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# Main Russian Rescuer



**In Russia the main tasks in the field of civil defense, fire safety, elimination of consequences of disaster or technogenic catastrophes are carried out by EMERCOM of Russia which including defines standards and rules of technical ensuring all processes connected with performance of these national objectives. A lot of work are performed by EMERCOM of Russia and in cooperation with other countries.**

Within the international activity of EMERCOM of Russia carries out humanitarian operations. For example, were carried out mine clearing of fields in Serbia, help in elimination of consequences of an earthquake in the Republic of

Nicaragua, in Nepal, etc. At the beginning of June in the Republic of Kazakhstan rescuers of the State central airmobile saving group "Tsentrspas" and Siberian regional search and rescue group of EMERCOM of Russia took part in

the joint international doctrine of rescue services of member countries of the Shanghai Cooperation Organisation. A doctrine subject — "The organization and performance of actions at response to a destructive earthquake".

Rescuers of China, Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan also took part in these doctrines. Specialists of EMERCOM of Russia regularly take part both in joint international professional doctrines, and in natural disaster response. Rescuers of Russia are considered as one of the most professional and quick in the world, possessing fine skills and the most modern equipment for a long time. Thus preparation and carrying out rescue operations — not the only problem which solves EMERCOM of Russia.

The main tasks of EMERCOM of Russia are: working-out and implementation of the state policy in the field of civil defence, protection of population and territories against emergencies, providing fire safety and also people safety on water bodies within the competence of EMERCOM of Russia; organization of preparation and approval in accordance with established order of drafts of normative and legal acts in the field of civil defence, protection of

population and territories against emergencies, providing fire safety and also people safety on water bodies; implementation of management in the field of civil defence, protection of population and territories against emergencies, providing fire safety, people safety on water bodies, and also management of activity of federal executive authorities within the framework of a single state system of prevention and liquidation of emergencies;

Besides, the ministry is engaged implementation of normative regulation for the purposes of prevention, prediction and mitigation of consequences of emergencies and fires, and also implementation of special, licensing, supervisory and control functions on questions related to the competence of EMERCOM of Russia, and also implementation of activity on organization and conducting of civil defence, urgent response to emergencies, protection of population and territories against emergencies and fires, providing people safety on water bodies, and also realization of measures on emergency humanitarian response including outside the Russian Federation.

<http://www.mchs.gov.ru>

## Safety and Security 2015

**Opening the VIII International Integrated Safety and Security Exhibition-2015 Minister of Emergency Situations Vladimir Puchkov has noted its importance for enhancing security of each Russian and the whole country and great interest of Russian equipment manufacturers and developers.**

"This year the Exhibition attracted wide interest of manufacturers working in the field of security and protection of public order. It is participated over 380 Russian firms and organizations and 20 largest foreign equipment manufacturers and developers", — Mr. Puchkov said at the opening ceremony. The Minister stressed that the Exhibition is of great significance for enhancing technological level of Ministry's divisions and efficiency of their actions in response to disasters.

"A special subject of the exhibition is development of space satellite, terrain lab control system, precise disaster forecast", —

Mr. Puchkov underlined. He expressed confidence that scientists, customers and specialists without doubt will find a common language while implementing joint programs.

"A fundamental difference of this-year exhibition is that we plan to implement projects developing crisis management systems and improving response systems, adopt new technologies of fears and equipment on innovative platforms using a comprehensive approach. We count that tomorrow the new equipment will be used by the Russian Emergencies Ministry", — the Minister said.

The International Integrated Safety and Security Exhibition brings together law-enforcement and security ministries of Russia, Russian and foreign manufacturers and customers of comprehensive security system, including robotics, protection means, fire and rescue equipment, security systems, other rescue equipment and tools.

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**St. Petersburg International Economic Forum, 18-20 June, 2015**

SPIEF gathers the leading decision-makers of the emerging economic powers to identify and deliberate the key challenges facing Russia, emerging markets, and the world at large, while engaging communities to find common purpose and establish frameworks to forge solutions which will drive the growth and stability agenda. The St. Petersburg International Economic Forum (SPIEF) was founded in 1997 and since 2006, it has been held under the auspices of the President of the Russian Federation. Over the past decade, the Forum has developed into a leading global business network, attracting over 7,500 international and Russian participants, including government and business leaders from the emerging economic powers as well as leading global voices from academia, the media, and civil society.



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## IN BRIEF

EMERCOM OF RUSSIA  
AT INTERSCHUTZ 2015

EMERCOM of Russia group stand at Interschutz 2015 (show room 25, stand G16) displays leading Russian firefighting equipment manufacturers. They are "Istochnik+", CJSC (floor, wall and ceiling-mounted "Tungus" dry chemical fire fighting units); "Dykhatelnie Sistemy 2000", LLC (breathing systems); "Gefest", LLC (unique firefighting system for buildings); "Eliot", CJSC (fireman and rescuer protective garments); "Kosmicheskie Sistemy Spasenia" ("Space Rescue Systems"), LLC (high-elevation rescue system); "Prioritet", CJSC (firefighting systems).

The stand displays informational materials covering wide range of issues; among them are:

- "Osa" and "Granat-300" unmanned flying vehicles;
- immediate response vehicles equipped with "ABR" light robotic firefighting system;
- "Ingener" mobile robotic device for fire and rescue reconnaissance;
- "El-M" robotic dry chemical firefighting unit;
- container-type airmobile fire and rescue system to protect vital infrastructures against submergence (water barrier).

The following films will be shown:

- "Track record EMERCOM of Russia, 2014";
- "25 year-long EMERCOM of Russia chronicle";
- "EMERCOM of Russia calling card";
- "Water resources of Russia";
- "Testing water barrier";
- "Testing new extinguishing method, RVS-20000";
- "75 years of Fire Safety Research Institute".

Emergency space monitoring system; fire and rescue equipment innovations; EMERCOM equipment and technologies; PK "Dar" hardware and software dynamic risk analyzing system; global earthquake forecasting and evaluation system GIS EXTREMUM; asteroid and comet warning system will be presented at Hannover Expo.

