

BREATHING APPARATUS
WITH COMPRESSED OXYGEN

BREATHING APPARATUS
WITH COMPRESSED AIR

HOSE BREATHING
APPARATUS AND COMPRESSED
AIR SUPPLY SYSTEMS

FULL-FACE MASKS
AND RESPIRATORS

SELF-RESCUE BREATHING APPARATUS
WITH COMPRESSED AIR

TEST EQUIPMENT
AND
CONTROL SYSTEMS

CYLINDERS AND VALVES

BREATHING AND RESPIRATORY EQUIPMENT





Breathing and Respiratory Equipment PTS "OXI" - Breathing Apparatus with Compressed Oxygen

According to
GOST R 12.4.253-2011
requirements



PTS "OXI" are the 4-hour breathing apparatus with compressed oxygen with closed-cycle respiration under overpressure.

**FIRST RUSSIAN
OXYGEN APPARATUS
WITH OVERPRESSURE**

Technical characteristics of the PTS "OXI" apparatus:

- combined oxygen supply: continuous (1.7 ± 0.1 l/min) + pulmonary automatic;
- signalling about actuation with closed cylinder valves both when you breathe in and out;
- pulmonary ventilation providing overpressure under the mask: up to 85 l/min; the apparatus casing is made of antistatic material;
- the breathing bag volume, min. 5 l;
- casing overall dimensions: 570x380x210 mm;
- weight, max. 14 kg;
- oxygen reserve - 500 l;
- operated at an ambient temperature of minus 40 °C to plus 60 °C and relative humidity up to 95%;
- protective power time, min. 240 min.

PTS "OXI-fire-fighter" is a breathing apparatus with compressed oxygen with closed-cycle respiration under overpressure designed for respiratory and vision protection of fire-fighters against harmful impact of the unsuitable for breathing, toxic and smoke-filled gas environment by fire-fighting in buildings, structures and production facilities of different application.

**FIRST RUSSIAN
OXYGEN APPARATUS
WITH OVERPRESSURE**

PTS "OXI-mine-rescuer" is a self-contained breathing apparatus with compressed oxygen under overpressure designed for respiratory and vision protection of mine-rescuers against harmful impact of the unsuitable for breathing, toxic and smoke-filled gas environment by underground mine-rescuing and technical operations, including those under fire conditions in mines.

**Distinctive features
of the PTS "OXI-mine-rescuer":**

- combined oxygen supply: continuous (1.5 ± 0.1 l/min) + pulmonary automatic;
- the apparatus is equipped with shut-device to stop the oxygen supply to the pressure gauge through the high pressure hose in case it loses its leak tightness;
- the signalling device is equipped with a cut-off whistle valve to stop the oxygen supply to it with a view to the breathing oxygen economy.

