apron. Fix the hose delivering the air for breathing to the end of the instant connection regulation system by means of pressure tape. Place the breathing hose of the helmet on the end part going out of the system and screw the pressure tape. Fix the instant connection to the regulation system. At the moment of fixing the instant connection, the opening takes place. Set on the reducer of the set of filters - from which the air for breathing is treated - the pressure should be at the level described above.

Put the helmet on the head, and the changeable apron and clasp the apron belt by means of the plastic clasp. Regulate by the hand wheel the amount of air delivered to the helmet.

# METAL SPRAY HELMET

## WORKING WITH THE HELMET

The pressure of the compressed air described above, by the regulation system, requires the following amount of air:  $165 \text{ dm}^3/\text{min} \pm 10 \text{ dm}^3/\text{min}$ . After achieving the required flow, the movable element goes into the frame of the airflow indicator, vanishing from the visor's field of view. The absence of this element in the field of vision informs the user about delivering the required amount of air for breathing inside the helmet. Every time the movable element of the indicator appears in the field of vision it means there is a shortage of air being delivered to the helmet. Then, the user should increase the flow by unscrewing the hand wheel of the NOVA RS regulation system. If this does not increase the flow of air, one should stop work (!!!) and check the source of compressed air, filters, hoses and silencers. In case of damage, after stopping the source of compressed air, filters, hoses or silencers one should remove the damage and eventually replace with new parts. The increase in need and the effort of work increases the amount of inflowing air. In case of a break in the breathing airflow the user should leave the working post immediately.



### CHECK BEFORE USE

Before commencing work, follow these steps:

- Connect the helmet to a compressed air source.
- Place the helmet on your head.
- Verify the functionality of the breath air flow indicator, located inside the helmet (above the window).

To ensure the correctness of the breath air flow signal:

1. If the air flow falls below the required value, the movable indicator element will be visible in the window's field of view.
  2. When the required flow is achieved, the movable indicator element will not be visible in the window.
  3. If there is a lack of breath air delivery, the movable indicator element will be visible in the window.
- Pay attention to the condition of the noise silencers for the breath air regulation system and air inlet. Accumulated dirt can impede the function of the silencers, causing a decrease in air flow below the required level. Silencers should be replaced every time a decrease in airflow inside the helmet is observed, but no less frequently than once every two months of helmet usage.
  - Ensure the correct positioning of the glass and seals of the window.
  - Maintain visibility through the viewfinder, which includes the panoramic glass with a UV filter and protective foils. In case of matting or scratching, replace these components with new ones.

# METAL SPRAY HELMET

## WORKING WITH THE HELMET

- Adjust the insert to fit your head properly. If necessary, modify the pressure belt of the insert.
- Check the pressure level of ear protection (as described above) for the version with hearing protection.
- Monitor the cleanliness of the upholstery cushions fitting the head. In case of dirt accumulation, wash, dry, and reposition the cushions in their original locations.
- Inspect the technical condition of the breath air inlet.
- Evaluate the technical state and the possibility of regulation of the regulation system.
- Examine the condition of frames and frame-closing elements. If frames are excessively used or show signs of wear, such as thinning borders or surface cracks, replace the affected components.
- Assess the condition of the replaceable apron, especially in the areas where it joins the helmet edge and the front part reinforced with aluminum-coated fabric.
- Inspect the condition of the helmet shell, paying particular attention to the front part and the area beneath the window at the border.
- Check the state of the filters, ensuring a secure connection and reliable operation of the compressed air supply installation.
- Verify the pressure settings on the pressure regulator located at the compressed air treatment installation.

### PRESERVATION

After finishing work, the interior of the helmet should be cleaned with a cloth moistened with water and "Nano Silver" disinfectant liquid and dried. The air supply hose should be checked. Check the connections and presence of dirt in the transparent casing of the compressed air regulating system. In case of contamination, check the condition of the source of compressed air. Only fully functional equipment - the helmet, the air flow indicator and regulation system - can be used.

When installing a new set of filters, remove oil-water condensation using the purification kits. To do this, after finishing work every day remove drain plug lying at the bottom of casing of given cleaning step, and disconnect the power supply of the compressed air. Then the automatic valve will automatically release the condensation. More information concerning the use of the set of filters can be found in the set of operating instructions.

The visor panes can be cleaned with water and a mild detergent. **NEVER** use organic solvents for this purpose as this causes matting of the glass. In case of excessive wear and tear of particular sets the user should change them by ordering new parts from the manufacturer.

Store the helmet in a temperature range of +5 °C to +30 °C with a maximum relative air humidity of 85%. One should ensure that the conditions of transport will not cause damage to the helmet and especially the visor. Do not throw products. Protect them from rain.

