

closed breathing circuit
reliable
SCBA
regenerative
cartridge
escape
device
unique training equipment
lightweight
antistatic
soda lime absorber
fast donning
comfortable harness
antifogging
SCSR
solution
closed breathing circuit
unique training equipment
soda lime absorber
automatic starter
testing smoke
device hood
scratch proof shield
catalogue
closed breathing
circuit
automatic starter
large speech diaphragm
oxygen booster
soggles
antistatic
solution
unique training equipment
soda lime absorber
automatic starter
SCBA
scratch proof shield

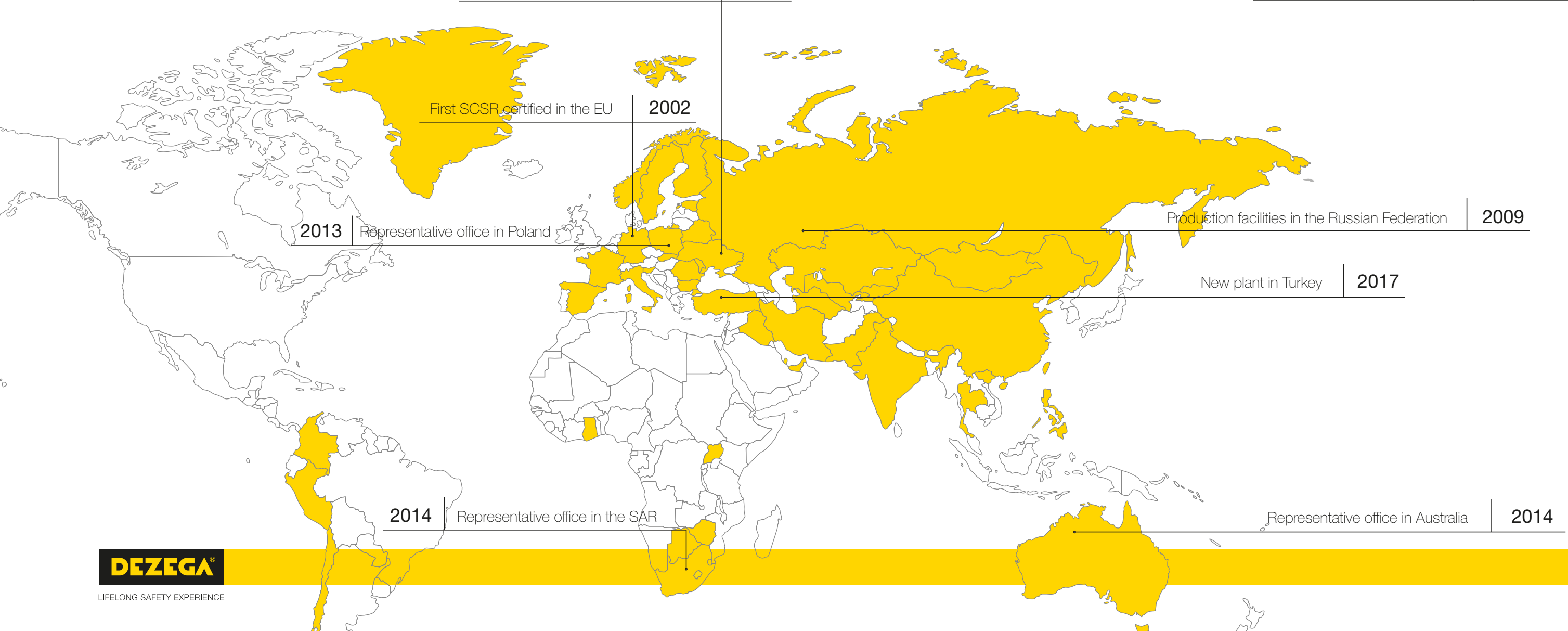
DEZEGA

LIFELONG SAFETY EXPERIENCE

The story goes back to 1907, when the first mine rescue station was founded in Makeievka, in the south of the Russian Empire. A breathing apparatus repair work was part of it.