**According to
GOST R 53256-2009
requirements**

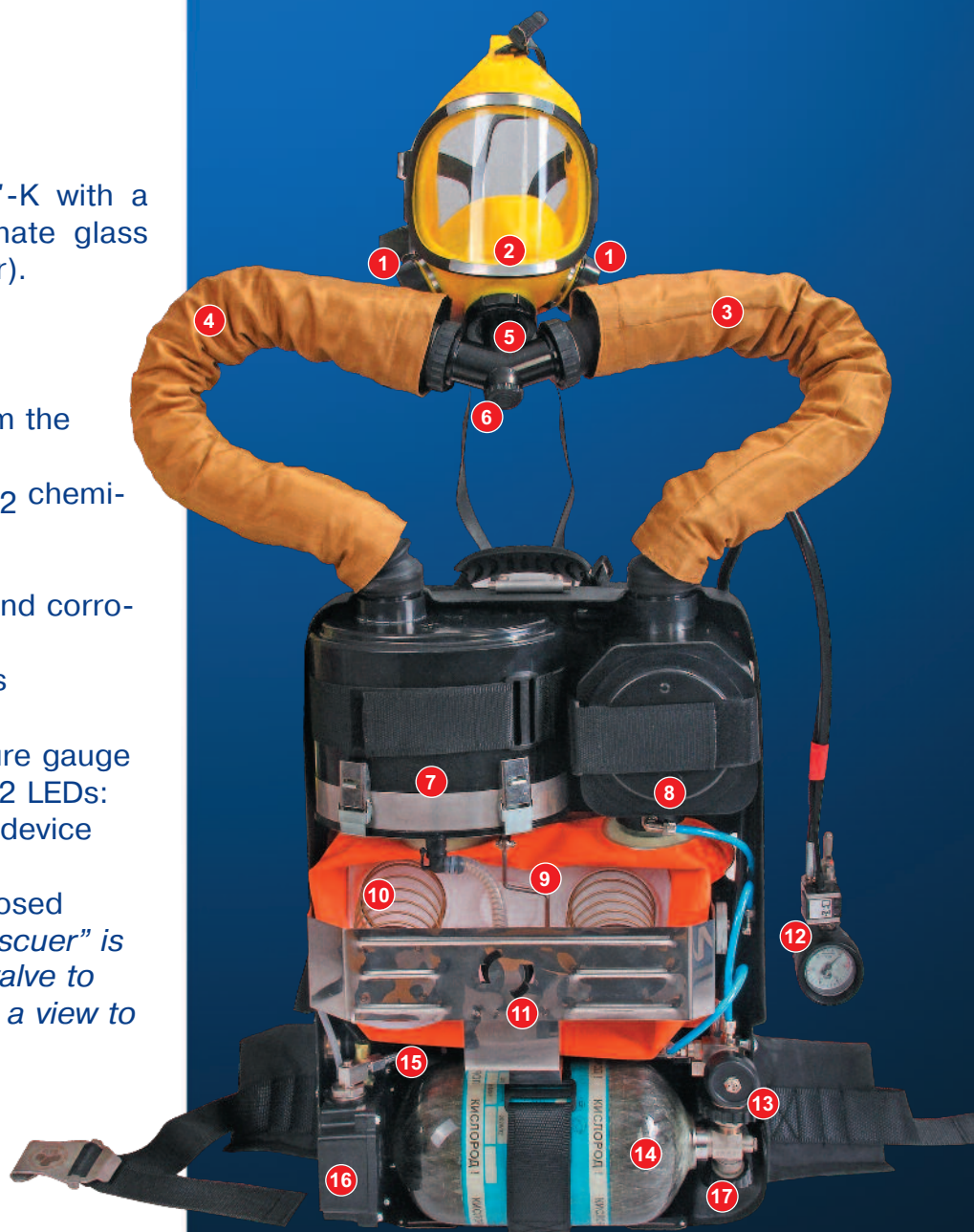


Internal arrangement

1. Intercom
2. Full-face mask PTS "Obzor"-K with a panoramic triplex or polycarbonate glass (with or without windscreen wiper).
3. Inhale hose
4. Exhale hose
5. Valve box
6. Plug for moisture removal from the valve box
7. Regenerative cartridge for CO₂ chemical absorber
8. Refrigerator
9. Breathing bag made of heat and corrosion resistant fabric
10. Breathing bag backup springs
11. Excess pressure valve
12. Signalling device with pressure gauge and indicator unit equipped with 2 LEDs:
first one - state of the signalling device battery charge,
second one - actuation with a closed cylinder valve (The "OXI-mine-rescuer" is equipped with a cut-off whistle valve to stop the oxygen supply to it with a view to the breathing oxygen economy)



EXTERNAL VIEW.
SUSPENSION SYSTEM



13. The monoblock includes: reduction gear with safety valve, bypass (The "OXI-mine-rescuer" is equipped with shut-device to stop the oxygen supply to the pressure gauge through the high pressure hose in case it loses its leak tightness)

14. Composite cylinder with compressed oxygen with a capacity of 2.5 l

15. Valve for moisture removal from the breathing bag

16. Signalling device announcing actuation with a closed valve

17. The apparatus casing is made of anti-static material

URP



URP is firefighter's respiratory support package designed for oxygen (oxygen-air) therapy and manual artificial lungs ventilation at incident scene. Firefighter's respiratory support package constitutes a set of complementary parts.

Transportation bag designed in the shape of a cylinder. It is made of high quality durable material and equipped with a zipper type "lightning" with two locks, two handles and a shoulder strap for carrying. The bag is equipped with internal fastening for oxygen cylinder and pockets for placing equipment. The bag is bright blue color with two transversal light reflective signal stripes. The package bag material protects the contents of the bag from rain and eventual shocks.

2.5-liter metal composite oxygen cylinder with working pressure of 19.6 MPa (200 bar) is meant to be used in the capacity of oxygen source. Medical oxygen (GOST 5583-78) is a component of breathing gas mixture. Oxygen storage is 500 dm³. The reducer operation provides oxygen supply and flow adjustment with visual control on the flow indicator scale. The reducer is operable at oxygen pressure in the cylinder from 19.6 to 1.0 MPa and provides a smooth change of oxygen supply from 0 to 25 l/min.

Package weight: 5.5 kg. Bag dimensions: diameter – 220 mm, length – 540 mm. The service life is 5 years.



Square bag version
(optional)



PTS "Profi-M"

PTS "Profi-M" Breathing Apparatus are developed using the latest design solutions and designed for respiratory and vision protection of persons against harmful impact of the unsuitable for breathing, toxic and smoke-filled gas environment by fire-fighting in buildings and production facilities of different application at an ambient tem

- ① A full-face mask PTS "OBZOR"-S with a shock-proof glass part of improved shape provides a field of view over 85% and does not create distortions.
- ② A lung-governed oxygen admission valve with threaded connection maintains uniform overpressure in the under-mask frontage space under various respiratory loads.

- ③ A cylinder valve has a strengthened design and high operational reliability. The design is provided with an indicator and safety device designed for cylinder protection from damage due to uncontrolled increase of pressure in it.

- ④ A high-capacity reduction gear does not require service adjustment and ensures improved respiratory parameters under various loads. a high-flow safety valve automatically releases the pressure in the apparatus in case of emergency situation.

A self-centering spring-loaded reduction gear clutch considerably simplifies coupling with the cylinder valve.



⑤ An original suspension system with heat- and fire-resistant belts and ergonomically shaped back-piece with due account for anatomic features of a person equipped with a chest strap, wide soft shoulder and waist pads to focus the unit's weight on the hips, significantly reduce the load on the back and ensure maximum user comfort.

It is possible to fix the lung-governed oxygen admission valve on the waist belt while waiting for the application or in transit.

⑥ A multi-purpose attachment system suitable for all types of cylinders is notable for simple and reliable fixation.

⑦ A life-saving appliance of hooded type with overpressure and constant air flow is designed in such a way that it can be put on as easily as possible irrespective of the face shape and head size.



⑧ A quick-coupling adapter used for connection of the life-saving appliance provides connection of any life-saving appliance with a unified connector.