# METAL SPRAY HELMET

## AIR CONDITIONER

### SAFETY PARAMETERS OF THE HELMET WITH NOVA AIRCO AIR CONDITIONER



#### DESCRIPTION OF THE AIR CONDITIONER

The NOVA AIRCO air conditioner is designed to adjust the temperature of breathing air supplied to helmets and hoods. The NOVA AIRCO air conditioner heats up or cools down the breathing air supplied to the equipment protecting the respiratory system supplied from the compressed air system, ensuring the supply of the proper amount of breathing air necessary for working safely when wearing the helmet. The user is kept informed by the breathing airflow indicator. After reaching the required minimum flow, a moveable element is inserted into the indicator casing and disappears from the visor's field of view. If this element ["the wing"] is not seen in the field of view, it confirms to the user that the right amount of breathing air was supplied inside the helmet. Each time the indicator's "wing" appears in the field of view, it indicates that the right amount of breathing air was not supplied inside the helmet. In such a case one should leave the workstation and check the source of compressed air, filters and hoses.

Operating principle: Compressed air flows through the inlet stub into the working chamber, where the temperature of the inlet air is changed. Part of the air is heated up, and some portion cooled down. Both air streams – hot and cold – are properly directed with the use of "the steering gear". If we take only hot air, all the cold air is exhausted from the air conditioner. Hot air is directed to the outlet stub in the air conditioner. If we take only cold air, all the hot air is exhausted from the air conditioner. Cold air is directed to the outlet stub in the air conditioner. The steering gear allows the air streams (hot and cold) to be mixed. The user is therefore able to independently adjust the breathing air temperature. It should be remembered that compressed air supplied to the NOVA AIRCO air conditioner should be free from water (condensing when compressed). Otherwise - in low ambient temperature - water present in the air may freeze on the elements of the equipment and hinder its proper operation.



# METAL SPRAY HELMET

## AIR CONDITIONER

### SAFETY PARAMETERS

The helmet provides comprehensive protection for the worker. It shields the head and torso from material chips generated during metallization processes and ensures protection for the face and respiratory system against dust and other hazardous substances produced during spray metallization. Additionally, it safeguards the eyes from UV radiation. This protection is achieved through a hermetically sealed visor and the supply of clean, overpressurized air inside the helmet, preventing contaminated air from entering.

The visor glazing is equipped with a UV radiation-absorbing filter, denoted as filter 3-3 according to EN-170 standard clause 4. The helmet effectively isolates the user from environments with unsuitable air for breathing. Maintaining the appropriate airflow volume is crucial for the helmet's proper function in protecting the respiratory system.

Users can personally adjust the temperature of the breathing air using the NOVA AIRCO air conditioner. The air conditioner ensures a minimum required airflow at the specified pressure. An airflow indicator, positioned within the worker's field of vision, provides information about the delivery of the correct amount of air. The airflow should be increased as needed, in accordance with the level of exertion and specific requirements.

DESCRIPTION	VALUE
Total weight of the helmet (not exceeding)	2.35 KG
Weight of the helmet with hearing protection	2.40 KG
Weight of detachable apron and hose	0.92 KG
Air hose diameter	10 MM

# METAL SPRAY HELMET

## AIR CONDITIONER

### HEATING AIR

#### SEQUENCE OF ACTIONS WHEN HEATING THE AIR WITH THE USE OF THE AIR CONDITIONER

Supply treated breathing air through the 10 mm diameter hose to the quick joint (1). Connect the joint to the inlet end (2) of the air conditioner.



1. Connect the air treated for breathing purposes at a pressure of 5.7 [ $\pm 0.1$ ] bar and delivery rate min. 400 dm<sup>3</sup>/min to the air conditioner.
2. Move the "steering gear" lever (3) counterclockwise adjusting the air temperature until resistance is felt [as in the directions on the casing]. Then maximum efficiency for heating up the air flowing out of the NOVA AIRCO air conditioner is achieved.
3. Place a thermometer on the outlet stub (4) of the air conditioner and adjust the required air temperature using the "steering gear" lever (3). Check the temperature reached at various positions of the steering gear lever.
4. The proper amount of breathing air [150-165 dm<sup>3</sup>/min] required to ensure safe working conditions is supplied to the helmet at a pressure of 5.7 [ $\pm 0.1$ ] bar of the compressed air supplied to the air conditioner, when the maximum air heating up level (the steering gear lever moved max. counterclockwise) is applied.



#### CAUTION

When supplying air to the air conditioner at a lower pressure, the proper amount of breathing air inflowing to the helmet (as required by the producer) will not be ensured, despite the required air temperature being reached.

5. After temperature and flow are adjusted, the helmet hose should be connected to the outlet in the air conditioner. The hose connected to the helmet should be as short as possible, in order to eliminate temperature changes during airflow. However, the hose should not restrain head movements.
6. The range of temperature adjustment at the outlet of the air conditioner at the temperature of supplied air from +10 °C to +20 °C is: from +5 °C [ $\pm 3$  °C] to +50 °C [ $\pm 4$  °C].