"Reduction of risks and fighting disasters" book and booklet covering Fire Safety Research Institute's activities will be introduced too.



## Federal State-Financed Establishment "All-Russian Research Institute for Fire Protection of Ministry of Russian Federation for Civil Defense, Emergencies and Elimination of Consequences of Natural Disasters" (FGBU VNIPO of EMERCOM of Russia)



**FGBU VNIPO of EMERCOM is a lead fire-engineering research institution in the Russian Federation.**

### Brief profile:

Research:

- fire safety organization and management;
- automated fire detection and extinguishing unit
- robotics (ground, air and underwater);
- fire-fighting and rescue equipment;



- technical regulation (development of fire safety legal documents and regulations);
- information technologies and presentation materials;
- validation of federal fire protection tasks in terms of civil defense.

### Development:

Special technical, scientific and intellectual products for fire safety including fire-fighting equipment, outfit, fire-extinguishing agents and fire retardants, special communications



and control facilities, computer software and data bases, and other fire prevention and fighting means.

### Fire safety requirement test

Publishing of:

- Fire safety regulations, guidance and reference documents, monographs and collection of research papers by Institute members;
- 'Fire Safety' magazine and 'News-bulletin of Russian EMERCOM'.

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More detailed information can be obtained from <http://www.vniipo.ru>

### Founder and Publisher

Industrial Weekly Corporation

The edition was registered with the Russian Federation Ministry for the Press, Broadcasting and Mass Communications PI No. 77-12380 from 19.04.2002. Re-registered after a change of publisher PI No. 77-14566

from 07.02.2003. Re-registered after a change of publisher PI No. FS77-19251 from 23.12.2004. With the Federal Oversight Service for the Enforcement of Mass Communications Law and the Preservation of Cultural Heritage  
**General Director, Editor-in-Chief**  
Valery Stolnikov

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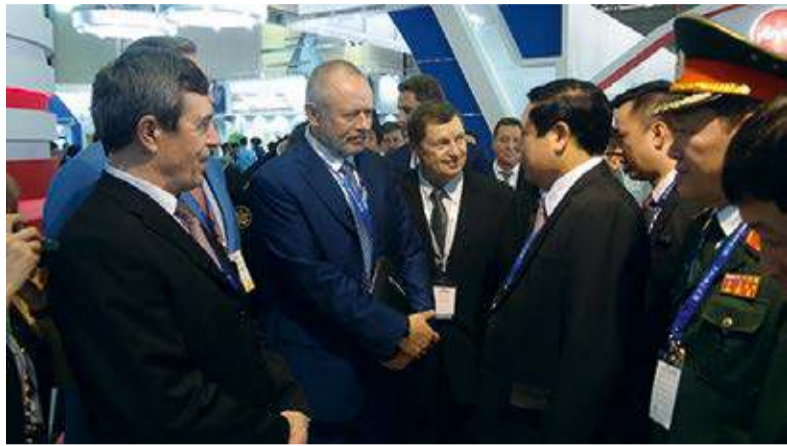
**Address:** 123104 Moscow, P.O., Box 29  
Tel.: +7 (495) 778-18-05, 778-14-47  
Fax: 7 (495) 729-39-77  
[www.promweekly.ru](http://www.promweekly.ru)  
[doc@promweekly.ru](mailto:doc@promweekly.ru)

**Printed by**  
OOO "Viva-Star"  
Elektrozavodskaya 20, Moscow, Russia  
Tel. (495) 720-62-28  
In number are used materials of the Ministry of Industry and Trade of the Russian Federation, Corporation Rostec, Russian and international news agencies  
Extends free of charge

June 2015

# Safety and Protection

## Rosoboronexport at international exhibitions 2015



**Rosoboronexport, a subsidiary of the Rostec Corporation, is the sole state-owned arms trade company in the Russian Federation authorized to export the full range of military and dual-purpose products, technologies and services. Rosoboronexport is one of the leading world arms exporters to the international market. Its share in Russia's military exports exceeds 80 percent. Rosoboronexport cooperates with more than 700 enterprises and organizations in the Russian defence industrial complex. Russia maintains military technical cooperation with more than 70 countries around the world. In 2015 Rosoboronexport at a number of the international exhibitions successfully presented hundreds of unique samples of the Russian arms and military equipment including connected with safety and protection.**

### SITDEF 2015

At the International Defense Technology Exhibition, SITDEF 2015, which will be held from May 14 to 17 in Lima (Peru), Rosoboronexport, part of the Rostec State Corporation, will discuss the supply of military products and promising projects of technological cooperation with Peru.

"At the exhibition, we will discuss the steps in implementing the main areas in the field of military-technical cooperation, which were identified in the course of the official visit to Russia in November 2014 of Peruvian President Ollanta Humala and Defense Minister Pedro Kateriano, who is now prime minister. There are good prospects both in supply of military products and in the field of technological cooperation," said Deputy General Director of Rosoboronexport Sergei Ladygin, who heads the company's delegation at SITDEF 2015.

Russian helicopters as well as army weapons and equipment, especially armored vehicles, automobiles and the Kornet family of antitank missile systems, have the greatest export potential in the Peruvian market.

The development of technological cooperation, including launching licensed production and establishing maintenance & repair centers for previously supplied Russian military products, will be a separate matter of talks with partners from Peru and other countries in the region.

In particular, in the framework of the Russian side's offset obligations related to the supply of Mi-171SH helicopters to Peru, Rosoboronexport, together with Helicopters of Russia, is carrying out preparations for establishing a service center for overhaul of helicopters, including fuselage, on-board equipment and avionics. Later, it is planned to increase its capacity and technical capabilities.

It is also expected that the delegations from Latin America countries will express interest in the Su-35 and Su-30MK2 multirole fighters, Mi-17-type military transport helicopters,

Mi-26T2 heavy transport helicopter, Mi-28NE attack helicopter and Mi-35M attack/transport helicopter, Pantsir-S1 anti-aircraft missile/gun system, T-90S MBT, BMPT Terminator tank support combat vehicle, BMP-3 IFV and BTR-80A APC.

