

reliable SCBA cartridge antistatic closed breathing circuit soda lime absorber

regenerative booster unique training equipment escape device fast donning comfortable harness antifogging SCSR solution

automatic starter testing smoke device hood scratch proof shield

SCSR catalogue closed breathing automatic starter circuit large speech diaphragm oxygen booster goggles

lightweight regenerative scrubber antifogging antistatic solution

escape unique training equipment device soda lime absorber automatic starter

closed breathing circuit

SCBA

DEZEGA






LIFELONG SAFETY EXPERIENCE

DEZEGA

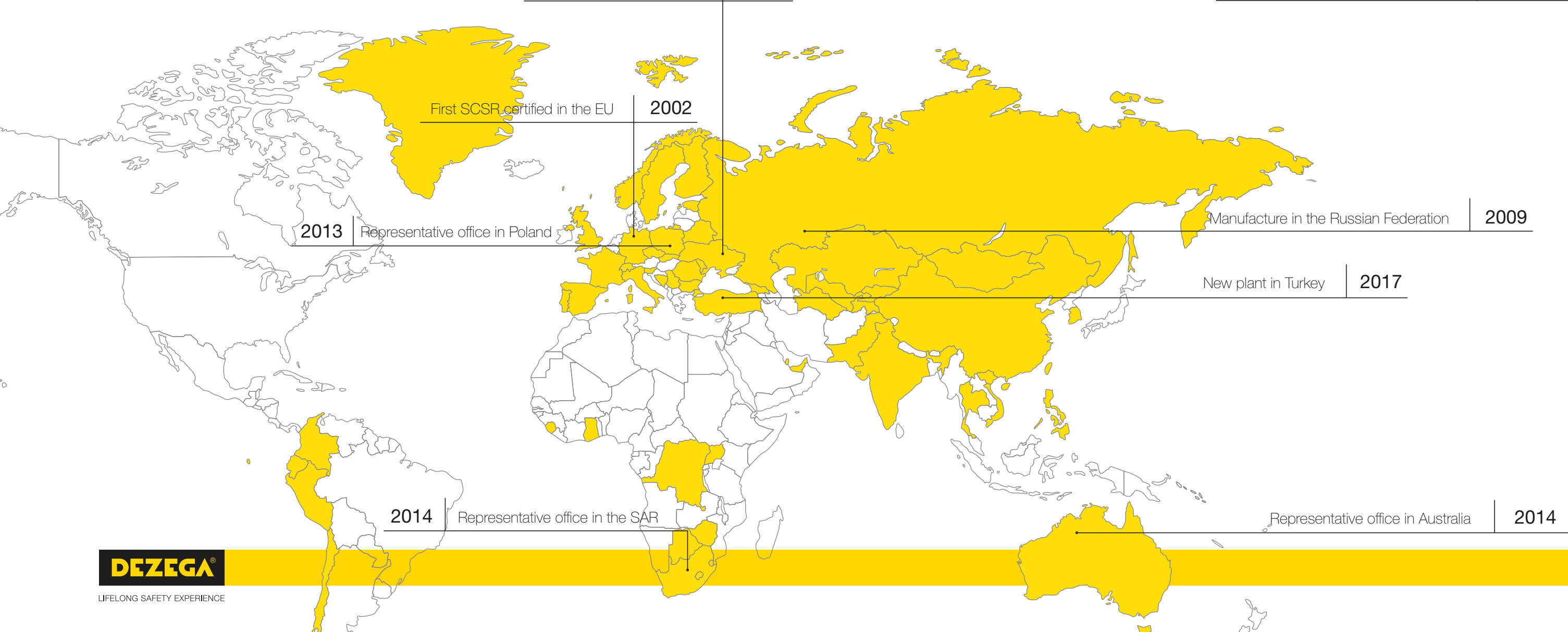
LIFELONG SAFETY EXPERIENCE

We consider 1966 our founding year. That is the year when Donetsk Mine Rescue Equipment Plant, DZGA, was established. 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.

DEZEGA BREATHING EQUIPMENT IS INTENDED FOR

		underground coal and metal miners	
	tunnel construction and maintenance		
		oil and gas extraction and processing	
	escape from fire and smoke		
		operation and escape from other confined spaces	

Donetsk Mine Rescue Equipment Plant founded	1966
The legendary P-30 SCBA launched	1980
Re-branding into DEZEGA	2014





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 other 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 is usually 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.

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



	<p>Potassium superoxide in a regenerative cartridge is activated by exhalation. In self-rescuers equipped with an AUTOMATIC STARTER, the reaction of oxygen generation starts automatically when the self-rescuer is donned. In some types of self-rescuers, the user has to 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 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>
<p>The NOMINAL RATED DURATION</p>	
<p>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.</p>	
	<p>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.</p>

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.