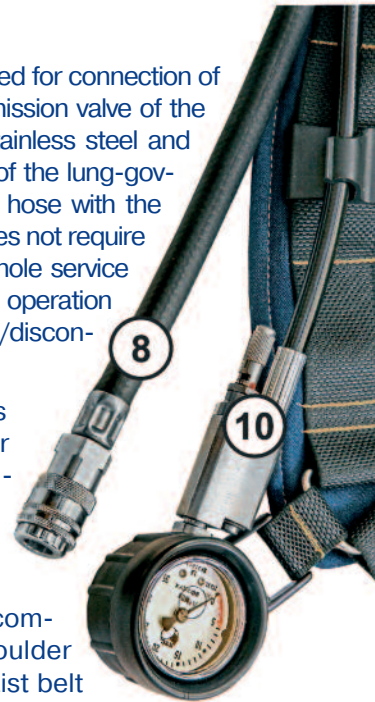
PTS "Profi-A"



⑨ A quick-coupling adapter used for connection of the lung-governed oxygen admission valve of the main face-piece is made of stainless steel and provides a reliable connection of the lung-governed oxygen admission valve hose with the reduction gear. The adapter does not require any maintenance during the whole service life period and has an assigned operation time over 15 000 connection/disconnection cycles.

⑩ The signalling device is automatic and is notable for the original design, high quality and reliable operation. The pressure gauge has an accuracy class 1.6.

⑪ Newly designed buckles combined with an efficient shoulder straps fit technology and waist belt tension in two movements provide convenient and quick apparatus putting on and off.



PTS "Profi-A" breathing apparatus with compressed air ("Arctic") is designed on the basis of the apparatus PTS "Profi-M" and rated for the use at an ambient air temperature of minus 50 to +60 °C and relative air humidity up to 98%.

The distinctive features of the breathing apparatus PTS "Profi-A" ensuring operability at extremely low temperatures are:

- the hoses and adapter of the lung-governed oxygen admission valve are made of silicone and have outer covers enabling to maintain their elasticity at low temperatures;
- all sealing elements are made of frost-resistant materials;
- silicone valves and perfect ventilation system protect the full-face mask glass piece from fogging when used at a temperature of minus 50°C

PTS "PROFI"-MT

"PROFI"-MT



A mobile receive and transmit station (MRTS)

"PROFI"-MT breathing apparatus is a modification of a mass produced apparatus "PROFI"-M.

The operation of the breathing apparatus "Profi"-MT together with the "Rescuer beacon" kit ensures the performance of the following functions:

- measurement and indication of the air pressure value in the cylinder (bar) and transmission of this information to the MRTS;
- calculation and indication of the remaining protective power time (min) and transmission of this information to the MRTS;
- automatic "Alert" signal generation in case the fire-fighter or the rescue worker does not move and transmission of this information to the MRTS;
- the "Alert" mode can be manually actuated by pressing the keys on the RB, herewith the signal is also transmitted to the MRTS;
- in the "Alert" mode, the RB generates sound and light announcement;



Rescuer beacon (RB)



- the RB generates a sound signal "All to the exit" when the corresponding signal is received from the MRTS.
- When used without the "Rescuer beacon" kit, the "Profi"-MT apparatus operates as a usual breathing apparatus of the "Profi"-M type.

PTS "AVIA"



PTS "Avia" breathing apparatus with compressed air for civil aviation services is designed for personal respiratory and vision protection when performing search and rescue operations in civil aviation, as well as during fire-fighting on aviation equipment and at the air complex production facilities at a temperature of minus 40 to +60 °C.

The apparatus is a self-contained tank breathing device with compressed air in the cylinder with an operating pressure of 29.4 MPa and overpressure under the face-piece providing additional protection system when working in highly toxic environments. The apparatus does not change its technical parameters after staying in the environment with a temperature of +200 °C for 60 s and withstands an open flame with a temperature of +850 °C for 5 s.

The apparatus are available in various options differing in packaging arrangement: different number of cylinders, ability to connect the life-saving device.

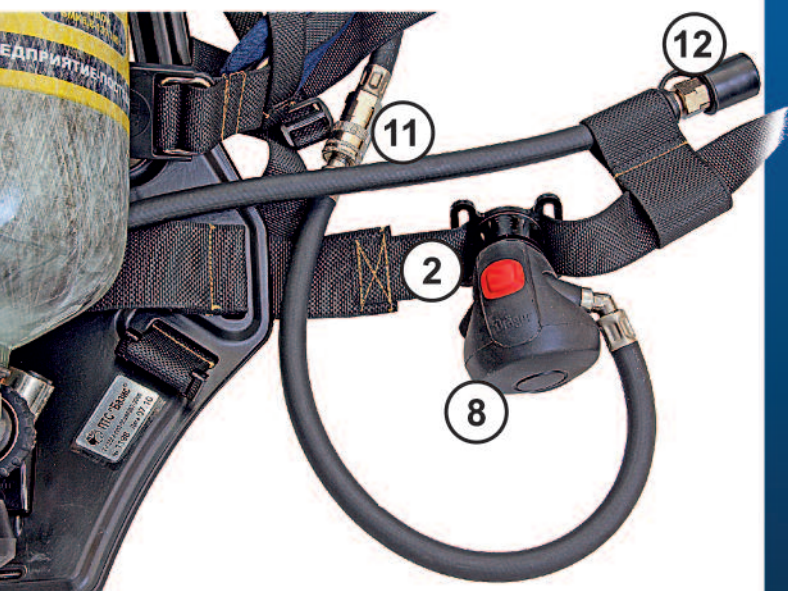
Apparatus model	Number of cylinders, pcs.	Cylinder capacity, l	Service time, at least	Overall dimensions, mm	Weight, kg
PTS "Avia"-140E	1	4,0	35	650x280x200	7,6
PTS "Avia"-240E	2		70	650x290x200	11,0
PTS "Avia"-140M	1		35	650x280x200	8,5
PTS "Avia"-240E	2		70	650x290x200	12,8