# METAL SPRAY HELMET

## AIR CONDITIONER



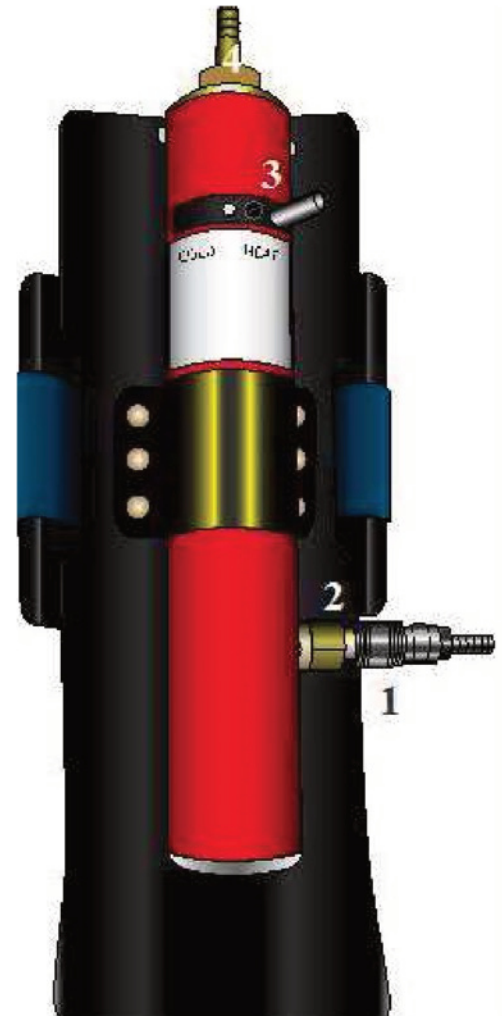
### CAUTION

The air conditioner casing may reach a temperature below zero. A layer of hoarfrost on the casing is a normal condition.



### CAUTION

Air at a low temperature [approx. -10 °C] is exhausted from the opening on the steering gear. Be careful!



# METAL SPRAY HELMET

## AIR CONDITIONER

### COOLING AIR

#### SEQUENCE OF ACTIONS WHEN COOLING THE AIR WITH THE USE OF THE AIR CONDITIONER

Supply the treated breathing air through the 10 mm diameter hose to the quick joint (1). Connect the joint to the inlet end (2) the air conditioner.



1. Connect the air treated for breathing purposes at a pressure of 4.5 - 5.7 [ $\pm 0.1$ ] bar and delivery rate min. 400 dm<sup>3</sup>/min to the air conditioner.
2. Move the "steering gear" lever (3) clockwise adjusting the air temperature until resistance is felt [as in the directions on the casing]. Then the maximum efficiency for cooling the air flowing out of the NOVA AIRCO air conditioner is achieved.
3. Place a thermometer on the outlet stub (4) of the air conditioner and adjust the required air temperature using the "steering gear" lever (3). Check the temperature reached at various positions of the steering gear lever.
4. The proper amount of breathing air [170-190 dm<sup>3</sup>/min] required to ensure safe working conditions is supplied to the helmet at a pressure of 4.5 - 5.7 [ $\pm 0.1$ ] bar of the compressed air supplied to the air conditioner, when the maximum air cooling down level (the steering gear lever moved max. counterclockwise) is applied.



#### CAUTION

When supplying air to the air conditioner at a lower pressure, the proper amount of breathing air inflowing to the helmet (as required by the producer) will not be ensured, despite the required air temperature being reached.

5. After temperature and flow are adjusted, the helmet hose should be connected to the outlet in the air conditioner. The hose connected to the helmet should be as short as possible, in order to eliminate temperature changes during airflow. However, the hose should not restrain head movements.
6. The range of temperature adjustment at the outlet of the air conditioner at the temperature of supplied air from +10 °C to +20 °C is: from +5 °C [ $\pm 3$  °C] to +50 °C [ $\pm 4$  °C].

# METAL SPRAY HELMET

## AIR CONDITIONER



### CAUTION

The air conditioner casing may reach a temperature below zero. A layer of hoarfrost on the casing is a normal condition.



### CAUTION

Air at a high temperature [approx. 30 °C] is exhausted from the opening on the steering gear. Be careful!



### CAUTION

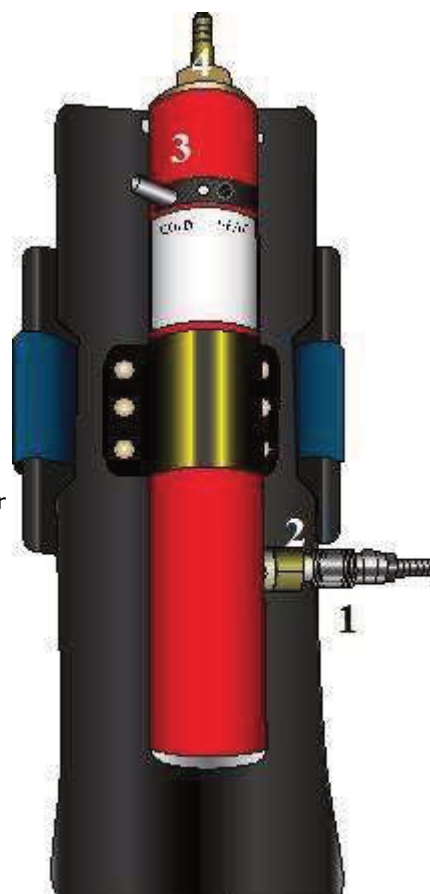
When using the filterset (which treat the air for breathing purposes), due to resistance in the airflow on the filtering elements, the air pressure should be adjusted at the reducer of this set in order to ensure a minimum rate of air delivery at the air conditioner outlet ("hot" or "cold"), according to the specification below [for one work station]:

- For the length of the hose from the set of filters to NOVA AIRCO = 10÷25 m - not less than 4.5 - 5.7 bar.
- For the length of the hose from the set of filters to NOVA AIRCO = 26÷50 m - not less than 4.5 - 6.0 bar.