<p>WEARING</p> <p>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.</p>	
	<p>GOGGLES</p> <p>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.</p>
	<p>ABRASION AND ANTI-DEFORMATION RESISTANCE</p> <p>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.</p>

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 300 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 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	750 Pa
Volume of breathing bag	6 l
Average CO ₂ content	1,5%
Weight carried	3 kg
Weight donned	2,65 kg
Service life	10 years*
Shelf life	10 years

* On condition of wearing one 8-hour shift per day

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

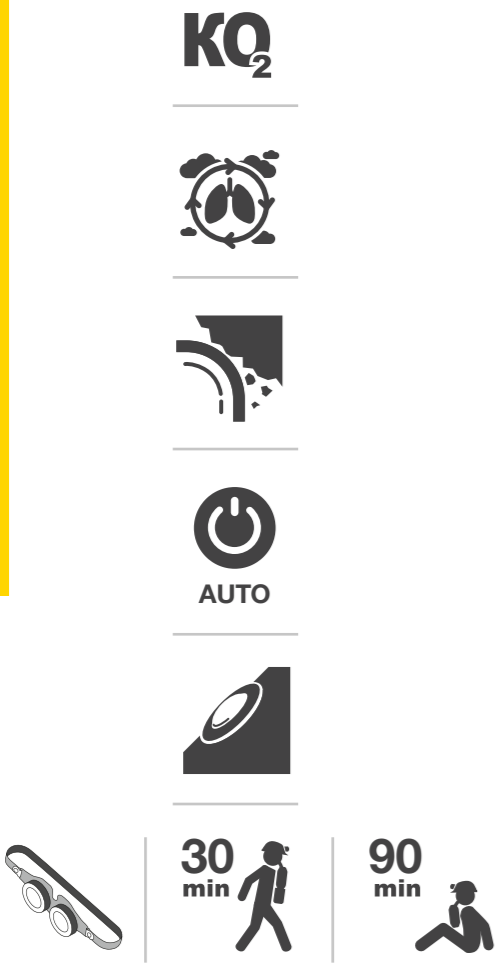
Nominal rated duration in accordance with TR CU 019/2011

	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	980 Pa	980 Pa
Volume of breathing bag, no less than	5 l	5 l
Moisture indicator	no	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

* On condition of wearing one 8-hour shift per day

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.

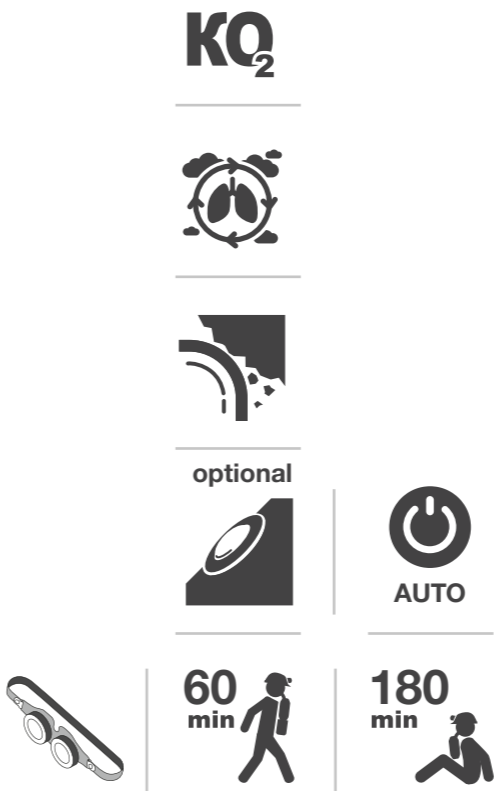


TECHNICAL FEATURES	
Nominal rated duration in accordance with EN 13794:2002 and AS/NZS 1716:2012	
- Escape from irrespirable atmosphere (35 l/min)	30 min
- Waiting for rescue (10 l/min)	90 min
Maximum inhalation t°	50 °C
Maximum breathing resistance	1000 Pa
Average CO ₂ content	1,5%
Weight carried	2,5 kg
Weight donned	2,05 kg
Service life	10 years*
Shelf life	10 years

* On condition of wearing one 8-hour shift per day

CARBO-60

This newest self-rescuer grants 60 minutes of active breathing according to the European standard. Compact and ergonomic, this SCSR provides comfortable breathing conditions to escape from dangerous zone. The starter is on as soon as the user tears off the lid, and the first portion of breathing oxygen is ready immediately.