* - условное время защитного действия при легочной вентиляции 30 дм³/мин и температуре окружающей среды +25°C

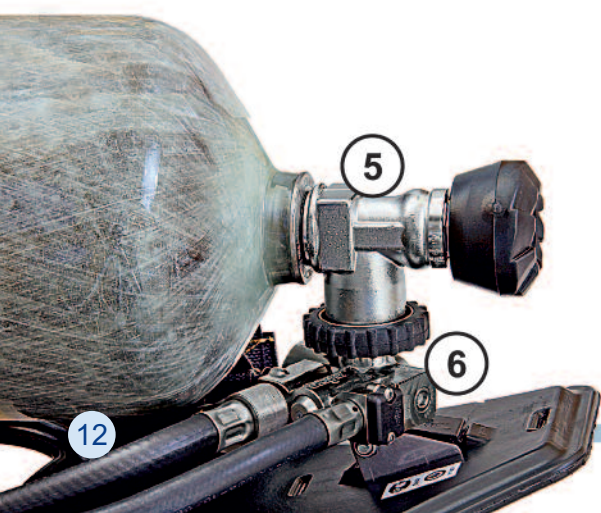


PTS "Basis"

PTS "Basis" breathing apparatus with compressed air is designed for respiratory and vision protection of persons against harmful impact of the unsuitable for breathing, toxic and smoke-filled gas environment by fire-fighting in buildings, structures and production facilities of different application at an ambient temperature of minus 40 to +60 °C.



The apparatus does not change its technical parameters after staying in the environment with a temperature of +200 °C for 60 s and withstands an open flame with a temperature of +850 °C for 5 s.



① An original suspension system with heat- and fire-resistant belts and ergonomically shaped back-piece with due account for anatomic features of a person equipped with a chest strap, wide soft shoulder and waist pads to focus the unit's weight on the hips, significantly reduce the load on the back and ensure maximum user comfort.

② It is possible to fix the lung-governed oxygen admission valve on the waist belt while waiting for the application or in transit.

③ A multi-purpose attachment system suitable for all types of cylinders is notable for simple and reliable fixation.

④ Newly designed buckles combined with an efficient shoulder straps fit technology and waist belt tension in two movements provide convenient and quick apparatus putting on and off.

⑤ A cylinder valve has a strengthened design and high operational reliability. The design is provided with an indicator and safety device designed for cylinder protection from damage due to uncontrolled increase of pressure in it.

⑥ A high-capacity balanced first-stage reduction gear can be used with an operating pressure of 200 or 300 bar and has a small, but solid casing. It does not require service adjustment.

⑦ The signalling device is notable for the space-saving design and high reliability. A rubber coating reliably prevents the pressure gauge and the whistle from strokes and dirt.



⑧ A light-weight lung-governed oxygen admission valve with a plug-in connection is notable for high performance and maintains uniform overpressure in the under-mask frontage space under various respiratory loads.

⑨ A full-face mask "Panorama Nova Standard" is a classic example of a full-face respirator and is ideal in terms of wearer's comfort and respiration. A dual-disk shutter ensures complete and extremely comfortable fit. A glass piece giving an excellent view does not get fogged thanks to a complex ventilation system, and a talk-back diaphragm made of stainless steel enables communication.

⑩ A life-saving appliance of hooded type with overpressure and constant air flow is designed in such a way that it can be put on as easily as possible irrespective of the face shape and head size.

⑪ A quick-coupling adapter used for connection of the lung-governed oxygen admission valve of the main face-piece is made of stainless steel and provides a reliable connection of the lung-governed oxygen admission valve hose with the reduction gear. The adapter does not require any maintenance during the whole service life period and has an assigned operation time over 15 000 connection/disconnection cycles.

⑫ A quick-coupling adapter used for connection of the life-saving appliance provides connection of any life-saving appliance with a unified connector.



PTS "Fairwater-Mini"



PTS "Fairwater-mini" Emergency Breathing Device is a self-contained tank breathing apparatus with compressed air in the cylinder and overpressure under the face-piece and can be used on river and marine ships for personal respiratory and vision protection against harmful impact of the unsuitable for breathing, toxic and smoke-filled gas environment when exiting the compartment with a dangerous atmosphere.

Unlike oxygen units, the apparatus can be used in machine rooms.

A conducted complex of climatic, resource and physiological tests has showed a high degree of the apparatus reliability and safety.

operation at an ambient temperature of minus 40 to +60°C and relative humidity up to 98%.

Durable heat-resistant and water-repellent suspension system is adjusted for any user's height providing a safe and comfortable fit.

A lung-governed oxygen admission valve with overpressure is actuated with the first inhale. The presence of overpressure under the face-piece provides additional protection system when working in highly toxic environments.

The apparatus is produced under the technical supervision of the Russian Maritime Register of Shipping.

PTS "Fairwater"



PTS "Fairwater" is a breathing apparatus with compressed air designed for river and sea fleet and complies with the IC SOLAS-74 requirements and the International Code for Fire-fighting Systems. It is intended for respiratory and vision protection of persons against harmful impact of the unsuitable for breathing, toxic and smoke-filled gas environment by rescue and fire-fighting operations at the facilities supervised by the Russian Maritime and River Register of Shipping, at an ambient temperature of minus 40 to +60 °C and is capable of staying in the environment with a temperature of +200 °C for 60 s.