We consider 1960 our founding year. That is the year we created our own first breathing apparatus. Since then, we have manufactured over 7 million self-rescuers. Every day over 500 thousand self-rescuers made by DEZEGA manufacturing units accompany workers into mines, tunnels, confined spaces and other dangerous areas. We estimate that about 800 of them were activated in 2017, making 800 human lives saved. And of this, we are most proud.

First mine rescue station in the Donetsk region, Russian Empire	1907
Work station to repair imported breathing apparatus	1920
Local production of breathing apparatus launched	1960
Donetsk Mine Rescue Equipment Plant founded	1966
The legendary P-30 SCBA launched	1980
Unification under the DEZEGA brand	2014



DEZEGA BREATHING EQUIPMENT IS SUITABLE FOR

	underground coal, metal and mineral mining	
	tunnel construction and maintenance	
	oil and gas extraction and processing	
	escape of untrained users from fire and smoke	
	operation and escape from other confined spaces	



An environment or atmosphere that is **IMMEDIATELY DANGEROUS TO LIFE AND HEALTH** may result from fire, explosion, gas emission. Inhaling such air may cause burns, poisoning and even death.



A HIGH CONCENTRATION OF TOXIC GASES can exist in mine emergencies or fires.



When **DEFICIT OF OXYGEN**, oxygen has burned off or has been displaced by heavy gases, e.g. methane

A user may use a FILTERED RPE if the toxic gas is predictable and the user is equipped with a corresponding filter able to neutralize this gas; and if oxygen concentration in the filtered air is sufficient for human breathing. If, however, a toxic gas is not preliminarily known and there is a risk of oxygen deficiency, it is recommended to use **CLOSED-CIRCUIT** respiratory protective equipment.



With a **CLOSED-CIRCUIT** breathing apparatus or escape device, the user does not inhale outside gases or exhale them into the atmosphere. Instead, their breathing organs are completely isolated. The mechanics of such an apparatus or device provides the user with both an oxygen source and a carbon dioxide neutralizer (or scrubber).

The source of oxygen in a closed-circuit apparatus can be one of two types.

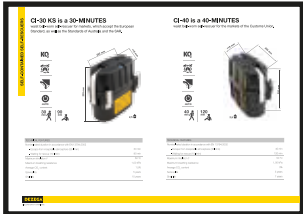




CHEMICALLY BOUND OXYGEN is based on potassium superoxide. Reacting with carbon dioxide exhaled by the user, it absorbs carbon dioxide and releases oxygen. Breathing air circulates in the closed breathing circuit and goes through a regenerative cartridge, thus getting rid of carbon dioxide and becoming enriched with oxygen. This reaction generates heat, and the air inhaled in a closed-circuit device is usually warmer than the atmosphere.



COMPRESSED OXYGEN is pumped into the cylinder under pressure. Going through a complex system of valves and reducers, it mixes with the breathing air exhaled by the user. Soda lime absorber neutralizes the carbon dioxide. The supply of air in a compressed oxygen apparatus is significantly larger than in a compressed air apparatus of similar size and weight.

These and other icons on the pages of this brochure stand for specific features and benefits of each product.



 <p>AUTO</p>	<p>Potassium superoxide in a regenerative cartridge is activated by moisture. In self-rescuers equipped with an AUTOMATIC STARTER, the reaction of oxygen generation starts automatically when the self-rescuer is donned. In some self-rescuers, the user has to inhale and exhale several times into the breathing system.</p>
	<p>A MOISTURE INDICATOR is a transparent capsule with hydrophobic material installed in a self-rescuer casing. If the indicator changes color from blue to white or pink, this means that moisture has gotten into the capsule. There is a risk of case leakage and untimely cartridge activation. The self-rescuer must be tested with a DEZEGA testing unit.</p>

The NOMINAL RATED DURATION

is the length of time when a self-rescuer will provide the needed amount of oxygen and effectively neutralize carbon dioxide. Nominal rated duration of a self-rescuer is measured with specific equipment, which imitates the process of human breathing. The equipment settings and measuring procedure are determined by the standards to which a self-rescuer corresponds.



The human body needs 2-3 times more oxygen when actively walking compared to at rest. Rated duration for escape and waiting for rescue are always measured separately and have different values.

