SELF-CONTAINED BREATHING APPARATUS

RN, RN T1, RN FR, RN FR T2
RN BIBO, RN FR BIBO

EN Instructions for use

EN INFORMATION ON USE AND MAINTENANCE

WARNING

Strictly follow the instructions contained in this manual to make sure the personal protective equipment (III category PPE as defined in Regulation (EU) 2016/425) described herein is used appropriately.

SPASCIANI S.p.A. will not be liable for damage caused as a result of:

-failure to comply with this manual
-failure to use the device as intended, i.e. for uses other than the ones described in this manual
-failure to use authorized personnel to carry out the repair and replacement operations or failure to use non-original spare parts.
All the information reported in this instructions manual was carefully reviewed. SPASCIANI S.p.A. will nonetheless not be liable for any errors or misinterpretations and thus reserves the right to modify all or part of the technical features of its products without prior notice.

1. GENERAL

1.1. Product overview

The SPASCIANI RN series devices are self-contained breathing apparatuses (SCBA) that use an open-circuit breathing system, not depending from the environment.
The breathable air is supplied to the user from cylinder/s of compressed air by means of a pressure reducer and an automatic demand valve connected to the mask; exhaled air flows to the ambient atmosphere through the exhalation valve without recirculation inside the mask. The series in compatible with a wide range of compressed air cylinders, full face masks and demand valves, as well as with various accessories.

1.2. Feature description

SPASCIANI RN series self-contained breathing apparatuses are classified, in accordance with the EN 137:2006 standard, as follows:
- Type 1: device for industrial use;
- Type 2: apparatus for firefighting.

The models of the RN series available are as follows:

RN T1	Type 1 self-contained open circuit breathing apparatus shoulder mounted “light” version (harness with no padding and demande valve with one piece hose)
RN	Type 1 self-contained open circuit breathing apparatus shoulder mounted
RN BIBO	Type 1 self-contained open circuit breathing apparatus with two cylinders shoulder mounted
RN FR	Type 2 self-contained open circuit breathing apparatus shoulder mounted
RN FR T2	Type 2 self-contained open circuit breathing apparatus shoulder mounted “light” version (harness with no padding and demande valve with one piece hose)
RN FR BIBO	Type 2 self-contained open circuit breathing apparatus with two cylinders shoulder mounted

Each apparatus shall be assembled in different approved configuration (e.g. steel or composite cylinder, TR 82 or TR 2002 full face mask with type A or BN demand valve, different accessories) as described in the ***Configurator*** (**See Table 3**).

1.3. Intended use, limitations

SCBAs RN T1, RN e RN BIBO, complete with cylinder, mask and demand valve in the combinations described by the *Configurator,* are Type 1 apparatuses, designed for use in an emergency and in industrial applications that require a high level of respiratory protection, in very polluted environments or with oxygen deficiency areas.
The RN T1 version is of economic type (masks and cylinders are in limited models, medium pressure hose in a single piece). RN BIBO were specially designed for those that need long duration SCBA. These pieces of equipment are suitable for long-lasting interventions for survey and inspection purposes. Due to heavy weight of the sets with 9 l cylinders, only persons in good health and in good physical conditions must be allowed to use them.
RN FR, RN FR T2 and RN FR BIBO are Type 2 apparatuses and they are specially designed for fire-fighting. They were subject to the *Flame Engulfment* test as per EN 137:2006 standard and they are therefore suitable for use where the risk of a flash over is high.
It is extremely important to follow the instructions for use reported on this booklet and it is strictly forbidden to use the device for purposes other than the ones described in these instructions.
The devices described herein ARE NOT SUITABLE FOR UNDERWATER USE even if their functions remain unaffected when submerged in water for a short period of time.
Their autonomy depends on the air reserve available. Refer to Table 1 for more information.
Always use breathable air according to the EN 12021 standard.

2. DETAILED DESCRIPTION

The breathing apparatuses **RN series** consist of the following elements:

Carrying system
Air pressure cylinder/s
Pressure reducer
High pressure gauge with connection hose
Demand valve with audible warning device
Full face mask
and any
Accessories
Reference figures:
Fig.1 for RN T1 and RN FR T2
Fig.2 for RN, RN FR
Fig.3 for RN BIBO, RN FR BIBO
Fig.4 for the pressure reducer
Fig.5 for the demand valve
Fig.6 for the full face mask

2.1. Carrying system (pos. A in fig. 1,2,3)

The carrying system has a back-plate of anatomical shape (**a1**), made of self-extinguishing material for Type 1 and reinforced and highly flame-resistant for Type 2 equipment, with two integral handles allow to carry the complete apparatus, with adjustable shoulder straps with padding (**a2**) and waist belt (**a3**), to make sure the device can be comfortably adapted to any individual. A special adjustable band allows fitting air cylinders of different diameters and lock them in place thanks to the snap buckle.
Models RN T1 are equipped with shoulder straps without padding. Models RN are provided with padded shoulder straps and upon request a kidney belt (**a5**). Models RN BIBO and RN FR BIBO are equipped with padded shoulder straps and a kidney belt; the frame is equipped with a special fastening system (**a6**) that allows housing and fastening the two cylinders. Model RN FR are provided with padded shoulder straps and upon request a kidney belt; model RN FR T2 is equipped with shoulder straps without padding; the fabrics used in all FR SCBAs for belts, shoulder straps and kidney belt are in aramid or para-aramid fibres, to be highly resistant to flames. On the left shoulder strap a band with a Velcro closure (**a4**) keeps in place the pressure gauge and the demand valve hoses. In the lower part of the back-plate is fixed the pressure reducer.

2.2. Cylinder with valve (pos. B fig. 1,2,3)

The RN series SCBA are equipped with one or two steel or composite cylinders whose technical features are summarized in the following table:

Tab.1 – Technical features of the cylinders

Capacity (l)	Pressure (bar)	Diameter (mm)	Length (mm)	Weight empty (kg)	Reserve* (l)	Autonomy** (min.)
6 (steel)	300	140	520	7.5	1670	55
6,8 (composite)	300	155	525	4.2	1870	62
9 (composite)	300	173	556	4.8	2480	82

*to calculate the volume of air available at 300 bar in PxV formula, you must consider the compressibility factor, which leads to a reduction of about 8%.
**autonomy achieved for an average consumption of about 30 l/min. per operator.

The cylinders are equipped with hand wheel valves (**b1**) with threads connection according to the EN 144-1 standard as far as the connection between the valve and cylinder is concerned (cylinder neck thread M18x1.5) and to the EN 144-2 as far as the connection between the valve and pressure reducer is concerned.
Note RN BIBO e RN FR BIBO: these models are equipped with 300 bar connectors in accordance to EN 144-2 for the connection to the pressure reducer and to the two cylinders. It is also provided of a check valve to avoid that one of the two cylinders be loaded by the other. Warning: during the use of the set both cylinder valves shall be kept open.
The cylinders and valves are in accordance with the PED 2014/68/UE and/or TPED 2010/35 EU Directives and with the national regulations of the countries in which they are marketed. They are also provided with all the relevant documents (declarations of conformity, test certificates, instructions for use).
The identification data is printed on the cylinders and valves as required by the applicable laws or on a special permanent label applied to the cylinder (composite cylinders). The cylinders are painted according to the EN 1083-3 standard.