Peru is one of Russia's traditional partners in Latin America. Peruvian-Russian military-technical cooperation has now lasted for more than 40 years. Since then Peru has been supplied with Soviet- and Russian-made attack aircraft, attack and transport helicopters, armored vehicles, multiple rocket launchers, anti-tank missile systems, air defense weapons and other military and dual-purpose products.

### LAAD 2015

At the LAAD 2015 International Defense and Security Exhibition to be held from April 14 to 17 in Rio de Janeiro (Brazil) Rosoboronexport, part of the Rostec State Corporation, will discuss prospects for expanding military-technical cooperation with Brazil and other Latin American countries.

"We have a huge potential for further enhancing cooperation with Brazil. Today, we are laying the foundation of not just separate, even

major projects, but the broadest industrial, scientific and technological cooperation, which will positively impact both interstate relationship and the economies of both countries," said Sergei Ladygin, Deputy General Director of Rosoboronexport, who heads the Company's delegation of at the exhibition.

At LAAD 2015, along with the prospects for the supply of the final defense products, Rosoboronexport's delegation and Brazilian partners will discuss the issues of establishing licensed production facilities, joint R&D projects, the development of new models of weapons and military equipment, including for delivery to third countries.

Rosoboronexport expects that Latin American partners will take interest in the super agile Su-35 multipurpose fighter, Yak-130 combat training aircraft, Mi-35M attack/transport helicopter, Mi-17-type military transport helicopters, Mi-28NE and Ka-52 attack helicopters, Pantsir-S1 self-propelled anti-aircraft missile and gun system, Nebo-SVU radar. In the area of army materiel, the Russian automotive equipment – Tigr and Gores-M armored vehicles, as well as KamAZ military trucks – have good export prospects in the region.

During the exhibition, the Rosoboronexport's delegation will present the Safe City integrated security system project for cities, industrial facilities and state borders to the State Government of Rio de Janeiro and Brasilia city leaders. Such a system has been used successfully to ensure security of the Olympic Games in Sochi and can be established as part of preparations for the Olympic Games in Rio de Janeiro in 2016.

In the course of LAAD 2015 Rosoboronexport's specialists will hold talks with high ranking delegations from Argentina, Brazil, Colombia, Peru, Uruguay, Chile, Ecuador, China and South Africa.

Military-technical cooperation with Brazil has been carried out since 1994, when a contract for the delivery of several batches of Igla type MANPADS was signed. In 2008, an intergovernmental agreement on military-technical cooperation was concluded. Rosoboronexport's contract to supply a batch of Mi-35M military transport helicopters was a real breakthrough in the bilateral rela-

tionship. The contract provides also that a service center for repair of these helicopters will be established in Brazil.

### Aero India 2015

At the Aero India 2015 International Aerospace Exhibition to be held in Bangalore (India) from 18 to 22 February, Rosoboronexport, part of the Rostec State Corporation, will showcase the latest models of aircraft and air defense systems, various modernization programs, as well as discuss projects for joint production of weapons and military equipment.

"In the high-tech aviation sphere, we are implementing the largest and most ambitious projects with India. Our cooperation is in full compliance with the Make in India policy pursued by the Government of India and aimed at the development of the national defense industry. It is joint equipment development and production that is a key thrust in the evolution of the strategic relationships and an indicator of a high level of trust between our countries," — said Sergei Goreslavsky, Deputy General Director of Rosoboronexport, who heads the Company's delegation at the exhibition.

Currently, Rosoboronexport and its Indian partners are discussing the possibility of establishing co-production of Ka-226T-derived light helicopters in India. Negotiations on this project will be the focus of state special exporter's activities at the exhibition. Russian President Vladimir Putin's official visit to India in December 2014 has given significant impetus to the development of the program.

The Il-76MD-90A military transport aircraft and Mi-17V-5 helicopters are expected to arouse keen interest among Indian specialists. It is also planned to discuss future progress in the program for equipping the Indian Air Force with the Su-30MKI fighters.

For delegations from other countries in the region, Rosoboronexport will hold presentations of Yak-130 combat training aircraft, Mi-28NE, Ka-52 and Mi-35M attack helicopters, Be-200 amphibious aircraft, and airborne weapons.

The exhibition is expected to foster the promotion of Russian air defense systems in the Indian market. At Aero India 2015, Rosoboronexport

will provide information on Igla-S MANPADS, Tor-M2KM SAM system based on the Indian Tata chassis, Pantsir-S1 and Tunguska-M1 SPAAGMs. These systems are taking part in five different tenders held by the Indian Ministry of Defense and have high chances to win. Rosoboronexport's program for upgrading the S-125 SAM systems operational with the Indian Army to the Pechora-2M configuration will also attract the attention of specialists.

"We hope that the exhibition will serve as a good tool to promote Russian air defense systems that fully meet the needs of the Indian military and provide reliable protection against major air threats. There has been a lull in this segment, but I'm sure that in the near future we'll be able to reach mutually beneficial agreements," — said Sergei Goreslavsky.

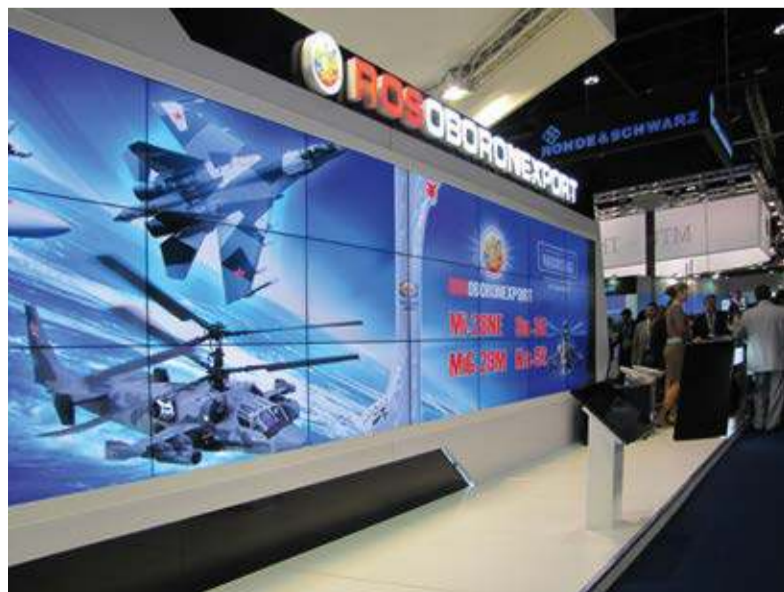
### IDEX 2015

At the IDEX 2015 International Defense Exhibition to be held in Abu Dhabi (United Arab Emirates) from February 22 to 26, Rosoboronexport, part of the Rostec State Corporation, will showcase more than 200 models of weapons and military equipment for all services of the armed forces and extend ties with partners in the Middle East and North Africa.