The basic characteristics of a self-rescuer (e.g., nominal rated duration, carbon dioxide content in the breathing air, breathing resistance) are measured according to a procedure described in a **STANDARD**. Some standards also require specific features (e.g., moisture indicator, automatic starter). For each self-rescuer, we indicate a standard to which it corresponds.

WEARING

DEZEGA shoulder belt worn self-rescuers are units with a rated duration of 50-70 minutes and weight under 3 kg. The advantage of such a way of wearing is a very fast donning procedure without the need to remove the helmet. 30 - 40 min self-rescuers under 2,5 kg are worn on the waist belt. They do not hamper the worker's movements and are easily removed from the belt loops in an emergency.



GOGGLES

In case of dense smoke or irritating gas emissions, it is important to protect the worker's eyes as well. Most DEZEGA self-rescuers contain protective goggles with antifogging coating to improve vision during an escape.



ABRASION AND ANTI-DEFORMATION RESISTANCE

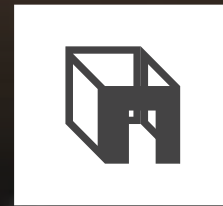
For DEZEGA engineers, research on underground conditions is always in focus. The cases of all self-rescuers are made of anti-deformation and abrasion resistant materials. For mines with highly abrasive surfaces and narrow passageways, DEZEGA offers self-rescuers in special reinforced cases made from metal or plastic with metal stiffeners.



UPPER POSITION OF THE BREATHING BAG

DEZEGA self-rescuers ensure an optimum field of vision during escape. Inflated bags do not add to the bulk of a self-rescuer case and do not hinder nor obscure visibility.

Self-contained self-rescuers ensure that the wearer has enough breathing air to escape from an area where the atmosphere is immediately dangerous to life and health.



Apart from escape, a self-rescuer enables a user to wait safely for help from a professional mine rescue team. The human need for oxygen is different when actively walking and when waiting. DEZEGA self-rescuers rated working duration varies from 30 to 180 minutes depending on the model and the way of usage.

Self-rescuers are not intended for performing any kind of operation, but only for escape or waiting for rescue.

To train donning and breathing in a self-rescuer, use DEZEGA training equipment and materials.

BENEFITS

- Abrasion and anti-deformation proof antistatic cases
- Donning time for a trained user under 15 seconds
- Training units replicating all aspects of donning and breathing in a self-rescuer
- Breathing circuit protected from regenerative product particles and dust
- Reflective elements make the wearer more noticeable
- Optimum field of vision during escape
- Easy handling and maintenance
- Safe disposal



1PVM KS

This shoulder belt worn self-rescuer is made for the European market and other markets which accept the European Standard. Recommended for routes of escape of up to 60 minutes and for cache storage.



TECHNICAL FEATURES

Nominal rated duration in accordance with EN 13794:2002

- Escape from irrespirable atmosphere (35 l/min)	60 min
- Waiting for rescue (10 l/min)	180 min
Maximum inhalation t°	50 °C
Maximum breathing resistance	0,75 kPa
Volume of breathing bag	6 l
Average CO ₂ content	1,5%
Weight carried	3 kg
Weight donned	2,65 kg
Service life	5 years
Shelf life	10 years

GORNIAK AND GORNIAK-2

These shoulder belt worn self-rescuers are made for the markets of the Customs Union with rated working durations of 60 and 70 minutes, respectively.



TECHNICAL FEATURES

Nominal rated duration in accordance with TR CU 019/2011

	GORNIAK	GORNIAK-2
- Escape from irrespirable atmosphere	60 min	70 min
- Waiting for rescue	300 min	300 min
Maximum inhalation t°	55 °C	55 °C
Maximum breathing resistance	0,98 kPa	0,98 kPa
Volume of breathing bag no less than	5 l	5 l
Moisture indicator	optional	optional
Protective goggles	optional	yes
Weight carried	3 kg	3 kg
Weight donned	2,65 kg	2,65 kg
Service life	5 years	5 years
Shelf life	5,5 years	5,5 years

Ci-30 KS

This 30-minute waist belt-worn self-rescuer is made for markets which accept the European Standard, as well as the Standards of Australia.