The apparatus combines:

- uniform overpressure in the under-mask frontage space under various respiratory loads;
- little breathing resistance at the maximum air flow;
- convenient arrangement of control and signalling devices.

The apparatus is available in two options: with one cylinder with a capacity of 6 litres and two cylinders with a capacity of 4 litres each.

The operating pressure in the cylinder is 19.6 MPa (200 kg/cm²).

Apparatus model	Number of cylinders, pcs.	Cylinder capacity, l	Relative URV, minutes, min.	Overall dimensions, mm	Weight, kg, max.
PTS "Fairwater"-160E	1	6,0	40	660x320x230	12,8
PTS "Fairwater"-240E	2	4,0	53	630x320x220	17,0

"Extremal-PRO"



"Extremal-PRO" Special-Purpose Self-Rescuer is designed for personal respiratory and vision protection against harmful impact of the unsuitable for breathing, toxic and smoke-filled gas environment and is used by the personnel maintaining residential buildings (hotels, camping places, motels, dormitories, boarding schools, homes for the elderly and the disabled, orphanages and other buildings except dwelling houses) and responsible for people's evacuation out of the premises in case of fire (accident).

"Extremal-PRO" Self-Rescuer can also operate as a self-contained breathing apparatus with a short protection power time (25 minutes).

The self-rescuer includes a full-face mask equipped with a talk-back device. A bright transporting bag makes the self-rescuer noticeable in low light and poor visibility. The bag cover is marked with icons containing application rules clearly explaining how to quickly put on and actuate the self-rescuer understandable even for a naive user.

The self-rescuer "Extremal-PRO" retains its protective properties at an ambient temperature of minus 40 to +60 °C, as well as under short-term exposure to a temperature of +200°C for 60 s.

"Extremal-PRO" Self-Rescuer requires minimum maintenance.

Operating conditions, °C	-40...+60
Protection power time*, minutes, min.	25
Cylinder capacity, l	3
Operating pressure in the cylinder, MPa (kgs/cm ²)	29,4 (300)
Weight, kg, max.	5,8
Service life, years	10

"Extremal"



"Extremal" Self-Contained General-Purpose Self-Rescuer is designed for personal respiratory and vision protection against harmful impact of the unsuitable for breathing, toxic and smoke-filled gas environment and is used by the people self-dependently evacuating from the premises in case of fire (accident).

The self-rescuer includes a hood made of heat- and fire-resistant materials. A bright transporting bag makes the self-rescuer noticeable in low light and poor visibility. The bag cover is marked with icons containing application rules clearly explaining how to quickly put on and actuate the self-rescuer understandable even for a naive user.

The self-rescuer "Extremal" is the most effective for the use by the people with a neck size over 30 cm and older than 12 years.

The self-rescuer "Extremal" requires minimum maintenance.

Operating conditions, °C	0...+60
Protection power time, minutes, min.	15
Cylinder capacity, l	2
Operating pressure in the cylinder, MPa (kgs/cm ²)	29,4 (300)
Weight, kg, max.	5,0
Service life, years	10

"Module"



"Module" Mobile Cylinder Compressed Air Supply System is designed for the compressed air supply necessary for person's breathing in the toxic and smoke-filled gas environment during technological, repair and rescue operations at the oil, chemical and gas complex facilities, as well as in the metal-processing industry and by the utility services in the hard-to-reach places where it is impossible to use an ordinary breathing apparatus.

The system is available in a wheeled option that includes two or four cylinders with a capacity of 6.8 l, and in a portable option ("Module"240M-H) with two cylinders with a capacity of 4 l.

Two users can be simultaneously connected to the system. The "Module" option is equipped with the control and warning devices. "Module" is used together with the hose breathing apparatus PTS "Reserve", as well as with other breathing apparatus, such as PTS "Rescuer" and PTS "Profi" equipped with a euro connector to connect the life-saving appliance. "Module" can be used for air supply required for ventilation of the protective self-contained suits. The optional equipment may include additional coil with the oil- and gasoline-resistant and antistatic hoses, extension hoses, various adapting and switching devices, etc.



Apparatus model	Number of cylinders, pcs.	Cylinder capacity, l	Relative URV, minutes, min.	Overall dimensions, mm	Weight, kg, max.
"Module" 240E-H	2	4,0	72	900x500x200	17,0
"Module" 268A-K		6,8	120	1450x550x600	60,0
"Module" 268E-K					54,0
"Module" 468E-K	4		240	1450x550x800	65,0

"Module-M"

"Module" Mobile Cylinder System is intended for storage, transportation and supply of the compressed air to ensure person's breathing in the toxic and smoke-filled gas environment and is used at an ambient temperature of minus 40 to +60 °C. Up to five users can be simultaneously connected to the system.