Breathable air is provided by the cylinders and must always be in accordance with the EN 12021 standard.
The valves of the cylinders can be provided with the Excess Flow Valve accessory upon request (see accessories).

2.3. Pressure reducer (pos. C fig. 1,2,3 and fig. 4a, 4b)

The pressure reducer has a chromed brass body and is installed directly onto the cylinder. It consists of devices that reduce and maintain the pressure at 5.5 bar depending on the pressure inside the cylinder. When the cylinder pressure reaches (55 ± 5) bar, a special device increases the output pressure to 8 bar, thus turning the alarm signal of the mask on. The reducer consists of the following elements:

- EN 144-2 connection for the cylinder (pos. 1 in fig. 4a, 4b); the swivel is rubber-coated except for RN T1 and RN FR T2, where it is only in metal
- High pressure connection (pos. 2 fig. 4a, 4b)
- High pressure hose with gauge (pos. 3 in fig. 4a)
- Medium pressure hose, in a single piece for RN T1 and RN FR T2, and with quick safety connection to feed the demand valve safety for all other models. The medium pressure hose is connected to the reducer via a medium pressure connection (pos. 6 in fig. 4b).
- Auxiliary connection with cap (pos. 5 fig. 4b). On the auxiliary outlet can be mounted, by removing the cap, the accessories "additional alarm" (see par. 2.7.2) and " escape hood for second operator (see par. 2.7.3).
- Safety valve (pos. 7 fig. 4b).
- Joint that allows to fix the reducer to the back-plate (pos. 8 fig. 4b).

2.4. Pressure gauge (pos. D fig. 1,2,3 and fig.4a)

Pressure gauge with zero stop feature and within the precision limits of class 1.6. It is equipped with a nickel-plated casing and covered with a gauge cover shell to protect it from shock. The quadrant is luminous, with a full scale of 360 bar, a resolution of 5 bar and a reserve indicator under 50 bar. A second PSI scale is provided.

2.5. Automatic demand valve with audible warning device (pos. E in fig. 1,2,3 and fig. 5)

The demand valve is made of a reinforced plastic material case and contains both the device that delivers the air and the acoustic warning device. It is connected to the reducer via a medium pressure hose with an articulated connector. The button (pos. 1 fig. 3) allows you to block the dispensing device that is activated before the first breath. A type A or BN demand valve can be provided depending on the full face mask version (see section 2.6).

2.6. Full face mask (Fig. 6)

A description of the masks that can be used with the self-contained breathing apparatus RN series is described here below. Check the Configurator for details on the masks that can be used on each model .

- Type “A” with positive pressure and thread connector EN 148-3 (M45x3), to be used with Type A demand valve.

Available models:

- TR 82 A (code 112300000) certified according to EN 136:98 class CL3
- TR 2002 A CL3 (code 113000000), TR 2002 S A CL3 (cod. 113060000) certified according to EN 136:98 class CL3
- TR 2002 A CL2 (code 113040000) certified according to EN 136:98 class CL2.
- TR 82 A CL3+ (code 11230FR00) certified according to EN 136:98 class CL3+ (flame engulfment test passed, as required by EN 137:2006)
- TR 2002 A CL3+ (code 11300FR00), certified according to EN 136:98 class CL3+ (flame engulfment test passed, as required by EN 137:2006)
- TR 82 A E CL3+ (code 112110000) certified according to EN 136:98 in class CL3+ flame engulfment test passed, as required by EN 137:2006), equipped with special hooks designed to be connected to firefighting helmets.

Note: The operation of the SCBA, if equipped with connector EN 148-3, it is still possible with other masks conform to the same standard exclusively in emergencies and in case it is not available (due to accidents) the correct mask.

- Type “BN” with positive pressure and DIN 58600 bayonet connector, to be used with Type BN demand valve. BN masks are also provided with a special patented mechanism that enables use with negative pressure devices such as SCBA demand valves or canisters having a standard thread connector to EN 148-1. (Rd 40x1/7”).

Available models:

- TR 2002 BN CL3 (code 113010000), TR 2002 S BN CL3 (code 113070000) certified according to EN 136:98 class 3
- TR 2002 BN CL2 (code 113050000) certified according to EN 136:98 class CL2.
- TR 2002 BN CL3+ (code 11301FR00), certified according to EN 136:98 class CL3+ (flame engulfment test passed, as required by EN 137:2006)

- Type “B” with positive pressure and DIN 58600 bayonet connector, to be used with Type BN demand valve. Available models:

- TR 82 B (code 112310000) certified according to EN 136:98 class CL3.
- TR 82 B CL3+ (code 11231FR00) certified EN 136:98 class CL3+ (flame engulfment test passed, as required by EN 137:2006).
- TR 82 B E CL3+ (code 112120000) certified according to EN 136:98 class CL3+ (flame engulfment test passed, as required by EN 137:2006), equipped with special hooks designed to be connected to firefighting helmets.

See the attached instructions of each mask for more information on their features and appropriate use.

2.7. Accessories

2.7.1 Four-ways valve

The Automatic 4-way connection or 4-way valves is an accessory provided upon request that allows you to:

- feed a second operator who will be equipped with an individual warning device signal on their mask;
- connect the self-contained breathing apparatus to an alternative source of air to prolong its autonomy and/or to ensure a safe escape whenever the main feeding source has suffered an accidental interruption. When fed by an alternative source (at 5.5 bar), the cylinder is automatically excluded.

The detailed instructions for use of the 4-way valve are attached to the accessory (instruction code 960040000).

2.7.2 Additional warning device

The additional warning device can be installed, upon request, on the RN series devices and allows you to have a continuous alarm signal, in addition to the intermittent alarm signal already provided with the demand valve.
It is installed on the reducer and simultaneously activates itself with the main warning device

2.7.3 Escape hood for second operator

The escape hood for second operator is an accessory that can be used in conjunction with any SPASCIANI SCBAs.
To use the escape hood, remove the “2nd operator hood” on the pressure reducer and replace it with the “medium pressure hose provided in the set. Detailed instructions for assembly and use of the escape hood for 2nd operator are attached to the accessory itself (code instructions 960250000).

2.7.4 Excess flow valve

The valve of the cylinder can be equipped, upon request, with an excess flow valve.

2.7.5 Connections of the medium pressure hose (RN T1 excluded, on request for RN FR T2)

The medium pressure hose, which connects the reducer to the demand valve, is equipped with quick Euro-Coupling connections (default) or with Spasciani connections (upon request).

2.7.6 Second outlet hose

The second outlet hose is an accessory mountable on request on all SCBA RN series and allows to connect a second demand valve. NB: when you use the second outlet hose to connect in a second operator, accurately calculate the autonomy of the device, which will be halved.

2.7.7 ATEX self-contained breathing apparatus

Upon request, the self-contained breathing apparatuses can be provided in the "Atex" version. See section 8 for details on this line of devices.

3. USE

Warnings

All the preparatory and use operations of the self-contained breathing apparatus must only be carried out by qualified and trained personnel. Make sure any accessory or auxiliary device or any other type of protective wear used in addition to the system does not compromise or hinder its safety or hold.
The autonomy of the self-contained breathing apparatus depends on the initial amount of air available and on the operator's breathing rate, but also on the presence of accessories that could consume the air (i.e. additional warning device, second output hose). Always use devices that were preventively checked. The operations described here below must always be followed before use.