"In recent years, we have managed to significantly strengthen our position in the region. In particular, we have resumed close contacts with Iraq and Egypt, our traditional partners. Military-technical cooperation with other states successfully evolves. We are also interested in intensifying relations with Saudi Arabia, the United Arab Emirates, Kuwait and Qatar. We hope that the exhibition will give a good impetus to this," — said Igor Sevastyanov, Deputy General Director of Rosoboronexport, who heads the joint Rosoboronexport-Rostec delegation.

First of all, Rosoboronexport expects keen interest in Russia's army weapons and equipment. Together with KBM Engineering Design Bureau, the Company will present a full-scale model of the Khризantema-S self-propelled anti-tank missile system. Uralvagonzavod will showcase the T-90MS MBT, which is being actively promoted in the region.

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Space Rescue  
Systems Ltd.

# Secure rescue at any height

## Unique autonomous rescue parachuting back-pack system for emergency escape



Fig. 1

**Russian "Space Rescue Systems Ltd." (SRS, Khimki, Moscow) offers a unique and unrivaled system for personal rescue from nearly any high building. This is Autonomous Rescue Parachuting Pneumo Back-pack System (SPARS®). There is no doubt in the near future this system is going to be a must-have in skyscrapers construction all over the world.**

The rescue parachuting device SPARS® project is devoted to a creation of a unique technology of pneumo-framed aerodynamic devices for emergency rescue of untrained persons from high-rise facilities.



Fig. 2

### The SPARS® General Specifications

1. Total Assembly Weight — 25 kg
2. Rescue Payload Weight — 45 ÷ 120 kg
3. Descent Elevations — 5 ÷ 1000 m
4. Landing Velocity — 5 ÷ 7 m/s
5. Landing Angle — < 30°
6. Footboard Barrier Elevation — 1.5m
7. Descent Time — 3 ÷ 150s
8. Ready-to-use Time — 45 ÷ 60s
9. Launch Initialization Time — 15 ÷ 20s
10. Inflating Gas — Air;
11. General Dimensions:
  - a. Assembled — 900x450x300mm
  - b. In Descent mode — 6,500x2,700mm (without dome).

### Actual Landing Impact Loads:

- Acceleration directions:
- "chest-to-back" — up to 8 ÷ 10 g
  - "side-to-side", "head-to-pelvis" — up to ± 6g
  - Acceleration Exposition Time — less than 0.5 s
  - Acceleration Growth Velocity — less than 500 1/s

User's age — 18 ÷ 70 years

Within the period of 2006-2014 private innovation company SRS, Ltd has designed, developed, tested and produced a pilot run of SPARS® personal rescue parachute pneumo-transformable devices dedicated to emergency evacuation of people from high-rise facilities if a traditional evacuation is impossible. Descending SPARS® general view is shown on Fig.1.

SPARS® technology meets the EMERCOM requirements for high-rise emergency escape apparatus (GOST R 22.9.08-2005; GOST R 12.4.206-99) and provides for the following unique capabilities, never implemented before:

1. Emergency evacuation of an untrained person having weight of 45-120 kg, from heights of 5-1,000 m;
2. Ready-for-use in 45-60 sec;
3. Self-sustained operation and independently selected escape route;
4. User-friendly operation for untrained persons and fully automated rescue procedure right from start;
5. Personal protection against external hazards during evacuation;
6. Secure injury-free landing on any urban-area surface;
7. Appropriate weight of a back-pack-type carried device (not more than 25 kg);
8. Alternative of emergency escape (so-called "last resort" facility).

An assembled SPARS® is a back-pack (900x450x300mm) with easy-to-use suspension system (Fig. 2).

In cooperation with 18 leading Russian and foreign aerospace companies under SPARS® project SRS Ltd. has fulfilled full-scale research and development activities to develop the project from conceptual proposal stage to releasing operating prototypes unparalleled anywhere in the world.

SPARS® unit for individual use had required a special certificate basis. In this regard National Standard GOST RO 4240-001-2012 specifying medical and technical requirements for injury-free operation by untrained persons rescued by means of new type SPARS® shock-absorbing systems entered into force in July 1, 2013.

To have certification tests performed a special Hybrid-III (USA) crush test dummy-based anthropomorphous (bionic-like) instrumentation station has been developed and created, which has no equals in Russia.

A full cycle of comprehensive calculations and testings (Fig. 5) to validate design properties and performance has been performed. SPARS® operational reliability is 98.7%.

SPARS® has its Technical Data Sheet (TU 801130-5047075064-01-10), and working design documents issued. Under



SRS Ltd requirements Russian gas-filling systems (GFS) manufacturing company has mastered Autonomous Two-Stage GFS for SPARS® (TU 8042-017-45307693-2013).

The SRS Ltd. Intellectual Property Rights on SPARS® and its "know-hows" have been completely protected within Russia (8 Patents, 3 Trade Marks) and abroad under PCT (Patent Cooperation Treaty) procedures in 13 countries all over the world. 2 "umbrella" requests for SPARS® have entered national level in 13 countries and covered 78% skyscrapers and 95% potential SPARS® manufacturers. 8 Patents of the US, China, Japan, South Korea, Singapore, the Ukraine, Indonesia, Malasia have been already received.

Three Russian EMERCOM Certificates were received for SPARS®. "Aerospace medicine and military ergonomics" R&D Institute of Russian Air Force has granted an official approval for SPARS® physical adaptability.