TECHNICAL FEATURES

Nominal rated duration in accordance with EN 13794:2002

- Escape from irrespirable atmosphere (35 l/min)	30 min
- Waiting for rescue (10 l/min)	90 min
Maximum inhalation t°	50 °C
Maximum breathing resistance	1,00 kPa
Average CO ₂ content	1,5%
Weight carried	2,5 kg
Weight donned	2,05 kg
Service life	5 years
Shelf life	10 years

Ci-40

This 40-minute waist belt-worn self-rescuer is for markets in the Customs Union.



TECHNICAL FEATURES

Nominal rated duration in accordance with TR CU 019/2011

- Escape from irrespirable atmosphere (35 l/min)	40 min
- Waiting for rescue (10 l/min)	120 min
Maximum inhalation t°	50 °C
Maximum breathing resistance	1,00 kPa
Average CO ₂ content	1,5 %
Weight carried	2,5 kg
Weight donned	2,05 kg
Service life	5 years
Shelf life	7 years

ROXY 30

This new 30-minute belt-worn self-rescuer is made for markets in Africa which accept the SAR Standard. An abrasion-proof metal casing is dislodged after donning. The self-rescuer is very light and compact during escape.



TECHNICAL FEATURES	VALUE AT 1 MIN BREATHING VOLUME	35 L/MIN	50 L/MIN
Nominal rated duration		30 min	18 min
Maximum breathing resistance		1,0 kPa	1,5 kPa
Maximum inhalation t°		65 °C	
Average CO ₂ content		1,5 %	
Maximum CO ₂ content		3 %	
Weight carried		2 kg	
Weight donned		1,25 kg	
Volume of the breathing bag		5 l	

ROXY 40

This 40-minute waist belt-worn self-rescuer is made for markets in Africa which accept the SAR Standard.



TECHNICAL FEATURES	VALUE AT 1 MIN BREATHING VOLUME	35 L/MIN	50 L/MIN
Nominal rated duration		40 min	20 min
Maximum breathing resistance		1,0 kPa	1,5 kPa
Inhalation temperature		50 °C	60 °C
Maximum temperature on the surface of the case		120 °C	140 °C
Maximum CO ₂ content		3 %	
Weight carried		2,5 kg	
Weight donned		2,05 kg	
Volume of the breathing bag		6 l	
Service life		10 years	
Shelf life		10 years	

ROXY 40.R

This 40-minute waist belt-worn self-rescuer is made for markets in Africa which accept the SAR Standard. Reinforced against abrasion and deformation, this self-rescuer is a perfect choice for mines with highly abrasive surfaces and other extreme environments.



TECHNICAL FEATURES	VALUE AT 1 MIN BREATHING VOLUME	35 L/MIN	50 L/MIN
Nominal rated duration		40 min	20 min
Maximum breathing resistance		1,0 kPa	1,5 kPa
Total breathing resistance		1,6 kPa	
Maximum inhalation t°		50 °C	60 °C
Maximum temperature on the surface of the case		120 °C	140 °C
Maximum CO ₂ content		3 %	
Weight carried		2,5 kg	
Weight donned		2,26 kg	
Volume of the breathing bag		6 l	
Service life		10 years	
Shelf life		10 years	

TRAINING EQUIPMENT

Reduce the risk of failure to don an SCSR and efficiently escaping from irrespirable environments.

People's behavior in an emergency is difficult to predict. Human instincts are sometimes counterintuitive. The best way to boost the chances for survival is training to don and breathe in a self-rescuer to develop learned behavior.