3.1. Before use

3.1.1. Cylinder installation

a) Keep cylinder vertically on a flat surface with the valve upwards and connect the reducer to the cylinder using the appropriate swivel connector;
b) Lie down the equipment and lock the cylinder pulling the belt and closing the buckle.

3.1.2. Connecting the demand valve

Insert the male and female quick connectors of the medium pressure hose. Apply little pressure to connect them.
Please note: Apply little axial pressure on the connections to disconnect them, while simultaneously pulling back the female connector. Never disconnect if the hoses are under pressure!
Press the button (pos. 1 fig.5) to avoid air leaks when wearing the device.
For breathing apparatus RN T1 and RN FR T2 this operation is not needed since the demand valve is not equipped with fittings but of a medium pressure hose in one piece already connected to the reducer. If you chose model RN FR T2 provided with a quick connectors medium pressure hose, please see the paragraph above for connection/disconnection operations.

3.1.3. Check the position of the hoses

The gauge and demand valve hoses are connected to the left shoulder strap via a Velcro closure system.
It is allowed to let the medium pressure hose pass beneath the left arm and fasten it to the waist belt, if so desired.

3.1.4. Check cylinder pressure

Insert the locking device (pos. 1 Fig.5). Open the valve of the cylinder: the pressure gauge should read not less than 280 bar for cylinders with an operating pressure of 300 bar and 190 bar for cylinders with an operating pressure of 200 bar.

3.1.5. Check the high pressure section tightness

Open cylinder valve and pressurize the set. Close cylinder valve. The pressure must never go under 20 bar per minute.

3.1.6. Check the audible warning signal

• Open the cylinder valve and pressurize the device
• Close the cylinder valve
• Unlock the locking device (pos. 1 Fig.5) by pressing on the rubber button in the middle of the demand valve cover.
• Close, with the palm of your hand, the demand valve outlet and vent the air off slowly. Watch the gauge and when reaching a pressure of (55±5) bar, you should hear, strongly releasing, a strong sound vibration that should stop once there is no more air in the hose. Please note: we recommend releasing the air slowly and waiting a few seconds depending on the calibration pressures of the alarm.
• Reinsert the locking device (pos. 1 Fig.5).

3.2. Donning

Adjust the shoulder straps to their maximum length; therefore, lift the special padding and pull on the ends of the straps. Put on the self-contained breathing apparatus and pull hard on the ends of the shoulder straps until the backrest is comfortably leaned against your kidneys. Buckle the belt and pull on the loose ends until achieving the desired fitting.
Insert the free ends of the shoulder straps and the lumbar belt under the belt itself, making sure that the straps are adherent to the protective jacket (this in particular for Type 2 breathing apparatus) along their entire length.
Once you put on the device:
• Put on the mask and make sure it is tightly secured on the face (see the specific instructions of the mask).
• Open the valve of the cylinder, at least two turns.
• Connect the demand valve to the mask connection: at first breath, the device (pos. 1 fig. 5) unlocks and keeps a positive pressure under the mask.
Follow the following steps to connect the demand valve to the mask:
-Type A demand valve and mask, standardized EN 148-3 (M45x3) screw connection: screw the male swivel of the demand valve into the female one of the mask until it stops.
-Type BN demand valve and mask, bayonet connection: insert the male connection of the demand valve into the coupling of the mask and push until the demand valve 's teeth are hooked into the appropriate tightness edge of the mask.
Please note: The connection of demand valve to the facemask must be carried out and checked by a second person.
The self-contained breathing device is now ready for use.

3.3. When using

From time to time, check the residual pressure of the air reserve with the gauge. When the pressure drops below (55±5) bar, the alarm signal is activated. A loud sound signal will thus appear with every inhalation of air. The signal will continue until the air reserve has been entirely exhausted. This lasts until the complete exhaustion of the air supply. Please note: when the signal starts, the user shall leave the contaminated area. In case of emergency (greater physical effort or increased breathing resistance), you can briefly and repeatedly act on the rubber button of the demand valve to receive air directly into the mask.

3.4. After use

• Close the cylinder valve
• Disconnect the demand valve from the mask, let the air contained therein out and then press on the button (pos. 1 Fig.5):
- Type A demand valve and mask: unscrew the swivel of the demand valve
- Type B and BN demand valve and mask: simultaneously press on the lock buttons and disconnect the demand valve from the mask
• Unfasten the waist belt and loosen the shoulder straps by lifting the buckle with your thumb
• Remove the mask
• Place the device on the ground without dropping it.

4. MAINTENANCE

SPASCIANI S.p.A. will not be liable for damages whenever the maintenance and repair operations were not carried out within the establishments of its companies or by authorized third parties.

4.1. Cleaning and disinfection

Dirty parts must be cleaned after each use. Clean with warm and soapy water. Rinse with running water. Remove dust build-ups with a damp cloth or anti-static product. Never use dry cloths and never rub any part of the PPE with wool or non-antistatic cloths.
Please note: Follow the concentration instructions when using chemical products to disinfect the device. Avoid using organic solvents that can damage the rubber and plastic parts.

4.1.1. Mask

The mask must be cleaned after use, disinfected if the operator changes or in the event of being polluted. The operations to carry out in this phase are described in detail in the mask user manual. Never use dry cloths to clean the visor, since the mask could possibly electrostatically charge and become an ignition source in potentially explosive atmospheres.

4.1.2. Demand valve

To clean the demand valve is generally sufficient to rinse it with warm and soapy water an accurately clean it by using a soft cloth, leaving it dry naturally. Never use dry cloths to clean the demand valve, since the plastic components could possibly electrostatically charge and make the demand valve an ignition source in potentially explosive atmospheres (see par. 8 for ATEX devices).
If the demand valve has been deeply contaminated, proceed disassembling the device in its main components. This operation, that can be performed by hands without using any tool, implies the handling of the functional components of the demand valve so it shall be executed by specialized personnel authorized by SPASCIANI S.p.A. Please contact Spasciani customer service for any information.

4.1.3. Other parts of the device

The frequency of disinfection and cleaning of other parts of the device depends of the kind of toxics they have been in contact with and of the level of contamination. Clean the components of SCBA with warm and soapy water, scrub hard and rinse abundantly, finally air dry. Never use dry cloths to clean the backplate or other parts that could potentially charge by rubbing and become ignition sources in potentially explosive atmospheres (see par. 8 for ATEX devices). Please contact SPSCIANI for any clarifying.

4.2. Cylinders

Follow the existing laws and regulations of the countries where the types of cylinders are used to fill and retest them. When filling the cylinder, you can exceed the maximum operating pressure by about 10% since, at room temperature, the pressure will drop back to the nominal value.
When filling, make sure:
• the air complies with the EN 12021 standard.
• the cylinder was checked within the time limits established; this can be done by checking the date of the last retesting on the label.
The valve of the cylinder must be kept closed during transport to prevent humidity from penetrating and condensing.
During transport and storage, the cylinders must be protected from shock.
Do not grasp the valve to transport the cylinders.