TECHNICAL FEATURES	
Nominal rated duration in accordance with EN 13794:2002 and AS/NZS 1716:2012	
- Escape from irrespirable atmosphere (35 l/min)	60 min
- Waiting for rescue (10 l/min)	180 min
Maximum breathing resistance	750 Pa
Maximum inhalation t°	50 °C
Maximum CO ₂ content	3%
Average CO ₂ content	1,5%
Weight	2,75 kg
Operating temperature	from -5 to +60 °C
Service life	10 years*
Shelf life	10 years

* On condition of wearing one 8-hour shift per day

ROXY 30

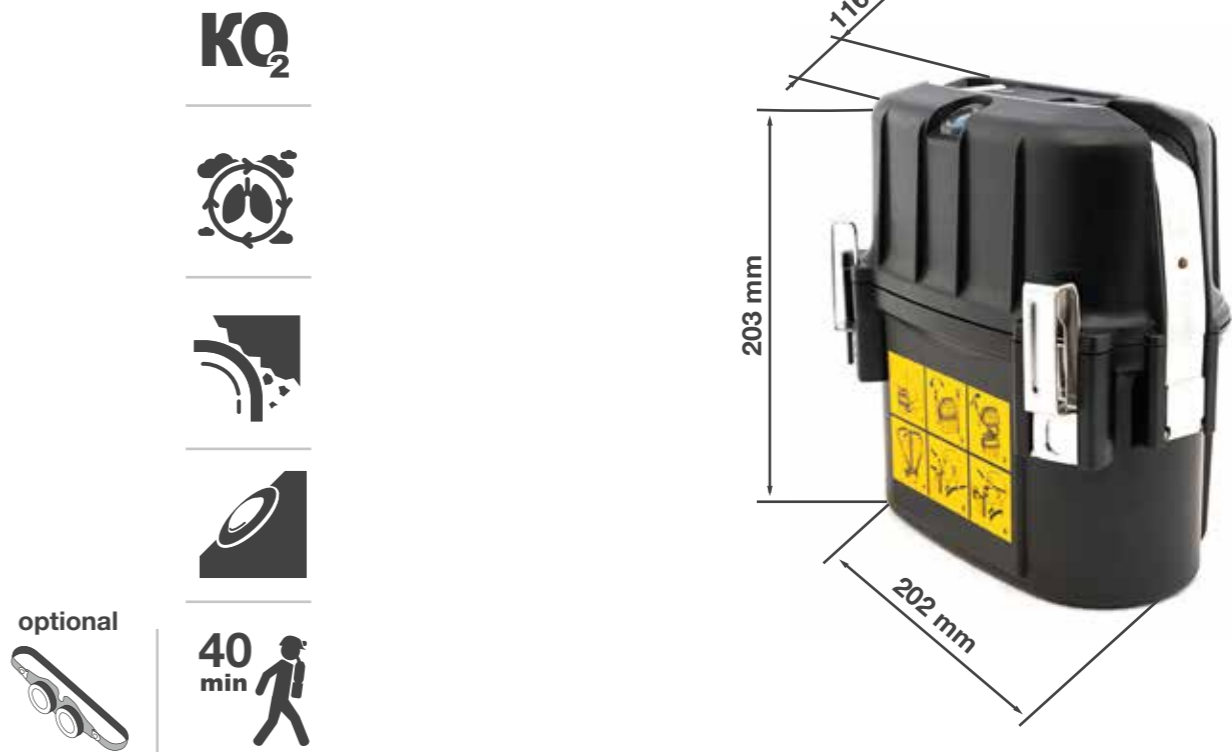
This new 30-minute belt-worn self-rescuer is made for markets in Africa which accept the SAR Standard. An abrasion-proof metal casing is dislodged after donning. The self-rescuer is very light and compact during escape.



TECHNICAL FEATURES	VALUE AT 1 MIN BREATHING VOLUME	35 L/MIN	50 L/MIN
Nominal rated duration in accordance with AS/NZS 1737:2017		30 min	18 min
Maximum breathing resistance		1000 Pa	1500 Pa
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	
Service life		5 years	
Shelf life		6 years	

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 in accordance with AS/NZS 1737:2008		40 min	20 min
Maximum breathing resistance		1000 Pa	1500 Pa
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	
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.