BENEFITS

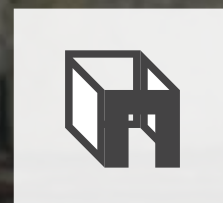
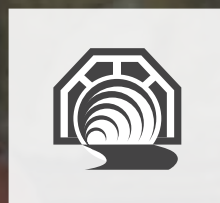
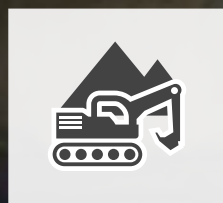
- exactly replicates the particularities of donning and breathing in any DEZEGA waist belt worn SCSR
 - humidity
 - temperature
 - breathing resistance
- reusable case



TECHNICAL FEATURES	TRAINER	TRAINER C / ROXY40T
Weight and dimensions	Identical to SCSR	
Breathing system options		
Reusable imitating cartridge to train carrying, donning and shoulder belt adjustment, easily reassembled for reuse	0 min, not for escape	
Individual training kits		
- with regenerative cartridge to train breathing	15 min	
- with regenerative cartridge to train breathing and trial escape	50 min	30 min

Training equipment is a part of a training service package or can be supplied separately.

A compressed oxygen closed-circuit breathing apparatus is a perfect choice for prolonged rescue operations and for maintenance and repair works conducted in an atmosphere immediately dangerous to life and health. Such operations involve high oxygen consumption. A compressed oxygen breathing apparatus will provide the wearer with the required oxygen for a period of 2 to 4 hours, depending on the model.



FEATURES AND BENEFITS

- Smallest and lightest in their class
- Reliable mechanical structure
- Easy assembling, disassembling and maintenance
- Mechanical alarms
- Antistatic and flame-resistant harness

DEZEGA closed-circuit breathing apparatus are small and lightweight enough to accompany rescuers into the most hard to get to and remote places.

Features and benefits of all DEZEGA closed-circuit breathing apparatus are the results of close cooperation between DEZEGA engineers, mine rescuers and first responders all over the world.

P-30 EX

This 4-hour compressed oxygen closed-circuit SCBA with normal pressure in the breathing circuit is the perfect choice for prolonged rescue operations, maintenance and repair works conducted in an atmosphere immediately dangerous to life and health.



TECHNICAL FEATURES in accordance with EN 145:1997+A1:2000, TR CU 019/2011	
Weight of fully charged breathing apparatus excluding full face mask, ice, and cooler cover	11,8 kg
Weight of full face mask	0,7 kg
Soda lime cartridge capacity	2,3 kg
Oxygen volume	400 l
Constant oxygen flow	1,4 l/min
Emergency oxygen flow	80 l/min
Useful capacity of breathing bag	5 l
Dimensions	450x375x165 mm

P-30 / P-34

The CC SCBAs provide an oxygen supply for 4 and 2 hours, respectively. They correspond to the TR CU standard.



TECHNICAL FEATURES in accordance with TR CU 019/2011	P-30	P-34
Weight of fully charged breathing apparatus without full-face mask	12,95 kg	9,3 kg
Weight of full-face mask / headgear	0,7 / 1,6 kg	0,7 / 1,6 kg
Soda lime cartridge capacity	2 kg	1,6 kg
Oxygen volume	400 l	200 l
Constant oxygen flow	1,4 l/min	1,4 l/min
Emergency oxygen flow	150-60 l/min	150-60 l/min
Useful capacity of breathing bag	5 l	5 l
Dimensions	450x375x165 mm	450x340x140 mm

ZIR-1

Basic full-face mask. Fits a closed-circuit SCBA.

The mask protects the wearer’s breathing organs and eyes in an irrespirable and irritating atmosphere during

- rescue operations
- maintenance and repair works

- made of fine rubber or silicone
- comes with shield wipe
- head harness easily adjusted

Corresponds to TP CU 019/2011, EN-136 class 3, GOST P12.4.189-99 category 3



D-VISION

Professional full-face mask. Specifically designed to ensure optimum breathing conditions in any DEZEGA compressed oxygen SCBA and fits other closed-circuit SCBAs.

Includes features of basic model, plus

- shock and scratch proof shield
- large speech diaphragm to enhance speech articulation

6 options to fit individual face metrics.

Corresponds to DSTU EN 136:1998 class 3



CLEAR-VISION

Antifogging solution. Saturate the shield wipe before donning the mask to prevent fog condensation.



D-SORB

Soda lime absorber.

The user of a compressed oxygen breathing apparatus exhales a mixture of gases, including carbon dioxide. In a closed circuit apparatus this gas cannot be released into the atmosphere. Instead, it must be neutralized with a specific chemical agent, usually called an absorber or scrubber.