The "Module-M" system is equipped with:

- two 50-litre cylinders made of metal composites with an operating pressure of 29.4 MPa;
 - two reduction gears mounted on the trolley panel ensuring a reduced pressure of 0.6...0.9 MPa;
 - coil with extension antistatic hose (50 m);
 - signalling device with pressure gauge to control pressure in the cylinders;
 - distributor for connection of four users in the form of tank with an inlet connector and slots.
- The distributor capacity serves as a receiver ensuring normal breathing for simultaneously connected users;

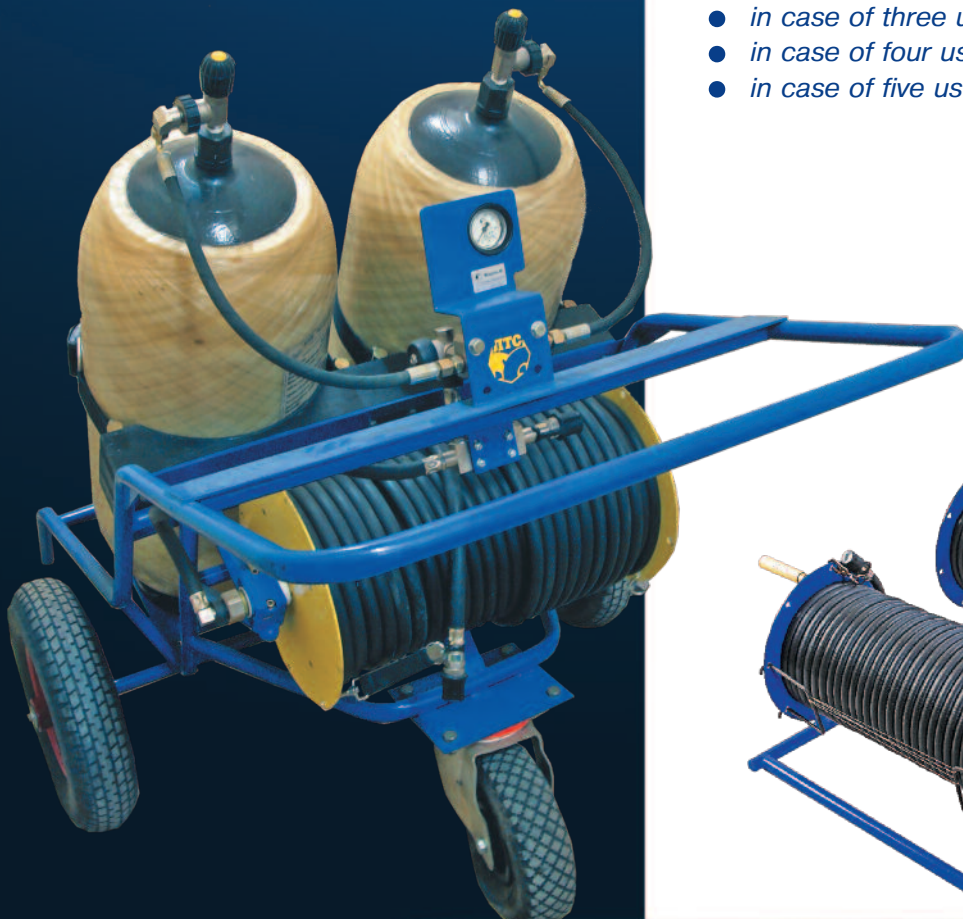
- one-shot socket mounted on the distribution collector of the trolley panel enables connection for the fifth user accompanying the trolley, in case of necessity.

The mobile system equipment is mounted on the trolley made of welded metal frame on three inflatable wheels. The trolley design enables reliable fixation of the cylinders, and the wheels arrangement ensures system stability, good flotation ability, manoeuvrability and ease of movement.

The mobile system is equipped with portable drums with hoses enabling simultaneous work of four users within 15 metres from the distributor location. The drum design enables the hose fixation at an established length and perform quick and easy automatic return to the initial position.

The protection power time in case of pulmonary ventilation of 30 dm³/min, not less than:

- in case of two users - 7.5 h
- in case of three users - 5.0 h
- in case of four users - 3.7 h
- in case of five users - 3.0 h



PTS "Reserve"

PTS "Reserve" Hose Breathing Apparatus PTS "Reserve" Hose Breathing Apparatus provides the user with complete independence from the environment. The apparatus provides full respiratory and vision protection of a person working in the area with a high content of toxic gas or with a low content of oxygen (less than 17 vol.%) in the temperature range from minus 40 to + 60°C.

The apparatus can be used:

- independently as a breathing apparatus with a short protection power time;
- together with the mobile compressed air supply system "Module".

Durable heat-resistant and water-repellent suspension system is adjusted for any user's height providing a safe and comfortable fit. A lung-governed oxygen admission valve is actuated with the first inhale. The presence of overpressure under the face-piece provides additional protection system when working in highly toxic environments.

Apparatus model	Cylinder capacity, l	Relative URV, minutes, min.	Overall dimensions, mm	Weight, kg, max.
PTS "Reserve"-20	2,0	18	780x410x200	5,0
PTS "Reserve"-30	3,0	27	780x620x200	5,5



PTS "RESCUER" (SPASATEL) – FIREFIGHTERS (RESCUERS) RESCUE SYSTEM



PTS "Rescuer" is a rescue system designed to assist firefighters (rescuers) in emergency when there is no opportunity to self-rescue.

The firefighter (rescuer), which is blocked and lost bearing or which is suffering disaster in an unusable for breathing environment, is in a great danger, and, as a rule, he cannot cope with such a situation without outside help. In such an emergency, if the firefighter shares his apparatus with a friend, the consumption increases twice that endangers both firefighters (rescuers) and leaves in doubt the outcome of rescue operation.

Therefore, to save the life of the firefighter (rescuer) it is necessary to use special equipment, which has not only a large air reserve, but is also equipped with a tool to help the victim.

PTS "Rescuer" features

1. Cylinder with the capacity of 10 liters (4.4 kg) and working pressure of 29.4 MPa provides the protective action time for at least 45 minutes for two men in parallel engagement with lungs ventilation rate of 30 L/min.