General market estimations made in 2011 by EMPORIS GmbH under SRS Ltd. Request, shows there are over 7,303 finished and 2,500 under construction skyscrapers worldwide with the heights of 100-828m and over 50,000 buildings having height of 50-100m. Taking that analysis into account the SPARS® Project may have potential market capacity of up to €600-700 million annually.

Furthermore, the estimated potential SPARS® market capacity is worth over \$3 billion in commercial sector alone.

Currently SPARS® is searching for a strategic partner and/or investor to make the product commercial, set up its production and sales all over the world.



Fig. 4

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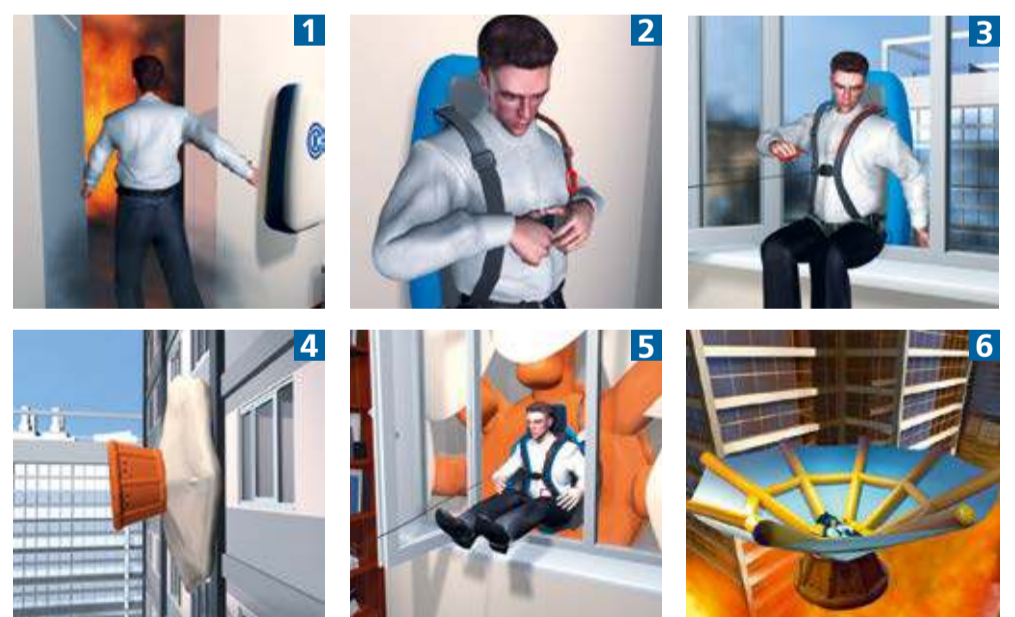


Fig. 3



Fig. 5

# "Kaliningrad 2015"

Large-scale exercise: tasks fulfilled on land and at sea



A large-scale joint exercise on dealing with a fire and an oil spill in the Baltic Sea was held today in Kaliningrad Region. It took place at the oil platform "Vyshka-1". The exercise scenario comprised four stages dedicated to practising the dealing with a number of potential emergencies, rescue units operated both on land and at sea.

In the course of the exercise, after receiving a distress call from the platform, special units performed reconnaissance on boats and almost immediately started organizing the

search and evacuation of injured people from the burning platform and water. The exercise also involved aircraft. The "incident" was reported to emergency response

agencies of the neighboring countries — the Republic of Poland and the Republic of Lithuania.

In the third stage, emergency workers practised extinguishing a fire at a fixed offshore platform. A special role was played by aircraft and fire-rescue vessels. The final stage of the exercise was related to dealing with an oil spill at sea, as well as with organizing coastal protection against oil pollution.

The coastal protection was ensured by fire-rescue units of the Russian emergencies Ministry, a student rescue squad, a coast team assigned with dealing with accidental oil spills of "Lukoil" OOO and a mobile chemical and radiometric laboratory.

The exercise involved ships, aircraft and equipment of the Russian Emergencies Ministry, Baltic Fleet, Kaliningrad Maritime Rescue Coordination Center, Sea Rescue Agency, and «LukoilKaliningrad-morneft» OOO. A total of more than 70 pieces of special equipment, including aircraft, as well as more



than 400 people, took part in the exercise.

"During the exercise we practised dealing with an oil spill and a fire right at the platform "Vyshka-1", — said Head of the Northwestern Regional Center of the Russian Emergencies Ministry Igor Panin. "All personnel and equipment involved in it worked boldly and smoothly and

once again honed the maneuver. No problems have arisen during the operations, safety measures violations have been avoided. Close cooperation has been organized between all agencies. Having finished the exercise, we understand that we can cope with all the tasks assigned to us. To do this, we have both equipment and trained people."

## ISSE 2015: good positions

8th International Integrated Safety & Security Exhibition



On Friday 22 May 2015 in the territory of Exhibition of Achievements of National Economy (VDNH) completed its work 8th International Integrated Safety & Security Exhibition ISSE 2015, held according to the Decree of the Russian Federation Government № 1221-p of 15 July 2013. The exhibition was organized by The Ministry of Russian Federation for Civil Defence, Emergencies and Elimination of Consequences of Natural Disasters, Russian Federation Ministry of Internal Affairs and Federal Service for Military-Technical Cooperation. One of the main tasks of the exhibition was to present the results of implementation of the whole number of the Russian Federation Government Decisions in the sphere of development and practical implementation of the advanced technologies in the field of security, formation of new approaches to solution of the tasks of practical implementation of the integrated security systems.

At the opening ceremony of ISSE 2015 took part: Deputy PM of the Russian Federation Mr. Dmitry Rogozin, Minister of the Russian Federation for Civil Defence, Emergencies and Elimination of Consequences of Natural Disasters Mr. Vladimir Puchkov, The Russian Federation Deputy Minister of the Interior Mr. Alexander Makhonov, Minister for Emergencies of the Belarus Republic Mr. Vladimir Vaschenko, Minister of Territorial Administration and for Emergencies of the Republic of Armenia Mr. Armen Erithyan, Deputy Chairman of the Federal Assembly of the Russian Federation Yury Vorob'yov, First Deputy Chairman of the Federal Assembly of the Russian Federation for Defence and Security Mr. Evgeny Serebrennikov, Deputy Minister of Agriculture of People's Republic of China Mrs. Tzay Tzihua, Governor of Sebastopol Mr. Sergey Menyailo.