4.3. Scheduled maintenance

The following table reports the scheduled maintenance operations:

Table 2 - Scheduled maintenance

Part	Activities	1	2	3	4	5	6	7
Complete device	Cleaning			X				
	Operations, seals	X			X			
	Check the back support		X					
Demand valve	Cleaning			X				
	Disinfection			X				
	Membrane test			X[a]	X			
	Replacement of the membrane						X	
High pressure connector	Thread test (gauge)							X
Seal of the high pressure connection	Replacement					X		
Reducer	Revision							X
Cylinder	Retesting [c]							X[b]

1: Before allowing the use - 2: Before use - 3: After use - 4: Every six months - 5: Yearly - 6: Every three years - 7: Every six years
a) After use in corrosive environments or under extreme environmental conditions
b) According to the national laws
c) ATTENTION: Every time you disassemble the valve of the cylinder, you must replace it with a new one. Refer to the instructions manual of the cylinder and valve for the proper torque values. After replacing any part, you must carry out all the operating and pneumatic tightness checks.

4.4. Checks

Warning: the following checks must absolutely be carried out after cleaning or replacing the components.
The membrane of the demand valve, like all rubber parts, must be replaced if they show signs of alterations or deterioration such as cracks, sticky parts, deformations, etc. All the connections must slide well without being hindered and they must not show any signs of damage.
Some of the following tests can be carried out by means of special tools SPASCIANI can provide upon request.

4.4.1. Demand valve tightness at +7 mbar pressure

• Connect the cylinder to the reducer; the cylinder must be left closed
• Connect the demand valve to the medium pressure hose
• Unlock the lock button (pos. 1) by pressing on the button in the middle of the cover
• Connect the demand valve to the testing equipment
• Create a pressure of about 7 mbar in the demand valve
The pressure drop should not exceed 1 mbar per minute.

4.4.2. Positive pressure of the demand valve

• Open the cylinder valve
• Connect the demand valve to the testing equipment
• Unlock the demand valve by pressing on the rubber button in the middle of the cover
The pressure should be between 3.2 and 3.9 mbar.

4.4.3. Cylinder filling pressure test

See section 3.1.4

4.4.4. Pneumatic tightness test of the high pressure section

See section 3.1.5

4.4.5. Warning device test

See section 3.1.6

5. STORAGE AND TRANSPORT

The devices should be stored in cool and ventilated areas, away from gases, corrosive agents, direct sunlight and heat sources. When clean and dry, the self-contained breathing apparatuses can be stored in closets or dust-proof cases. For this, make sure the devices are leaned on their backrest and that the straps are not bent.
If stored in their original packaging or special case, the devices do not require special care as far as the transport is concerned. We nonetheless recommend following the general storage indications already highlighted.

6. CERTIFICATIONS

The SPASCIANI SCBA RN series conform to EN 137:2006 and ISO 23269-2:2011 (only for MED equipment) standards and meet the requirements of Regulation on **PPE (2016/425/EU)** and Directives **PED (2014/68/EU), MED (2014/90/EU)** and **ATEX (2014/34/EU).**

6.1. PPE

All SPASCIANI self-contained breathing apparatus meet the requirements of the 2016/425 /UE Regulation on Personal Protective Equipment. Notified Body that performed the type tests for the EU type-examination and that carries out the manufacture control according to the Module D of Regulation (EU) 2016/425: Italcert S.r.l., Viale Sarca 336, 20126 Milan – Italy, n° 0426.

6.2. PED

The device is made in accordance with the requirements of the Conformity Assessment Modules B+D according to Directive 2014/68/UE on Pressure Equipment. Notified body that carried out the B+D conformity assessment procedure: Italcert S.r.l., Viale Sarca 336, 20126 Milan – Italy, n° 0426.

6.3. MED

The SPASCIANI RN FR and RN FR T2 breathing apparatus, in all configurations, are fire-fighting devices according to the MED Directive 2014/90 / EU which, in Item 3.7, defines the self-breathing apparatus for Fire fighting as Type 2, in accordance with ISO 23269-2: 2011. The device is made in accordance with the requirements of the Conformity Assessment Modules B + D according to 2014/90/UE on Marine Equipment. Notified body that carried out the B+D conformity assessment procedure: Italcert S.r.l., Viale Sarca 336, 20126 Milan – Italy, n° 0426.

6.4. ATEX

All the models, excluded RN BIBO and RN FR BIBO, can be provided in the ATEX version.

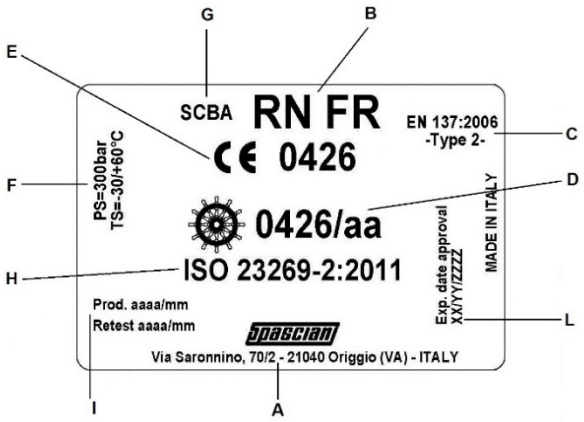
The devices are approved with a voluntary Test Certificate (Annex 3 of the 2014/34/UE Directive) issued by: Albarubens S.r.l, Via G. Ferrari 21/N – 21047 Saronno (VA) – Italia, O.N. n°2632.

7. MARKING

All the important parts related to the safety of the device are marked with the serial number and production date.

1. On the reducer, there is an adhesive label with a bar code (10 alphanumeric characters) and an 8-digit permanently printed number, which corresponds to all the last six digits of the bar code preceding the year of manufacture. The reducer is sealed in the factory and the last inspection date is printed on it. This number, unique to each SCBA, is the serial number of the apparatus.
2. On the demand valve, there is an adhesive label with a bar code (10 alphanumeric characters). In addition to the bar code, an 8-digit number is permanently printed on the demand valve which corresponds to the last six digits of the barcode preceded by the year of manufacture.
3. All the hoses are marked with the production date.
4. The membrane of the demand valve and other rubber parts has a "clock" dater reporting the year and month of manufacture.
5. The entire device has a label on a metal plate affixed to the belt (see label example) and which contains all the markings required by the Directives and Technical standards of reference:

Example of a label



- Manufacturer name and address (**A**)

- Type of device (SCBA) (**G**) and model name (**B**)
- Marking CE (**E**) that indicates the essential requirements respectively established by Regulation 2016/425/EU and Directive 2014/68/UE were met, followed by the number of the Notified Body that performed the production control (N° 0426 Italcert S.r.l., V.le Sarca, 336, 20126 Milan - Italy)
- wheel mark (**D**) (only for MED type) indicating that they meet the essential requirements laid down by Directive 2014/90/UE followed by the number of the Notified Body that carries out the control of production (N° 0426 Italcert S.r.l., V.le Sarca, 336, 20126 Milan - Italy) and the year of its affixing.
- Reference standard as per Regulation (EU) 2016/425: EN 137:2006 and classification (Type 1 or Type 2) (**C**);
- Reference standard as per 2014/90/UE Directive: ISO 23269-2:2011 (**H**)
- Maximum operating pressure (PS) and minimum and maximum temperature of operation (TS) (**F**)
- Year and month of manufacture and next date of servicing (**I**) (6 years)
- Expiration date of approval Mod.B MED (**L**).