2. High-performance reducer and hose with two connectors ensures operation of two men at the same time.

3. Hood type lifesaving appliance with excess pressure and constant air flow, special extension hose for different applications, auxiliary demand regulator with plug connector and adapter for masks with threaded connection M45 x 3.

4. Well-rounded bag, which prevents catch hooking of miscellaneous parts, made of wear-resistant and waterproof fabric with the density of 1060 g/m², and has reflective signal stripes.

At the ends, it is equipped with a belt for dragging and a strap for carrying with durable carabines attached. It has also half-volume pockets with tools for firefighter releasing.



PTS "Obzor"-Mr Full-Face Mask

The mask body made of elastic rubber provides convenient fit and comfort by prolonged wearing and at the same time ensures reliable sealing, perfectly adhering to any face contour and head shape.

A glass-piece geometry combined with a reliable mask fit provide a wide field of vision and absence of distortions. Efficient ventilation system eliminates glass-piece fogging. It is equipped with two exhale valves and a speech diaphragm to transmit audio information with the help of voice.

"Panorama Nova" Full-Face Mask

It is a classic example of a full-face respirator and is ideal in terms of wearer's comfort and respiration.

A dual-disk shutter ensures complete and extremely comfortable fit. A glass piece giving an excellent view does not get fogged thanks to a complex ventilation system, and a talk-back diaphragm made of stainless steel enables communication.

It is produced in various modifications enabling to cover almost the whole range of requirements: the body made of rubber or silicone; the glass-piece made of polycarbonate or triplex.



PTS "Obzor"-K Full-face mask

This mask is specially designed for the use with the breathing apparatus with compressed air with a closed breathing cycle. It has all advantages of the full-face mask PTS "Obzor"-M. A distinctive feature is that the mask body and under-mask body are made of silicone.

The mask is available in three options:

- with polycarbonate panoramic glass;
- with triplex panoramic glass;
- with polycarbonate panoramic glass and the device allowing to clear the glass from fogging ("windscreen wiper").

It is equipped with two speech diaphragms to transmit audio information with the help of voice with preservation of normal speech intelligibility.



Breathing apparatus control system "SKAD"

"SKAD" Breathing Apparatus Control System is designed for testing the apparatus with compressed air of various types, as well as their face-pieces to comply with the requirements stipulated in the breathing apparatus operation manuals and in the "Instructions for the gas and smoke protection service of the State Fire Service of the Russian Ministry of Interior Affairs".

The system is designed for use in stationary conditions at checkpoints and bases of the gas and smoke protection service (GSPS), as well as part of the GSPS cars equipment.

The system allows to perform the following tests:

- air vacuum gauge pressure whereby the lung-governed oxygen admission valve is actuated;

- air overpressure values generated by the lung-governed oxygen admission valve;
- overpressure values in the under-mask space of the face-piece by the zero air flow;
- air pressure value whereby the exhale valve of the face-piece opens;
- reduced pressure values, safety valve opening pressure and reduction gear valve hermeticity values;
- hermeticity of the breathing apparatus air supply system;
- hermeticity of the face-piece by the vacuum gauge pressure;
- hermeticity of the life-saving appliance by the vacuum gauge pressure;
- air vacuum gauge pressure values whereby the lung-governed oxygen admission valve of the life-saving appliance is opened without overpressure under the face-piece.

The system is equipped with adapters and inflatable dummy head to connect all types of breathing apparatus and their face-pieces of domestic and foreign manufacture certified for the use within the Russian territory.



Test System "Expert-700"

"Expert-700" Test System is designed for testing the self-contained pressure suits (suits of TASK, RZK type, etc.) used for protection of the Russian Federation Ministry of Civil Defence and Emergency Response staff during rescue operations. The system allows to check the hermeticity of:

- self-contained pressure suit;
- overpressure valves.

Air supply to fill in the pressure suit is conducted from the breathing apparatus adapted and from the high pressure cylinder, for which purpose the system is equipped with an adapter and reduction gear.

The system contains:

- pressure vacuum gauge;
- reduced pressure gauge;
- stopwatch;
- adapters set;
- pumps to check the valves hermeticity.

The system is mounted in a convenient portable case.



Value of the pressure supplied to the system, MPa, max.	1.0
Pressure vacuum gauge measurements range, Pa	-1200...2800
Weight, kg	7,6
Overall dimensions, mm	420x225x220

PTS "OXI-TEST" Control System



Ensures the fulfilment of the following functions:

- hermeticity test of the air supply system (both in excess and vacuum) with or without mask;
- measurements of the continuous oxygen supply value;
- pressure measurement of the lung-governed oxygen admission valve actuation;
- pressure measurement of the excess pressure valve opening;
- measurement of the auxiliary oxygen supply value;
- measurement of reduced pressure and safety valve opening pressure.

Dummy Head



Inflatable Dummy Head for dynamic tests of breathing apparatus and their face-pieces:

- provision of compatibility with all face-pieces of the breathing apparatus of domestic and foreign manufacture certified for the use within the Russian territory;
- the dummy inflation can be performed from the air supply system of the breathing apparatus;
- besides the pressure measuring line in the under-mask space there is the breathing line (of a large diameter) allowing to connect the artificial lung respirator to the dummy. It enables the performance of all dynamic tests of breathing apparatus and their face-pieces stipulated by GOST R 53255-2009.