D-SORB granules are ideally shaped and fitted in a cartridge so as to absorb the maximum amount of carbon dioxide. Optimal formula and granulometrics ensure comfortable breathing.

BENEFITS

- provides for low breathing resistance in the P-30EX and other DEZEGA CC SCBAs
- high absorbance capacity
- rubbing endurance



TECHNICAL FEATURES	
Absorber	Multicomponent agent, containing 96% of $\text{Ca}(\text{OH})_2$ and 4 % of NaOH
Granulometric composition	2,8 to 5,5 mm – not less than 90 %
Granules shape	Irregular cylinder
Rubbing endurance	80 %
Storage temperature	from -30 to +50 °C (-20 °F ... 120 °F)
Package	Steel barrel 40 kg
	Plastic canister 18 kg
	Plastic canister 4,5 kg

TESTING UNIT

Ensures that a closed-circuit SCBA is in workable condition and each component is accurately tuned.

TESTING AN ASSEMBLED
CLOSED-CIRCUIT SCBA:

- tightness of the air system
- constant oxygen flow by reducer
- pressure to activate relief valve
- pressure to activate demand valve
- pressure when demand valve provides given oxygen flow
- oxygen flow by emergency valve



TESTING CLOSED-CIRCUIT
SCBA COMPONENTS

- oxygen flow by emergency valve and demand valve
- tightness of regenerative cartridge and cooler
- pressure to activate reducer safety valve

DEZEGA testing unit will check any DEZEGA SCBA as well as closed or open circuit SCBAs by other manufacturers.

SERVICE AND MAINTENANCE

Chemical oxygen is moisture-sensitive. Although DEZEGA SCSR cases are leak-proof, improper storage and wearing might cause unobservable leaks. A moisture indicator reacts to the slightest degree of leakage.

To ensure that the case has no critical damage and the SCSR is in working condition, check it with the DEZEGA testing device. Use for regular inspection or in case of moisture indicator white or pink.



In addition to service equipment, DEZEGA offers the following SCSR services:

- Annual testing of protective capability and work readiness
- Training
- Regular leak-tightness control
- Repair of damaged devices
- Disposal

Timely service and maintenance of all DEZEGA escape solutions equipment ensure its efficiency. DEZEGA recommends entrusting the service of all equipment to DEZEGA accredited service personnel.

Please, check the list of service facilities at www.dezega.com or ask for details at info@dezega.com.

SPI-20M AND SPI-25M

are smoke hoods for the escape from atmosphere, immediately dangerous to life and health. Donning is so simple that no previous training is necessary. SPI-20M and SPI-25M are suitable for industrial facilities with no specific requirements to RPE, public places and offices, especially in high-rise buildings.



TECHNICAL FEATURES	SPI-20M	SPI-25M
Nominal rated duration		
- Escape from irrespirable atmosphere (walking)	20 min	25 min
- Waiting for rescue (sitting)	60 min	75 min
Breathing resistance at average physical load	0,75 kPa	0,75 kPa
Maximum inhalation t°	50 °C	50 °C
Weight donned	1,4 kg	1,4 kg
Size of package	172 x 172 x 172 mm	172 x 172 x 172 mm

ABOUT US

GLOSSARY

SELF-CONTAINED SELF-RESCUERS

- 1 PVM KS
- GORNIAK AND GORNIAK-2
- Ci-30 KS
- Ci-40
- ROXY 30
- ROXY 40
- ROXY 40.R

CLOSED-CIRCUIT SCBA

- P-30 EX
- P-30 AND P-34

AUXILIARY EQUIPMENT

- ZIR-1
- D-VISION
- CLEAR-VISION
- D-SORB
- TESTING UNIT

CIVIL SELF-RESCUERS

- SPI-20M AND SPI-25M



All offers are subject to availability. DEZEGA reserves the right to alter product offerings and specifications at any time without notice. DEZEGA is not responsible for photographic or typographic errors. DEZEGA makes no representation or warranty regarding third-party products or services.

www.dezega.com
info@dezega.com