8. MED approved SCBAs - RN FR, RN FR T2

Wheel-marked Spasciani RN FR and RN FR T2 SCBAs comply with the requirements of 2014/90/EU MED Directive and therefore are suitable for firefighting on ships (par. 7 of manual instruction).

IMPORTANT: item MED 3.7 of the Implementing Regulation (EU) 2022/1157 requires to associate the breathing apparatus with a fireproof lifeline in accordance with item MED 3.44, used together with the breathing apparatus and capable of being attached by means of a snap-hook to the harness of the apparatus or to a separate belt to prevent the breathing apparatus becoming detached when the lifeline is operated. It is the operator's responsibility to ensure that he uses the breathing apparatus with the lifeline, as it is an obligation of the FSS code which shows the firefighter outfit.

9. ATEX SELF-CONTAINED BREATHING APPARATUSES

USE IN POTENTIALLY EXPLOSIVE ENVIRONMENTS

Ex	**CAUTION** All the indications contained in a box with the Ex logo shown on the side refer to explosion risk and indicate those assemblies produced by SPASCIANI S.p.A. suitable to work in the presence of potentially explosive atmospheres (check if the "Ex" symbol is present on the device marking). Failure to comply with the prescribed regulations can lead to serious risks to personal health and damage to property near the equipment described in this manual.

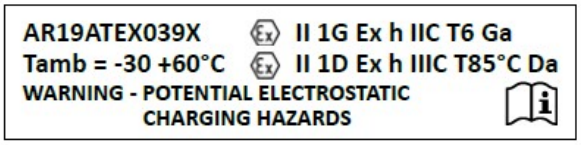
The **RN, RN T1, RN FR** and **RN FR T2** self-contained breathing apparatuses with the additional Ex marking are available in the ATEX version for use in potentially explosive environments and are certified according to the 2014/34/EU Directive. They are non-electric devices that can be use in several types of explosive atmosphere as specified in the applied marking:

Ex II 1G Ex h IIC T6 Ga → non-electrical devices for use in the surface industry, where there is the possibility that explosive atmospheres due to the presence of gas occur - Zone 0

Ex II 1D Ex h IIIC T85°C Da → non-electrical devices for use in the surface industry, where there is the possibility that explosive atmospheres due to the presence of dust occur - Zone 20

The ATEX self-contained breathing apparatuses have a label on the backplate (see example B - Atex label) containing all the markings required by the 2014/34/EU Directive and technical standards of reference (EN ISO 60079-36, EN ISO 60079-37).

Example B - Atex label



Where:

Ex	specific marking of explosion protection
II	Device Groups: **II** → surface

1	Device categories: very high level protection (Zones 0 and 20)
G	Ex Atmosphere: suitable for area with explosive gases, vapors, mists and air mixtures
D	Ex Atmosphere: suitable for area in which explosive atmospheres due to dusts may form
Ex h	Type of protection offered by the non-electrical device
Ga	Equivalent level of device protection (EPL): Cat. 1G in Zone 0
Da	Equivalent level of device protection: Cat. 1D in Zone 20
IIC	Gas group IIC → Hydrogen (representative gas)
IIIC	Gas group IIIC → Flammable volatile, non-conductive and conductive dust
T6	Class of surface temperature of devices for Group II gases: ≤ 85°C
T85°C	Maximum surface temperature of devices for Group II dusts = 85°C
Tamb -30 +60°C	Reference temperature for Atex environment
AR19ATEX039X	Atex Certificate
"X"	This non-electric device is subject to special conditions for use: the effectiveness and reliability of the device is guaranteed by following the instructions in the user manual.
WARNING	POTENTIAL ELECTROSTATIC CHARGING HAZARDS –  – Read the user manual

	**ATTENTION!** All device components shall be cleaned only with wet cloths and antistatic products to not charge the exposed surfaces. See par. 4.1 "Cleaning and disinfection").

	**ATTENTION!** Operators who use Atex SCBA are advised, at any stage of use, to wear antistatic clothing and use non-sparking tools.

	**ATTENTION!** Atex breathing apparatus must be worn and removed in the absence of an explosive atmosphere.

	**ATTENZIONE!** Always read this note and pay particular attention to par. 4.1 "Cleaning and disinfection".

See the *Configurator* for all combinations of mask + demand valve + cylinder that can be supplied with Atex certification.

10. TECHNICAL DATA

10.1. Technical data

Maximum operating pressure	300 bar
Alarm activation pressure	55±5 bar
Medium pressure	5.5 bar
Operating pressure	-30°C / +60°C

10.2. Weights / Dimensions

Description	HxLxD Dimensions (mm)	Approx. weight (Kg)
RN with mask and 6 l 300 bar steel cylinder (charge)	310x660x220	15
RN with mask and 6.8 l 300 bar composite cylinder (charge)	310x660x220	10
RN with mask and 9 l 300 bar composite cylinder (charge)	310x660x220	12
RN T1 with mask and 6 l 300 bar steel cylinder (charge)	310x660x220	15
RN BIBO with mask and 2 x 6.8 l 300 bar composite cylinders (charge)	310x660x220	16
RN FR T2 with mask and 6 l 300 bar steel cylinder (charge)	310x660x220	13
RN FR with mask and 6 l 300 bar steel cylinder (charge)	310x660x220	15.5
RN FR with mask and 6.8 l 300 bar composite cylinder (charge)	310x660x220	10.5

RN FR with mask and 9 l 300 bar composite cylinder (charge)	310x660x220	12.5
RN FR BIBO with mask and 2 x 6.8 l 300 bar composite cylinders (charge)	310x660x220	16.5

10.3. Materials

Back-plate	Type 1: Thermo-formed polypropylene
	Type 2: V0 Thermo-formed polypropylene
Belts	Type 1: Straps in self-extinguishing fibers
	Type 2: Straps in aramid or para-aramid fibers
Reducer	Chrome-plated brass
Demand valve	Nylon casing reinforced with glass fibers

11. CODES FOR ORDERS, SPARE PARTS AND ACCESSORIES

Model codes

The codes reported here refer to the basic model, consisting of straps and reducer with medium pressure hose and gauge; the basic model is equipped with quick connections between reducer-demand valve (Euro-Coupling type) and no accessories (i.e. additional warning device). Contact the sales department to order the self-contained breathing apparatuses with other available connections (Spasciani type) and any accessories.

Description	Code
RN T1	158730000
RN	158750000
RN BIBO	1587100EC
RN FR	15875FR00
RN FR BIBO	15871FREC
RN FR T2	15873FR00

Components

The components suggested by the Configurator must be combined to the self-contained breathing apparatus to complete the order. Here are the codes of the components, which are also supplied as spare parts.