PTS "Test kit"

PTS "Test kit" is designed for testing the air quality fed into the breathing apparatus cylinders by the compression units or high-pressure air supply systems, and can be applied everywhere where compressed air is used for breathing (on the GSPS bases, in mines, rescue services, at the oil and gas enterprises, as well as in chemical industry and services armed with breathing apparatus for diving, etc.).

PTS "Test kit" is supplied to the subdivisions of the Russian Federation Ministry of Civil Defence and Emergency Response.

The device is available in two options:

- option 4 intended for measuring contents of the following substances in the compressed air:

- carbon monoxide (CO);
- carbon dioxide (CO₂);
- oils;
- water vapor (H₂O).

- option 5 (for diving services) to measure the nitrous gases content (NO_x), besides the listed ones.

The check can be performed for all substances simultaneously or separately for each of the listed ones, and the procedure takes max. 5 minutes. To operate the device, one does not need to be specially trained. The device operation principle is based on the color change of the indicator layer when the test air passes through the tube. The air flow passing through the indicator tubes is regulated automatically and does not depend on the reduction gear inlet pressure which eliminates measurement errors and inaccuracies.

PTS "Test kit" is connected to the air supply systems without the use of special tools, requires no configuration, is reliable and convenient in operation and easy in maintenance. The device complete set includes: a set of indicator tubes, reduction gear with pressure gauge, collector, device to open the tubes and two adapters to connect the reduction gear to the compressed air sources at a pressure of 20 or 30 MPa, stopwatch and maintenance documentation. All components of the device are placed in a carrying case, ready to use.

Performance 4



Performance 5



Maximum pressure at the reduction gear inlet, MPa	30,0
Dimensions of the carrying case, mm	390x130x340
Weight, kg, max.	4,0
Service life, years, min.	10

Cylinder Valves VOA6 series



VOA6GAI003 or VOA6GAI004

Operating environment: breathing air

Operating pressure: 29.4 MPa (300 kgs/cm²)

Thread for connection to the compressor: G 5/8"

Thread for connection to the cylinder: W19.2 or

M18x1.5

Valve body: high-strength brass, chrome-plated

Flywheel: heat- and fire-resistant durable material tolerant to high loads, cuts and ruptures



VOA6GAI001 or VOA6GAI002

Operating environment: breathing air

Operating pressure: 29.4 MPa (300 kgs/cm²)

Thread for connection to the compressor: G 5/8"

Thread for connection to the cylinder: W19.2 or

M18x1.5

Valve body: high-strength brass, chrome-plated

Flywheel: heat- and fire-resistant durable material tolerant to high loads, cuts and ruptures

Indicator: enables to control the presence and the value of the compressed air in the cylinder

Safety device: protects the cylinder against damages due to pressure increase in it, e.g. when heated or improper filling.

Metal composite cylinders

METAL COMPOSITE CYLINDERS are intended for storage and transportation of compressed air and used in breathing apparatus.

Cylinders are multilayer containers, the inner shells (liners) of which are made of stainless steel and the pressure shells are made of composite material.

Thanks to modern technology, the cylinders combine optimal weight, high reliability and safety.

Designated service life of the cylinders:

- BMK series – 15 years,
- RBMK series – 11 years.

Frequency of technical examination - 5 years.

Cylinders are certified and have the appropriate permissions for use.



Cylinder type	Volume, l	Operating pressure, MPa	Diameter, mm	Length, mm	Filler thread size	Weight, kg, max.
RBMK 10-165-300	10,0	29,4	182	545	M18x1,5	4,6
BMK 6,8-139-300	6,8	29,4	154	520	M18x1,5	3,6
BK-7-300C	6,8	29,4	145	555	W19,2	5,5
RBMK 4-100-300	4,0	29,4	111	564	M18x1,5	2,2
BK-4-300C	4,0	29,4	112	545	W19,2	3,6
RBMK 3-100-300	3,0	29,4	111	430	W19,2	1,7
BK-3-300C	3,0	29,4	112	420	W19,2	2,8
BMK-2,5-125-250	2,5	25,0	135	264	M18x1,5	1,2
RBMK 2-100-300	2,0	29,4	111	302	W19,2	1,2
BK-2-300C	2,0	29,4	112	305	W19,2	2,1

Steel cylinders



STEEL CYLINDERS

are intended for storage and transportation of compressed air and used in breathing apparatus.

Cylinders are made of seamless stainless steel tubes with a special anti-corrosive surface finish. Fully computerized production of the manufacturing plant provides high consumer characteristics of the cylinders, and strict quality control (ISO 9001 certificate) - reliability in operation.

Service life - 25 years!

The allowable number of filling cycles - 12,500.

Frequency of technical examination - 5 years.

Cylinders are certified and have the appropriate permissions for use.

Cylinder type	Volume, l	Operating pressure, MPa	Diameter, mm	Length, mm	Filler thread size	Weight, kg, max.	Manufacture
R-EXTRA-5	6,8	29,4	141	585	W19,2	8,7	Austria
LA4-0518	6,0	19,6	140	525	M18x1,5	6,9	Czech Republic
LA4-0356	4,0	19,6	115	500	M18x1,5	5,0	Czech Republic
LA4-0580	2,0	29,4	100	370	W19,2	3,7	Czech Republic

Protective covers for cylinders



- Cylinder protective cover made of canvas
- Cylinder protective cover made of fire retardant fabric
- Cylinder protective cover made of fire retardant fabric (Nomex)
- Cylinder protective cover made of canvas with two pockets
- Cylinder protective cover made of fire retardant fabric with two pockets