### CAUTION

Adjust the pressure value at the reducer after connecting the hoses and the air conditioner (opening the airflow).



## TECHNICAL PARAMETERS

DESCRIPTION	VALUE
Supply pressure	4.5 - 5.7 [+/-0.1] Bar
Maximum supply pressure	7 Bar
Amount of air at the outlet at maximum heating up rate (for supply pressure 4.5 - 5.7 [+/-0.1] bar)	150-165 dm <sup>3</sup> /min
Amount of air at the outlet at maximum cooling down rate (for supply pressure 4.5 - 5.7 [+/-0.1] bar)	170-190 dm <sup>3</sup> /min
Weight of the NOVA AIRCO air conditioner	0.75 KG
Range of temperature adjustment at the outlet from the air conditioner [at the pressure 4.5 - 5.7 [+/-0,1] bar and ambient temperature 18 °C	+5 °C [+/-3 °C] to +50 °C [+/-4 °C]
Demand for air supplied to the air conditioner (for supply pressure 4.5 - 5.7 [+/-0.1] bar)	400 dm <sup>3</sup> /min [+/-25 dm <sup>3</sup> /min]

# METAL SPRAY HELMET

## AIR CONDITIONER

### GUARANTEE TERMS

1. Guarantee for good functioning of NOVA AIR Air Conditioner is given for the period of 12 months, counting since the purchase date.
2. Eventual defects or damages (not connected with the normal wear during helmet exploitation) revealed during guarantee period will be removed without fee by the producer during 30 days from the raising the complaint. For date of raising the complaint is taken moment of delivery of product with defect to producer.
3. Guarantee does not concern damages created as a result of improper or not consistent with the instruction of product use.
4. Guarantee does not concern changeable elements - that wear during normal exploitation:
  - A. sealing's/ washers
  - B. quick coupling
  - C. damage caused by non-filtered air 5.

The producer should be notified about eventual defect in writing giving date of production and date of purchase and manufacturing number of product.

6. The period of guarantee is lengthened by the period of duration of repair or waiting for repair.
7. Guarantee card is not valid without due- placed at the reverse page - seals and signatures.

# METAL SPRAY HELMET

## REGULATION SYSTEM



**The manufacturer recommends using the regulation system NOVA RS individually for each employee.**

**The level of noise reaching the ears of the employee associated with the respiratory air flow of 150-165 dm<sup>3</sup>/min, does not exceed the value of 80 dBA.**

**Due to the limitation of the field of view, person who works in the helmet should be under constant supervision of another employee, which can, if necessary, help him (according to the recommendation CIOP).**

**Do not connect cables of breathing air hoses leading abrasives.**

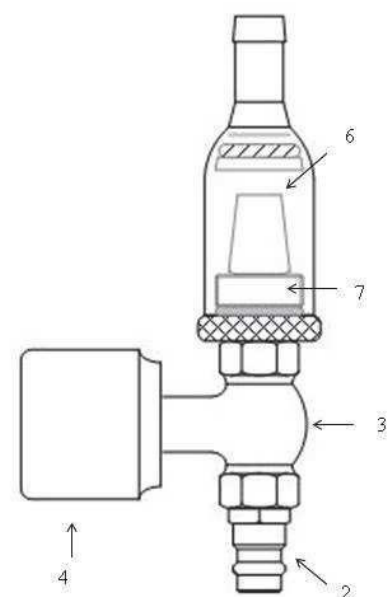
The helmet should be supplied with compressed air treated for the breathing purposes at a pressure up to 7 bar. To provide a full range of air breathing control, it is necessary to have air supply with a capacity of at least 400 dm<sup>3</sup>/min and pressure 6.5 bar. In the absence of the conditioned air networks for the purpose of breathing, apply the appropriate filter sets.

### APPLICATION

Regulation system NOVA RS is designed to control the amount of breathing air in respiratory protection, powered by compressed air. It is recommended to use it as an equipment for sandblasters helmets as well as other personal protection measures such as the hood.

### FEATURES

Regulation system consists of a valve [3] with the connector [2] equipped with the knob [4] to adjust the amount of flowing air, rapid connector used to connect power [treated air], filter - muffler [6] made of sintered porous placed in a transparent case [7], and the belt holder which regulating system is mounted on.