Description	Code
TR 2002 A CL2 mask	113040000
TR 2002 BN CL2 mask	113050000
TR 2002 A CL3 mask	113000000
TR 2002 S A CL3 mask	113060000
TR 2002 BN CL3 mask	113010000
TR 2002 S BN CL3 mask	113070000
TR 2002 A CL3+ mask	11300FR00
TR 2002 BN CL3+ mask	11301FR00
TR 82 A mask	112300000
TR 82 A CL3+ mask	11230FR00
TR 82 B mask	112310000
TR 82 B CL3+ mask	11231FR00
TR 82 A E CL3+ mask	112110000
TR 82 B E CL3+ mask	112120000
A type demand valve	158850000
A type demand valve EC	1588500CJ
BN type demand valve	157910000
BN type demand valve EC	1579100CJ
A type demand valve for RN T1/T2	158880000
BN type demand valve for RN T1/T2	158810000
Cylinder 6 l 300 bar steel*	924630000
Cylinder 6.8 l 300 bar composite T3 ill*	92437000C
Cylinder 6.8 l 300 bar composite T3*	92446000C

Cylinder 6.8 l 300 in composite T4 ill*	92426000C
Cylinder 9 l 300 bar composite *	92449000C

* The devices are certified for use with the steel cylinders manufactured by Worthington, Eurocylinders Systems (ECS) and with the composite cylinders manufactured by the Luxfer and C.T.S. The cylinders are equipped with valves manufactured by SAN-O-SUB.

Accessories

Description	Code
4-way valve	9324400CJ
Additional alarm	152530000
Escape hood for second operator	1574100EC
Excess Flow valve	936010000
Kidney belt for RN	612230000
Kidney belt for RN FR	612220000
Wall case	942310000
Metallic cabinet for RN	4410000MB
Carrying case for RN	158450000

Contact SPASCIANI's customer service for spare parts and accessories that are not listed in this list.

ATTENTION: the standard connections that comply with the EN 144 standard can exceptionally be used on cylinders other than the ones provided and described only in case of emergency (whenever the cylinders provided are not available). The user must make sure the pressure equipment complies with existing laws on high pressure containers and their accessories and compatibility, even from a structural point of view (i.e. connections and maximum dimensions) with regards to the cylinders and accessories.

SPASCIANI SPA will not be liable for any unauthorized cylinder assembly it did not provide or for any solution not listed in this manual, nor for any assembly carried out differently than how specifically described in this manual.