KO₂



optional



40 min



TECHNICAL FEATURES	VALUE AT 1 MIN BREATHING VOLUME		35 L/MIN	50 L/MIN
Nominal rated duration in accordance with AS/NZS 1737:2017			40 min	20 min
Maximum breathing resistance			1000 Pa	1500 Pa
Total breathing resistance			1600 Pa	
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	

TRAINING EQUIPMENT

TRAINER, TRAINER C AND CARBO-T

Reduces the risk of failure to don an SCSR and efficiently escape 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 replicate the particularities of donning and breathing in DEZEGA SCSRs:
 - humidity
 - temperature
 - breathing resistance
- reusable case



DEZEGA CARBO-T to train for CARBO-60:

	to train donning	to train breathing	to train trial escape
with imitating cartridge	recommended		

DEZEGA TRAINER C to train for CI-30 KS:

	to train donning	to train breathing	to train trial escape
with imitating cartridge	recommended		
with 15 min training kit	allowed	recommended	
with 30 min training kit	allowed	recommended	

DEZEGA TRAINER to train for 1PVM KS:

	to train donning	to train breathing	to train trial escape
with imitating cartridge	recommended		
with 15 min regenerative cartridge or 15 min training kit	allowed	recommended	
with 35 min regenerative cartridge or 35 min training kit (under development)	allowed	recommended	
with 60 min regenerative cartridge or 60 min training kit	allowed	recommended	recommended

PGS-2, UPG, CARBOFIT-400 LEAK TESTING DEVICES

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.

Indicator blue, purple, white/no indicator



SCSR is tight, and only needs regular inspection according to the manual.

Indicator pink



There is a risk of leaking, the SCSR must be immediately checked for leakage with the DEZEGA testing device.

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 pink.



PGS-2

Leak testing device for shoulder belt worn self-rescuers 1PVM KS, GORNYAK, GORNYAK-2



UPG

Leak testing device for waist belt worn self-rescuers Ci-30 KS, Roxy 40



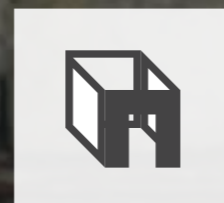
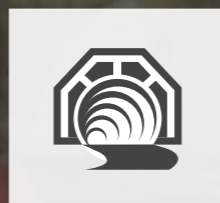
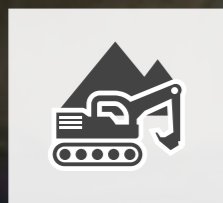
CARBOFit-400

Leak testing device for CARBO-60

DEZEGA provides the services of training underground workers and occupational safety and health instructors.

TECHNICAL FEATURES	PGS-2	UPG	CARBOFit-400
Chamber working pressure	5 кPa	5 кPa	5 кPa
Pressure measurement range	3,8–5,3 кPa	3,8–5,3 кPa	0–6 кPa
Manometer relative error	1,6%	1,6%	1,6%
Weight	7 kg	8 kg	9,5 kg

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 apparatuses 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. A compact and lightweight SCBA with optimal breathing conditions.



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 AND P-34

These closed-circuit SCBAs provide 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

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.

BENEFITS

- made of fine rubber or silicone
- comes with shield wipe
- head harness easily adjusted
- shock and scratch proof shield
- large speech diaphragm to enhance speech articulation

6 options to fit individual face metrics.

Corresponds to EN 136:1998, TR CU 019/2011



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 Ca(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

DEZEGA CheckUp TEST SET

The test set is intended to check the parameters of breathing apparatuses, full-face masks and artificial lung ventilation machines. Ensures that an 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

DH-1000

DEZEGA dummy head to check the tightness of full face masks



SPI-20M AND SPI-25M

Smoke hoods for 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.

KO₂



optional



AUTO



TECHNICAL FEATURES	SPI-20M	SPI-25M
Nominal rated duration		
- Escape from irrespirable atmosphere (walking)	20 min	25 min
- Waiting for rescue (sitting)	75 min	80 min
Breathing resistance at average physical load	750 Pa	750 Pa
Maximum inhalation t°	50 °C	50 °C
Weight donned	1,4 kg	1,4 kg
Size of package	204 x 129 x 158 mm	204 x 129 x 158 mm

ABOUT US

GLOSSARY

SELF-CONTAINED SELF-RESCUERS

1PVM KS

GORNIAK AND GORNIAK-2

Ci-30 KS

CARBO-60

ROXY 30

ROXY 40

ROXY 40.R

TRAINER, TRAINER C AND CARBO-T

AUXILIARY EQUIPMENT

PGS-2, UPG, CARBOFIT-400

CLOSED-CIRCUIT SCBA

P-30 EX

P-30 AND P-34

AUXILIARY EQUIPMENT

D-VISION

CLEAR-VISION

D-SORB

DEZEGA CheckUp

DH-1000

EMERGENCY ESCAPE SMOKE HOODS

SPI-20M AND SPI-25M



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