# METAL SPRAY HELMET

## REGULATION SYSTEM

### GENERAL INFORMATION

- Regulation system NOVA RS does not provide respiratory protection in case of air flow absence.
- Ensure cleanliness and identity (repeatability) of breathing air. Air quality should be monitored.
- Before use, check the air supply pressure and flow rate of air supplied to the operator with the requirements set out in the further part of the manual as well as air treatment filters manual. Before starting work, refer to the instructions for use of air helmet used with the NOVA RS.
- Before starting work, connect regulation system NOVA RS, together with a helmet to the source of compressed air, put the helmet on your head and check the operation of the respiratory air flow indicator installed inside the helmet (above visor).
- If you are working very intensively, there can occur underpressure in inspiratory phase.
- In case of excessive humidity of breathing air, while working at a temperature below 4 °C, the moisture content should be controlled to avoid freezing of the various parts of the regulatory system and the helmet.
- Under any circumstances do not use oxygen-enriched air.
- Use in temperatures between -10 °C to +35 °C.
- Breathing air supply hose must be replaced after 2 years from date of manufacture. Provide the breathing air temperature below 55 °C.
- An employee starting the work should have specific training in the hazards of abrasive blasting, confirmed by relevant documents.

Breathing air should be brought with 10 mm inner diameter hose to the connection. Hose end put on the connector and tighten hose clamp. The air flows through the valve to determine the quantity of air - depending on the conditions and the intensity of the work. Then flows through the damper is made of porous sintered bronze muffler which reduce the noise of flowing air. Muffler is placed in the transparent housing. This allows the visual control of breathing air purity. The adjustment is obtained by changing the settings of the knob [4] of the valve [3]. Helmet breathing air hose put on the tip of the muffler housing and tighten with clamp. The system is constructed in such way, that it is not possible to completely shut off the flow of breathing air. At the pressure specified below, and closed valve, the NOVA RS passes the minimum required amount of air.

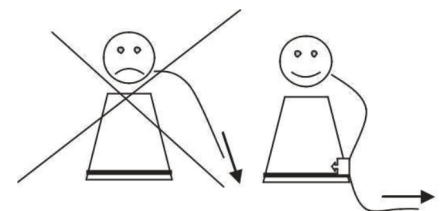
# METAL SPRAY HELMET

## REGULATION SYSTEM

### TECHNICAL SPECIFICATIONS

DESCRIPTION	VALUE
Required min intake air flow	from 150 to 165 dm <sup>3</sup> /min
Power supply	Breathing compressed air network with pressure 7 bar with pressure control (pressure reducer) to the 6.5 bar
NOVA RS air volume range	150 - 165 dm <sup>3</sup> /min to 280 dm <sup>3</sup> / min (10 ± dm <sup>3</sup> /min)
Internal diameter of breathing air supply line	not less than 10 mm
NOVA RS weight	0.35 kg

- Supply pressure 6.5 bar [for 10 mb supply hose]
- Supply pressure 7.0 bar [for 50 mb air supply hose]



### WAY OF USING

Fix the hose delivering the breathing air to the end of instant connection NOVA RS. Put the breathing hose of helmet on the end part going out of the system, tighten hose clamp. Fix the instant connection to regulation system. At the moment of fixing the instant connection the opening takes place. Set on the reducer of filters set - from which we deliver the treated breathing air- the pressure should be at the level described above. Regulate by the knob the amount of air delivered to helmet. By pressure of compressed air described above, even with closed regulation system valve, we deliver required amount of air (165 dm<sup>3</sup>/min +/- 10 dm<sup>3</sup>/min). After achieving the required flow, movable element goes into the frame of indicator, vanishing from seeing field of the window. Lack of this element in the seeing filed informs the user about delivering inside the helmet the required amount of breath air. Every time the appearing of movable element of the indicator in the seeing field means lack of required amount of air delivered to helmet. Then one should increase the flow by screwing out the knob of the Regulation System NOVA RS. If this does not increase the flow of air, one should stop the work (!!!) and check the source of compressed air, filters, hoses and silencers. In case of damage, stopping the source of compressed air, filters, hoses or silencers one should before working again remove the damages, eventually give new ones. With need and increase of effort of work increase amount of flowing air. In case of break in breath air flow leave the working post. After finishing the work, blow the regulating system with compressed air, check the tightness of connections, and the presence of contaminants on the silencer and its housing. In the case of pollution on muffler, check the condition of the air supply. In the case of clogged muffler replace it with a new one. Besides to regulating the amount of air, a very important role of NOVA RS, is to move the burden of unintended effects of forces applied to the hose, to the body of operator via a lap belt (part of the NOVA RS), and not directly on the helmet located on the human head [for example as a result of engagement, dragging the hose].

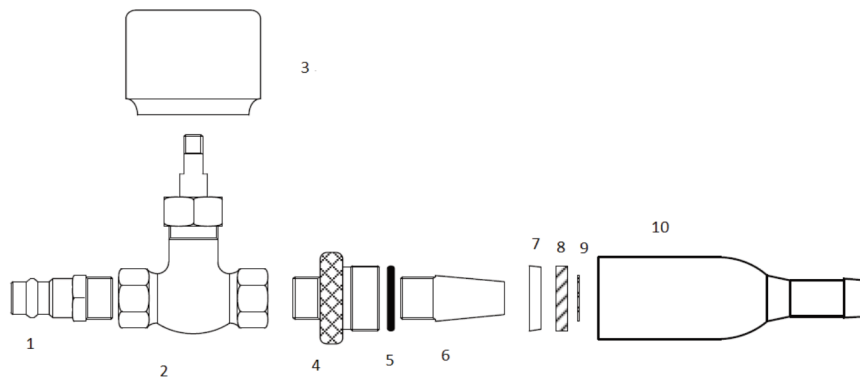
# METAL SPRAY HELMET

## REGULATION SYSTEM



### CAUTION

Adjust the pressure value at the reducer after connecting the hoses and the air conditioner (opening the airflow).