Traditionally ISSE 2015 included exposition, business, competitive and demonstration program. 378 firms and companies from the seven countries of the world were presented in 11 profile sectors, which included fire protection, rescue equipment, security and protection equipment, transport safety and security, defence and protection, industrial safety, border security, nuclear and radiation safety, information technologies, environmental safety and disaster medicine. Visitors and specialists attending the show did not pass off new products and developments presented by the domestic and foreign exhibitors.

Expositions of the participants of the exhibition became a universal site for monitoring new samples of the up-to-date products, what was done by the specialists and experts of the Ministry of Russian Federation for Civil Defence, Emergencies and Elimination of Consequences of Natural Disasters and other federal executive authorities responsible for equipment of rescue and fire fighting units, units working over elimination of consequences of natural and man made disasters and catastrophes.

The dialogue between creators of the new products and specialists was continued within the framework of the ISSE 2015 Business Program: 35 international and all-Russian events — conferences, work shops, round table discussions — with 321 speakers and 2400 delegates. The key event of the exhibition became 20th International Research-to-Practice Conference on problems of population and territory protection against emergencies "Global and National Strategies of Disaster Risk Management".

As it was noted by the representatives of mass media a great number of innovative products presented at the exhibition and targeted business program of the event became a reason of the long lines those wishing to attend the show, especially during the first day of its work — 19 May with a record number of 4076 visitors. During four days of the exhibition work the show was attended by 14.494 specialists, including

2106 VIP visitors representing executive authorities and business circles.

More than 100 exhibiting companies and organizations presented their products within the framework of the «National Security» Contest held during the exhibition. 54 winners of the contest were awarded with the «Quality and Security Guarantee» Gold Medal and with the Diploma of Laureate of the Contest for the best integrated solutions in a number of fields of nuclear, transport, industrial and environmental safety and security.

8th International Integrated Safety and Security Exhibition ISSE 2015 was covered by 330 journalists including Information Agencies TASS and Russia Today, television and radio broadcasting companies Russia-1, Russia-24, MIR (World), Iran National Television and Radio Broadcasting company, TV Channel and Radio Broadcasting Station "Zvezda" (Star), TV Channels "Moscow 24", TV Centre, Peterburg-5 Channel, as well as "Arms of Russia", Rosinformburo etc.



## IN BRIEF

**RUSSIAN-ARMENIAN  
HUMANITARIAN CENTER**

An agreement between the Russian Government and the Government of Armenia on creation of the Russian-Armenian Humanitarian Center has been signed today during the Integrated Safety and Security Exhibition. The agreement will allow for quick and efficient response to emergency situations in these two and other countries. The Russian-Armenian Humanitarian Center will be located in the town of Getargel, Armenia. The employees of the Center will be able to take part in disaster management activity, provide emergency humanitarian aid to people affected by disasters, implement joint projects and programs in Armenia and third countries, enhance professional level of disaster management specialists and train humanitarian demining specialists. Following the signing of the agreement Russian Emergencies Minister Vladimir Puchkov and Minister of Territorial Department of Emergency Situations of Armenia Armen Yeritsyan had a bilateral meeting to discuss a plan of further joint actions to create the center under the signed agreement and to exchange opinions on prospect areas of joint activity related to rescue services within such multilateral formats as the Black Sea Economic Cooperation, Collective Security Treaty Organization and Commonwealth of Independent States.

**TELECOMMUNICATIONS  
EQUIPMENT**

By the end of 2017, United Instrument Manufacturing Corporation (UIMC) will develop more than 40 kinds of domestic telecommunications equipment to build trusted networks and data. This work is taking place through the import substitution program, whose main goal is to replace foreign systems and eliminate threats to information security in the strategically important Russian areas of management and production. "Almost 100% of the computer equipment and software currently used in Russia is produced abroad," said Alexander Yakunin, CEO of UIMC at the conference "IT in Service of the Military-Industrial Complex," which is currently taking place at Innopolis in the Republic of Tatarstan. As the head of UIMC noted, the situation is critical, especially in the field of telecommunications. "Communication functions as the central nervous system of the state. In the strategically important areas, reliability and security cannot depend on external factors and foreign suppliers. This poses an especially serious risk to the public sector and national corporations and industries, including defense. Using foreign platforms with foreign chips and software means that tomorrow, managerial, financial, and economic information, or data on design, manufacture, and supplies can be in the wrong hands," said Alexander Yakunin.

**RUSSIAN RATNIK**

Russian troops have received the first batch of the Ratnik combat equipment system, according to Dmitry Semizorov, CEO of TSNITOCHMASH, which developed the equipment, speaking to reporters. "The first batch of equipment has already been delivered," he said. According to Dmitry Semizorov, the volume of this year's shipments has already been determined, and the next batches are now being created. Ratnik is often called a system for the "soldier of the future." The kit includes 40 pieces of equipment, including firearms, sighting systems, armor, and communications, navigation, and targeting equipment. More than 95% of all the elements of the Ratnik system are designed and manufactured by Russian enterprises. Testing is currently underway for equipment kits designed for reconnaissance troops, snipers, gunners, mechanics, drivers, and gunners of airborne combat vehicles.

# Export of technologies

## Clever decisions from Russia with love

**As innovations and hi-tech production tend to bring more economic benefits and influence, Russia is working on increasing exports of non-raw material sector, including technological export and transfers. And the current economic situation in Russia with sanctions, restricted financial support from European banks and weak ruble only comes in flavor for Russian companies opening opportunities to fulfill their potential abroad. So among exporting companies there are those who aimed at foreign markets from the start; companies that manufacture unique advanced technology products with no competitors in any part of the world; and companies that take advantage of the current economic situation to expand their markets.**

ENERGOPROM Group has aimed at export from the start because there is no demand for their technology in Russia. Now the company is a leading Russian manufacturer of hi-tech electrode, cathode and other graphite and carbon-based products. The Group's products are widely used in aluminum, steel, silicon, ferroalloys, chemical, nuclear, engineering, aerospace, electronics and power industries. The company exports more than 50 per cent of its output covering more than 60 countries around the world. The Group has its own R&D Center developing projects for the industrial production of isotactic graphite. Most of the Group's products will be exported because in Russia there are still almost no consumers of isotactic graphite, the market is still very small.