Fig. 1 - RN T1, RN FR T2

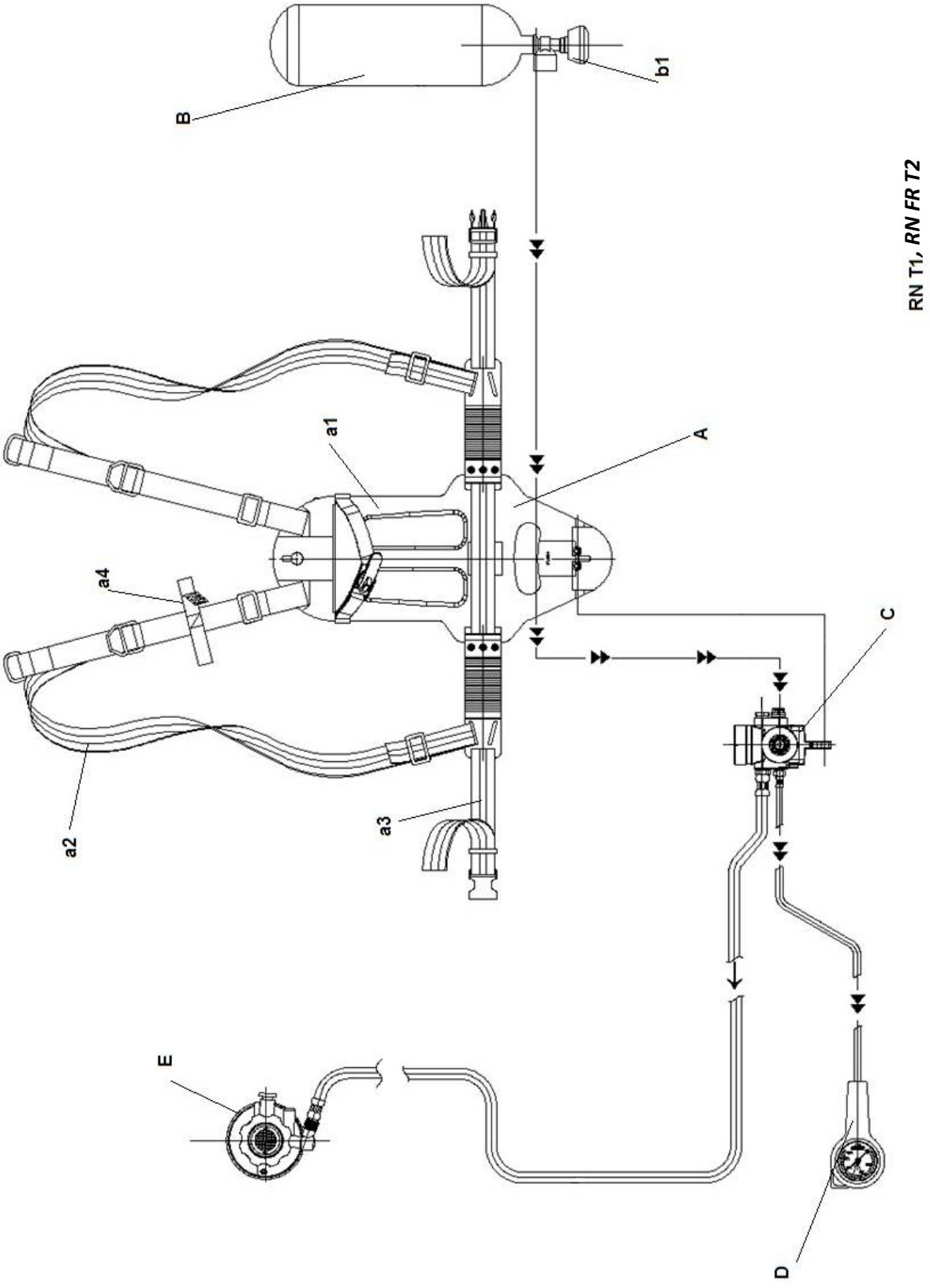


Fig.2 - RN - RN FR

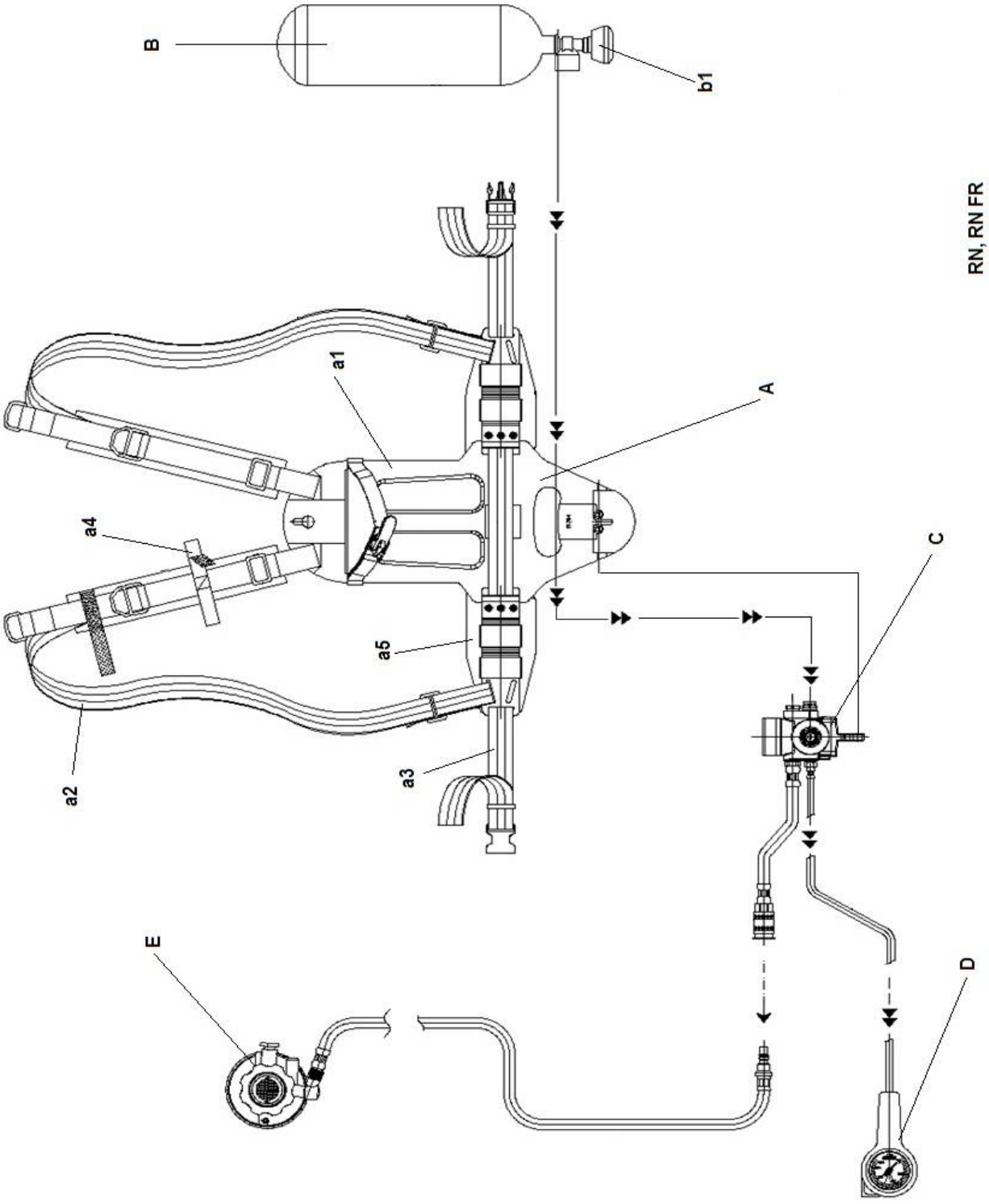


Fig.3 - RN BIBO – RN FR BIBO

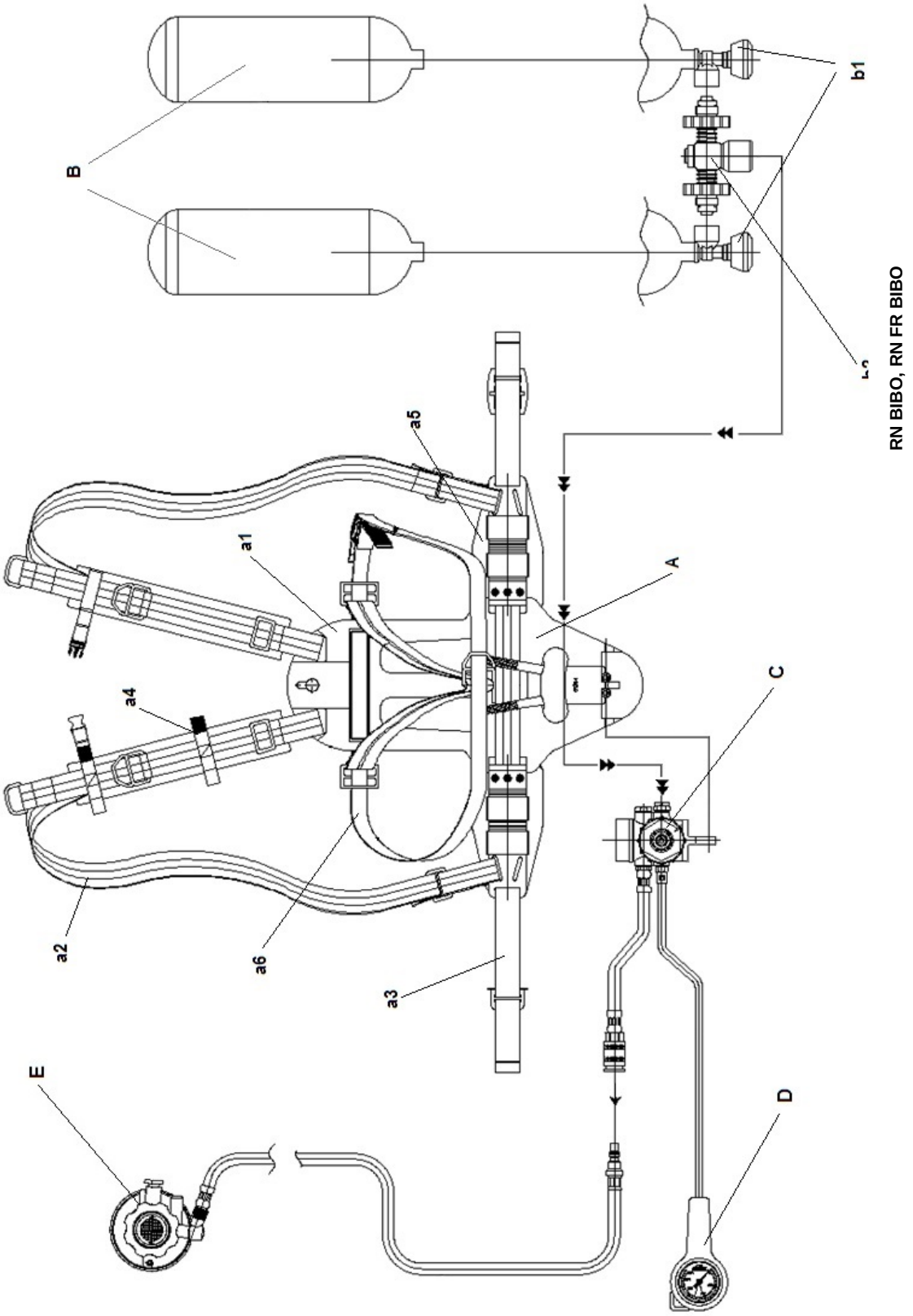


Fig.4 a – Pressure reducer with gauge and medium pressure hose

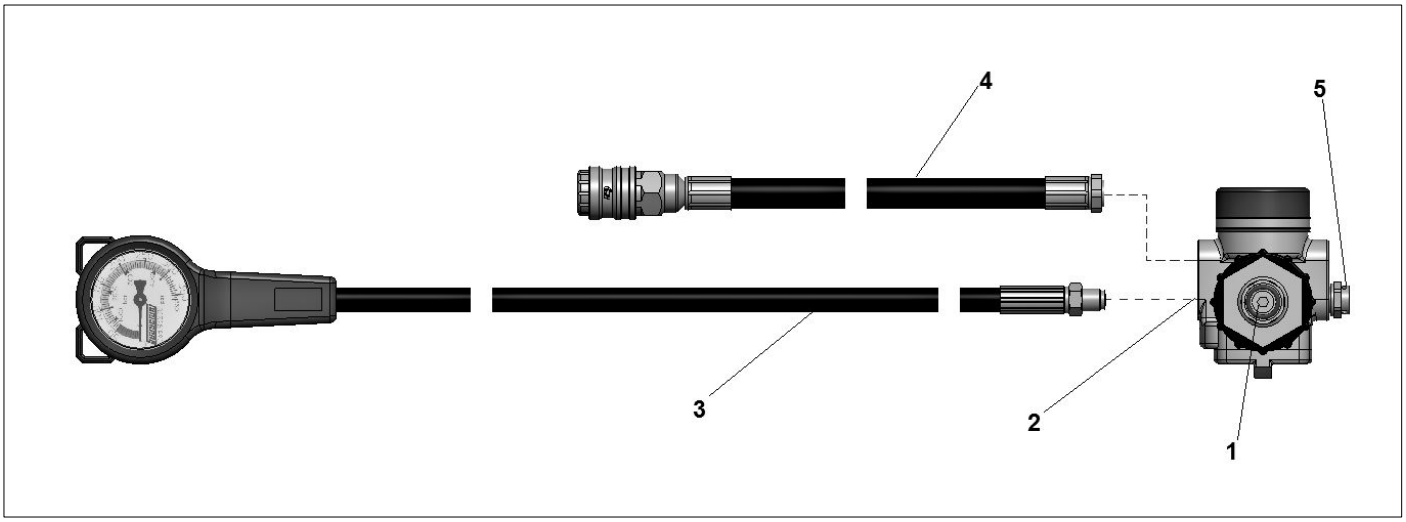


Fig.4 b – Pressure reducer

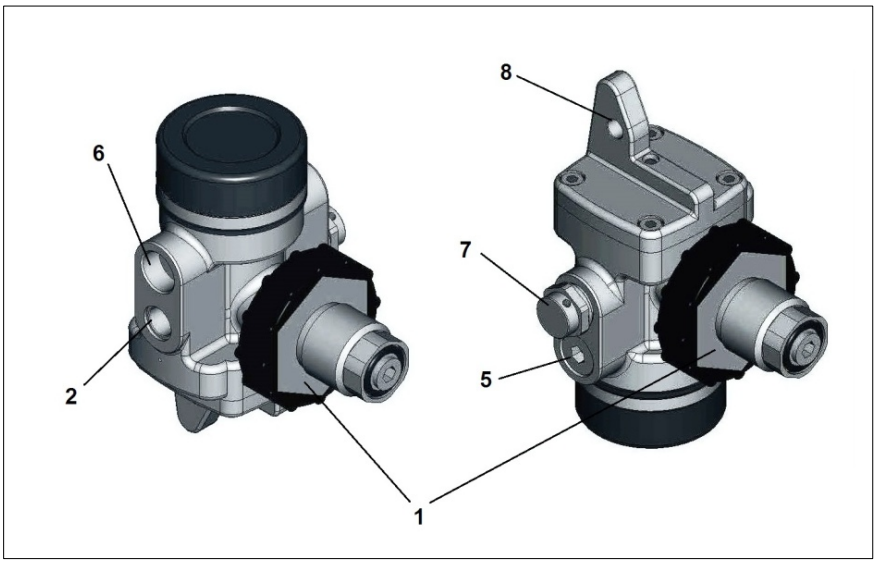
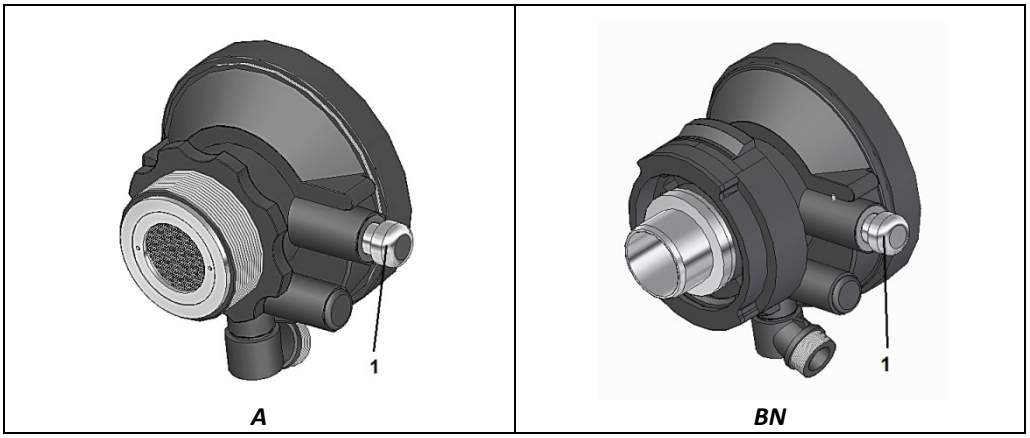


Fig.5 – Demand valve



A *BN*

Fig.6 – Full face mask


TR 2002 A


TR 82 A


TR 82 A E CL3+


TR 2002 BN


TR 82 B


TR 82 B E

Tab. 3 - Configurator

○ = default

● = optional

	Harness					
Models	**RN T1**	**RN**	**RN BIBO**	**RN FR T2**	**RN FR**	**RN FR BIBO**
RN T1	○					
RN		○				
RN FR T2				○		
RN FR					○	
RN BIBO			○			
RN FR BIBO						○

	Cylinder		
Models	**6 l - 300 bar steel**	**6,8 l - 300 bar composite**	**9 l - 300 bar composite**
RN T1	●	●	●
RN	●	●	●