### LIST OF THE NOVA RS COMPONENTS

L.P.	PART
x	Instant connection of the above system
1	Inlet Connector
2	Valve G 1/4
3	Knob
4	Threaded link
5	Insertion filtering fi 16x2
6	Silencer-sinter of the Regulation System
7	Wire mesh limiter fi 19 mm
8	Silencer fabric
9	Wire mesh limiter fi 14 mm
10	Silencer housing
11	Binding NOVA RS
12	Hip belt of system NOVA RS
13	NORMA tapa 8-16
14	NORMA tapa 12-16
15	Regulation System NOVA RS

# METAL SPRAY HELMET

## REGULATION SYSTEM

### GUARANTEE TERMS

1. Guarantee for good functioning of Regulation system NOVA RS is given for the period of 12 months, counting since the purchase date.
2. Eventual defects or damages (not connected with the normal wear during helmet exploitation) revealed during guarantee period will be removed without fee by the producer during 30 days from the raising the complaint. For date of raising the complaint is taken moment of delivery of product with defect to producer.
3. Guarantee does not concern damages created as a result of improper or not consistent with the instruction of product use.
4. Guarantee does not concern changeable elements- that wear during normal exploitation:
  - A.** Seal
  - B.** Quick Connect
  - C.** Efficiency measures in the event supply air change
  - D.** Damping of the control system
5. The producer should be notified about eventual defect in writing giving date of production and date of purchase and manufacturing number of product.
6. The period of guarantee is lengthened by the period of duration of repair or waiting for repair.
7. Guarantee card is not valid without due - placed at the reverse page - seals and signatures.

# METAL SPRAY HELMET

## RISK ANALYSIS

### RISK FOR EXPECTED USE CONDITIONS

Breathing apparatus equipped with a helmet designed for use in abrasive blasting EN 14594:2018

RISK	MEASURES	DESCRIPTION	VALUE
Allergies, skin irritation, carcinogenicity or other harmful effects of clothing materials.	Materials that come into direct contact with the user's skin or that may affect the quality of the breathing air do not cause skin irritation or any other adverse effects to health.	EN 14594 section 6.3	Small
Impact of materials on breathing air quality.	Materials that may affect the quality of the breathing air do not cause skin irritation or any other adverse effects to health.	EN 14594, section 6.3	Small
Sharp or rough edges of clothing cause irritation.	The apparatus (helmet) does not have any sharp or rough edges that cause irritation. If a rough, sharp patch is found on the helmet due to wear, the user should leave the workstation and replace the helmet with a new helmet that offers full protective performance for abrasive blasting (relevant requirements are included in the user manual for the product).	EN 14594 section 6.3	Negligible
Noise reaching the user's ears	Suitable measures have been used to ensure that the level of noise caused by the supply of breathing air that reaches the user's ear is lower than 80 dB(A). Ear plugs are provided with each apparatus (helmet) for additional hearing protection. The risk increases if the ear plugs are not used. The helmet with hearing protection has integrated internal noise protection earmuffs.	EN 14594 section 6.16	Medium
The shell of the apparatus (helmet) or apron is worn, cracked, torn or punctured.	The strength of the apparatus (helmet) has been tested in terms of wear resistance, seam strength and material breaking strength. The apparatus meets the requirements of the standard. If any of the above-mentioned types of damage are found on the helmet or on the protective apron, the apparatus should be discarded and replaced with a new apparatus that offers full protective performance for abrasive blasting (relevant requirements are included in the user manual for the product).	EN 14594 section 6.22 section 6.16 section 6.17	High
Eye or face injury if the visor glass breaks.	The visor glass meets the impact resistance requirements in accordance with section 7.2.2 of PN-EN 166.	EN 14594 section 6.16	Medium
No supply of breathing air to the helmet.	Connections of components related to air supply meet the requirements of the standard. Load-bearing components (belt) meet the requirements of the standard. Inside the apparatus (helmet), there is a breathing air flow indicator to warn the user when there is no air supply. The lines that supply breathing air and the breathing hose meet the requirements of the standard. The valve supplying the breathing air and the air conditioning unit meet the requirements of the standard. Since the apparatus (as self-contained breathing apparatus) is designed for use in environments with air unsuitable for breathing and not in environments with toxic fumes and gases, the user can leave the workstation after finding that the air supply has stopped.	EN 14594 section 6.6 section 6.7 section 6.11 section 6.21 section 6.12 section 6.13 section 6.14 section 6.20	Medium
Carbon dioxide content in breathing air.	At the rated breathing air flow rate into the helmet, the CO <sub>2</sub> content is lower than 1.0% (by volume). If there is no air supply, the user should leave the workstation.	EN 14594 section 6.19	High