Research and Development Center "Transkor-K" is one of the exporting companies with unique products to offer the world. The company specializes in the area of pipeline systems non-destructive testing. One of the company's biggest projects was development of submerged and subterranean pipeline survey technology with Malaysian oil company PETRONAS. In 10 year-old history the company has successfully worked in Uzbekistan, Ukraine, Syria, Argentina, Brazil, Colombia, Mexico, Croatia, Saudi Arabia, Malaysia, Indonesia, China, UK and the USA.

Moreover, startups are also becoming more and more interested in technology export and transfers.

Konstantin Semenko, expert on legal support and mediation of technology transfer, says that Russian companies started to realize that innovations bring economic growth and, thus, more and more often Russian companies turn to him for consultation and support of technology transfers to foreign countries. "Not only large corporations but also startup projects in Skolkovo seek international expansion and expect to gain 20 % of income from abroad" - he says. "The economical situation is in fact promising."

Not only the Russian companies are ready to export but also foreign potential consumers and suppliers of the technologies are looking at Russia as an attractive market.

First of all, government has been increasing its support for innovative small and medium-sized businesses according to the state strategy for innovative and technological development. The infrastructure is growing, more and more industrial parks, incubators and funds are opened across Russia, including specialized and narrowly focused technology parks.

State Corporations such as "Rosnano" and major Foundations, including the Foundation for Assistance to Small Innovative Enterprises in Science and Technology and the Skolkovo Foundation presents grants and provide the infrastructure for R&D projects. Due to government support of R&D and IPR sectors are developing intensively.

Secondly, Russia has a vast intellectual property reserve. Large part of the potential dates back to the Soviet Period, when science and technology industry flourished. And now all the intellectual property from that time has formed in a decent way. Other part of the intellectual property reserve comes from actively developing R&D centers.

In the Skolkovo Foundation there is a project, "Intersoft Eurasia", which is developing portable dosimeters that are compatible with modern mobile devices. The company has received patents in China and Japan, which opens the company markets in the Asia-Pacific region.

Furthermore, one should not underestimate the benefits for foreign suppliers and partners of cooperation with Russian exporters. Such as the price-performance ratio, for example.

Production Company CJSC "Svetlana-Optoelectronics" produces lighting products based on LEDs for over 10 years applying its own design and technology. Their products meet international quality standards ISO. Though the price is not as high as the European products and not as cheap as the mass Chinese products which are twice less energy-effective than the European. Thus the quality of the Russian company's production is at the same level as Europe's which is confirmed by European certificate, but the price segment is between Europe and Asia.

However, having an idea is not enough, knowing how to commercialize it, how to earn money on it - is the key. As R&D centers and institutes thrive with ideas, most scientists lack common business knowledge. In foundations they can be offered to make a practical use of their research and start a business, but nobody will explain to them how it should be done.

"We collaborate closely with scientific society, industry and investors, and we help assess the practical potential of scientific research or technology and its commercial value" - Konstantin says.

"And when you know the potential value of your innovation you realize the importance of guarantee of intellectual property rights for suc-

cess," - he says. "It is a major requirement for successful agreement in technology transfer. And the cost of IPR is usually quite small in comparison with the capital investments and risks that are involved."

"There are well-developed internationally recognized mechanisms of sharing IPR. But avoiding and not securing your rights on the intellectual property is an internationally recognized absurdity."

That's where mediators like Konstantin are needed. Businessmen with legal knowledge, and lawyers with business knowledge and experience.

Konstantin emphasizes the importance of mediators with legal and patent specialty: "Filing for patents issued for practical processes of the intellectual property and making sure that technology transfer or export agreements satisfy both Russian researchers and developers and foreign suppliers and partners should be by default part of the preparation for export."

Another key point that needs thorough analysis is the process of the technological transfer. It can involve licensing agreements or technology leasing or setting up joint ventures and partnerships or engineering or spin-outs or technical support services or personnel exchange or other. Each process depends on the company's goals and specific features of the entering markets.

For example, Russia's state-owned United Shipbuilding Corporation not only exports licenses on submarine technology to India, but also creates joint ventures in military high-technology sector. And at the same time, United Engine Building Corporation, another state company, delivered to India more than 100 technology kits for the production of fighter jet engines on its territory. This means that the company should analyze and assess the most effective and cost-effective process suitable for it.

"There are a growing number of Russian IT, biotechnology and hi-tech manufacturers that have unique products to offer the world." - he says. "And

"And we also work with foreign countries and know how consumer mindset differs between the countries." - Konstantin says. "

Starting partnerships and exporting to foreign markets is not possible to form unilaterally, it is a two-way operation joint by mediators, including lawyers, patent specialists and marketing specialists.

Assessing the risks and advantages of entering certain markets, choosing the most effective method of transfer and providing knowledge about consumer and supplier mindset of a specific country are few of the components of the chain of actions.

"We seek to foster the growth of high-tech export and technological development. We take advantage of our close collaborations with both business and scientific societies to develop intellectual property, transfer technology and support partnerships with foreign countries."

Sandra Deza



June 2015

# New Russian Mi-26T2

## Modernised version equipped with the latest avionics

**Russian Helicopters (part of State Corporation Rostec) has launched series production on the heavy Mi-26T2 helicopter at Rostvertol. The Mi-26T2 is a modernised version of the Mi-26T, equipped with the latest avionics, making it possible to cut the number of crew required and also to operate the helicopter during night-time.**

"We announce the start of production on the modernised heavy Mi-26T2 helicopter," — said delegation head, deputy CEO of Russian Helicopters Andrey Shibitov. "Mi-26 helicopters are unparalleled in terms of their flight capabilities, and this modernisation significantly expands their potential operational use. I am confident that the Mi-26T2 will be popular in Russia and internationally."