RN FR T2	●	●	●
RN FR	●	●	●
RN BIBO		●	●
RN FR BIBO		●	●

	Masks													
Models	**TR 82 A**	**TR 82 A CL3+**	**TR 82 A E CL3+**	**TR 82 B**	**TR 82 B CL3+**	**TR 82 B E CL3+**	**TR 2002 A CL2**	**TR 2002 A CL3**	**TR 2002 S A CL3**	**TR 2002 A CL3+**	**TR 2002 BN CL2**	**TR 2002 BN CL3**	**TR 2002 S BN CL3**	**TR 2002 BN CL3+**
RN T1	●			●			●				●			
RN	●			●				●	●			●	●	
RN FR T2		●	●		●	●				●				●
RN FR		●	●		●	●				●				●
RN BIBO	●			●				●	●			●	●	
RN FR BIBO		●	●		●	●				●				●

The demand valve will be type A or B depending on the chosen mask.

	Accessories						
Models	**alarm suppl.**	**Auxiliary 2°outlet**	**escape hood for 2° operator**	**kidney belt**	**Excess flow valve**	**4 way valve**	**ATEX certification**
RN T1		●	●		●	●	●
RN	●	●	●	●	●	●	●
RN BIBO	●	●	●	○	●	●	
RN FR T2	●	●	●		●	●	●
RN FR	●	●	●	●	●	●	●
RN FR BIBO	●	●	●	○	●	●	

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