# METAL SPRAY HELMET

## RISK ANALYSIS

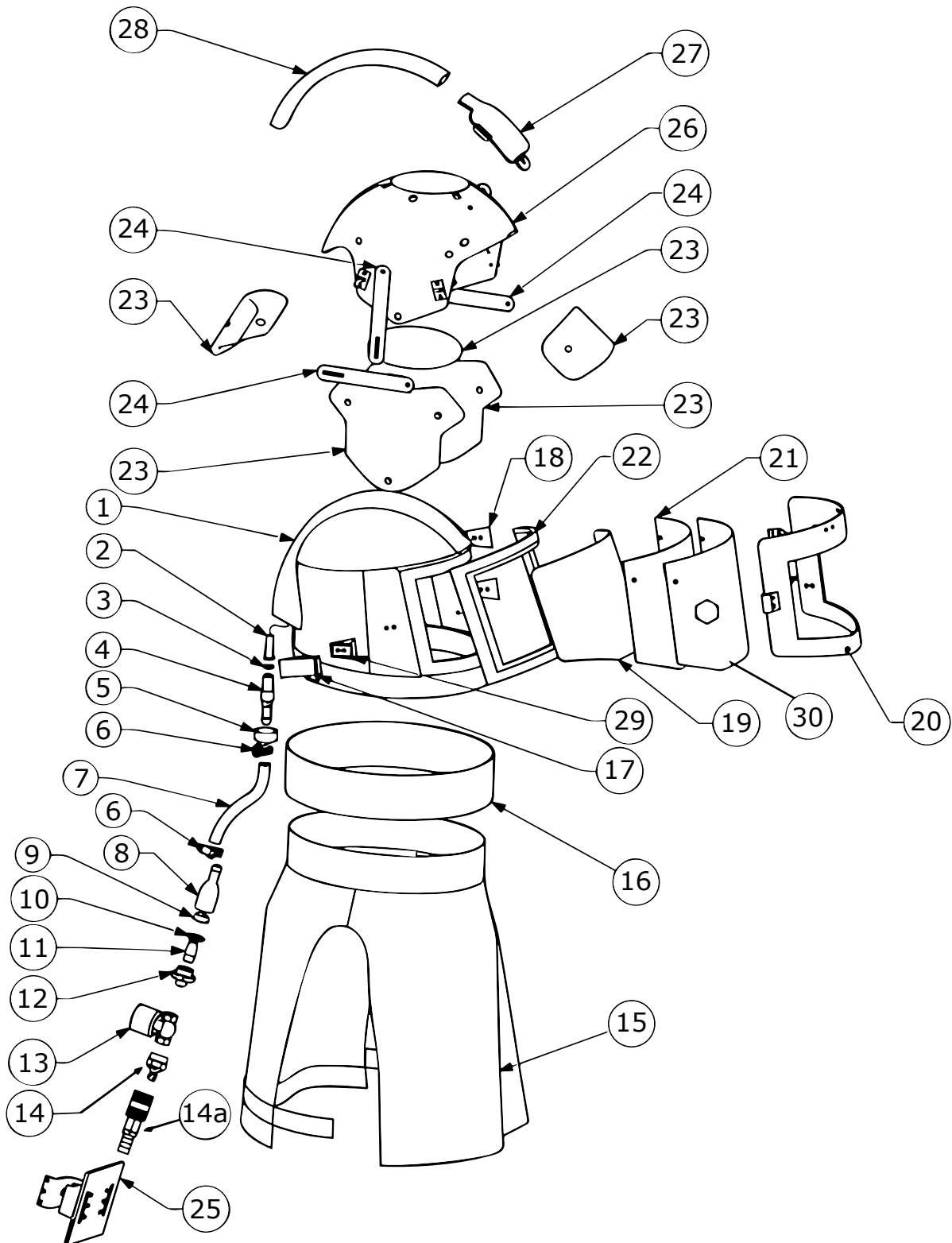
RISK	MEASURES	DESCRIPTION	CATAGORY
Working in a damaged helmet - leaks	At the rated breathing air flow rate into the helmet, the helmet should provide protective performance despite the leaks. The product meets the requirements of the standard concerning internal leaks. If there is no air supply, the user should leave the workstation.	EN 14594 section 6.17	Medium
Dust gets inside the apparatus.	At the rated breathing air flow rate into the helmet, the helmet should provide protective performance despite the leaks. If such symptoms appear, this means that an insufficient amount of breathing air is supplied into the helmet or that visor closing components are worn out.	EN 14594 section 6.16	Small
Work in low and high temperatures.	Provision in the manual indicating that the apparatus should be used in the ambient temperature range from minus 10°C to plus 35°C. An air conditioning unit can be used to improve user comfort.	User manual	Negligible
Supply of breathing air with incorrect supply pressure.	Information about breathing air supply pressure included in the user manual. The manufacturer does not have any control over the user's behaviour.	User manual	High
Supply of air unsuitable for breathing.	Information about breathing air supply parameters included in the user manual. The manufacturer does not have any control over the user's behaviour.	User manual	High
Using oxygen-enriched air.	Information about oxygen-enriched air included in the user manual. Oxygen-enriched air should not be supplied for breathing under any circumstances. Health and safety hazard. The manufacturer does not have any control over the user's behaviour.	User manual	Very High
Accident at work due to the limited field of view of the helmet user.	Provision in the manual indicating that the employee working in the apparatus (helmet) should be constantly observed by another employee to provide assistance when necessary. The manufacturer does not have any control over the user's behaviour.	User manual	High
Work in a faulty apparatus (helmet).	Provision in the user manual requiring a periodic inspection of the apparatus by the manufacturer after 18 months from the date of production. The manufacturer does not have any control over the user's behaviour.	User manual	High
Eyesight damage by UV radiation	Visor glass with protective layers to absorb UV radiation. The user manual indicates that the glass should be replaced if the protective coating is damaged.	EN 170:2005 section 4	Medium
Contact with flame and high temperature	All components of the apparatus meet the flammability requirements of the standard. The protective apron of the apparatus is made of a non-flammable fabric (Kevlar) coated with aluminium.	EN 14594 section 6.9	High

### RISK FOR THE USE OF THE FAULTY PRODUCT

RISK	MEASURES	DESCRIPTION	CATAGORY
Placement of a faulty product on the market by the manufacturer.	100% quality control of the apparatus, both at the intermediate and final stage. Minimal risk. Novablast Helmets have a certified Quality Management System conforming to ISO 9001:2015.	ISO 9001	Small
Recalling the faulty product from the market.	Every apparatus (helmets) manufactured by Novablast has a serial number to enable product identification and full traceability.	ISO 9001	Small

# METAL SPRAY HELMET

## EXPLODED VIEW DRAWING





# METAL SPRAY HELMET

## PARTS LIST 1

### PARTS ON EXPLODED VIEW DRAWING

#	ITEM NO.	PART
2	52000040	HELMET NOISE SILENCER FOR STND+PAN+MET
3	52000057	SEAL FOR NOISE SILENCER OF THE HELMET
4	52000029	AIR INLET PLUG COUPLING FOR STND+PAN+MET
5	52000042	RUBBER PROTECTION FOR INLET FOR STND+PAN+MET
6	52000043	CLAMP FOR AIR HOSE 8-16MM FOR STND+PAN+MET
7	52000044	BREATH AIR HOSE (1MTR) FOR STND+PAN+MET
8	52000045	SILENCER CASING FOR STND+PAN+MET
9	52000058	LIMITER RETICULAR (STRAINER)
10	52000047	O-RING FOR SILENCER HOUSING 16X2MM FOR STND+PAN+MET
11	52000041	REGULATOR NOISE SILENCER FOR STND+PAN+MET
12	52000030	REDUCING CONNECTOR RES-URG SYSTEM FOR ALL HELMETS
13	52000046	REGULATOR VALVE ¼ WITH KNOB FOR STND+PAN+MET
14	52000048	INLET COUPLING ¼ FOR STND+PAN+MET
15	52000059	CHANGEABLE APRON "KEVLAR" FOR HELMET LUNA
16	52000013	RUBBER TAPE FOR APRON FOR STND+PAN+MET
17	52000027	VISOR FRAME SNAP FASTENER FOR ALL HELMETS
18	52000024	RUBBER PAD FOR FRAME HINGE FOR PAN+MET HELMET
19	52000060	PANORAMIC GLASS WITH UV FILTER FOR HELMET LUNA
20	52000061	WINDOW FRAME COMPLETE FOR HELMET LUNA
21	52000022	VIEWFINDER PROTECTIVE FOIL 50PCS FOR PAN+MET
22	52000023	PROFILED WINDOW SEAL FOR PAN+MET
23	52000049	INNER PADDING KIT FOR STND+PAN+MET
24	52000010	SUSPENSION STRAP FOR STND+PAN+MET
24	52000011	PRESSURE BELT FOR STND+PAN+MET
25	52000051	MOUNTING FOR REGULATOR FOR STND+PAN+MET
26	52000014	SHELL FOR INNER LINER FOR STND+PAN+MET
27	52000052	AIRFLOW INDICATOR FOR STND+PAN+MET
28	52000053	INDICATOR AIR HOSE FOR STND+PAN+MET

# METAL SPRAY HELMET

## PARTS LIST 2

### OTHER PARTS

#	ITEM NO.	PART
29	52000050	ELASTIC ELEMENT FOR CLASP FOR STND+PAN+MET
30	52000062	VIEWFINDER PROTECTIVE FOIL BLUE-SILVER FOR HELMET LUNA
30	52000063	VIEWFINDER PROTECTIVE FOIL BRONZE-SILVER FOR HELMET LUNA
30	52000064	VIEWFINDER PROTECTIVE FOIL GREY-SILVER FOR HELMET LUNA
23	52000055	INNER PADDING KIT FOR HEARING PROTECTION FOR STND+PAN+MET
34	52000054	PROTECTIVE CAP FOR STND+PAN+MET
35	52000031	PROTECTIVE EAR SHELL (1PCS) FOR STND+PAN+MET
36	52000033	REGULATION SYSTEM RES-URG FOR STND+PAN+MET
37	52000032	HIP BELT FOR RES-URG SYSTEM FOR STND+PAN+MET
38	52000056	CONTROL KNOB FOR REGULATOR FOR STND+PAN+MET