Creating heavy helicopters poses particularly complex design challenges, and Russia has immense, unique experience developing and producing these machines. For example, it was Mil Moscow Helicopter Plant that developed the Mi-6 heavy helicopter, which was produced at Rostov on Don from 1959 to 1980. The Mil Moscow Design Bureau also developed the unique V-12 (Mi-12) heavy helicop-

ter, which was not put into series production for economic reasons. The military Mi-26 helicopter and its commercial variant Mi-26T have been produced at Rostvertol from 1980 right up until the present day, and these machines have proven themselves in all areas of their operation. The helicopter has set cargo transportation records — the Mi-26T can carry a cargo of 20 tonnes inside its cabin or on an external sling.

Complex modernisation of the Mi-26T into the Mi-26T2 was implemented by Mil Moscow Helicopter Plant jointly with Rostvertol, under Russian Helicopters auspices. The preparation of design and operational documentation for the helicopter concluded in 2010. Rostvertol was simultaneously developing an improved Mi-26T in the form of the modernised prototype Mi-26T2. In December 2010, the Mi-26T2 prototype was transferred from the final assembly workshop at Rostvertol to the flight test centre for delivery acceptance and final ground and flight tests, which concluded in 2011.

On 17 February 2011, the modernised Mi-26T2 helicopter completed its first flight at Rostvertol. That March, ground and flight demonstrations of the Mi-26T2 were given for international delegations. In August

2011, the helicopter was showcased at the MAKS-2011 airshow and sparked significant interest among visitors and potential customers.

In 2013, a major delivery contract for the Mi-26T2 was concluded with a foreign country, and Mil Moscow Helicopter Plant started developing design documentation to meet this customer's particular requirements. Throughout 2014, Mil Moscow Helicopter Plant carried out preliminary and special flight tests on the Mi-26T2 prototype. The necessary working design documentation is currently being prepared ahead of launching series production of the Mi-26T2. The modernised Mi-26T2 helicopter meets the latest standards in international aircraft construction. Crew numbers are reduced from 5 to 2-3 people.

The Mi-26T2's design, equipment, and systems mean that it can be operated at any time of day or night, in regular or difficult weather conditions, over even ground or in mountainous areas. Like the Mi-26T, this new helicopter does not need to be maintained or serviced at an airfield, and can be based autonomously for long periods of time. The Mi-26T2 is equipped with a glass cabin, five multifunction LCD displays, control board, duplicate electromechanical instruments, and an upgraded digital



communications suite. On-board video displays offer clear visuals of the cargo on the external sling during the day.

The Mi-26T2's navigation suite significantly increases the extent of flight control automation, easing the crew's role. The Mi-26T2 boasts enhanced safety. Its early ground proximity warning systems alert crew if the helicopter is nearing the ground. The in-flight situation, obstacle and collision warning system identifies possible collisions and gives clear control over airspace to a radius of 9-11 km around the helicopter, sending requests to all aircraft in this area. For in-flight comfort at low or high temperatures, the helicopter is equipped with air conditioning and

heating systems in the crew and cargo cabins.

The helicopter is equipped with special features to ease the loading and unloading of the transport cabin. Like its predecessor, the Mi-26T, the Mi-26T2 can be used to transport large sized cargo and equipment in the cargo cabin or on an external swing, to transport paratroopers, or the wounded. This helicopter can be used to carry out a variety of construction and assembly work, and can also be used to deliver fuel (kerosene, diesel fuel), for the autonomous ground-based refuelling of a range of aircraft and other vehicles, in addition to its fire-fighting capabilities.

**Rostec**

# Large-scale research project

## Artificial intelligence and semantic analysis

**The United Instrument Manufacturing Corporation (Russia) announced the launch of a large-scale research project in the field of artificial intelligence and semantic analysis of data involving more than 30 Russian companies, educational and research organizations. Project participants received complimentary access to a unique development, the recently announced OntosMiner linguistic processor. Researchers will be able to use this technology to develop text mining technologies in various fields, ranging from media monitoring to scientific data processing and business intelligence.**

Avicomp Services, a Russian developer of intelligent software, is both a corporate organizer of the project and a conference presenter. The project is implemented with the support of T-Platforms, which has offered a high-performance server that can utilize the linguistic processor that is able to work with large volumes of information.

According to Alexander Kalinin, Director of the Department of Innovative Development at the United Instrument Manufacturing Corporation, the creation of artificial intelligence is one of the major trends in the development of IT technology that is present across the world. Alexander Kalinin stated: "The opinion has repeatedly been voiced that artificial intelligence technologies are much more dangerous than existing weapons. The Russia's main competitors in this field at the state level are the US and China, and on the corporate level they include Google, Facebook, Apple and Baidu, which are making large-scale investments in

such projects. In the US, this trend is financed by DARPA, IARPA, In-Q-Tel, and about twenty specialized venture capital funds. In our country, these technologies are just beginning to develop, but the process of their development is gaining momentum."

The Russian semantic data analysis system is based on the latest achievements in the field of machine learning and Big Data technologies. By processing data sets, the computer can learn to understand the morphology, syntax, and semantics of words and whole texts. On the basis of this "knowledge" the computer is able

to search for news, articles, and other documents on the Internet and in various information repositories. Unlike traditional search engines, OntosMiner does not retrieve desired information on the basis of individual keywords, but on the basis of the meaning of an entire document that is submitted as a query. After examining the entire volume of data and generating the necessary selection of related articles, the linguistic processor is able to automatically create a brief analytical report describing the essence of the issue or event.

Alexander Kalinin noted: "It is an intelligent system that is capable of independently solving the most serious analytical and applied problems in various fields, including business, public administration, law enforcement, health care, education, science, etc."

Project participants include the Higher School of Economics, the Russian Academy of Sciences Computing Center, the Biometric Technology Research and Testing Center of the Bauman Moscow State Technical University, the Scientific and Technical Society of Oil and Gas Workers named after I.M. Gubkin, Pacific National University, Yaroslavl State University, Volgograd State Technical University, the Central Scientific Research Institute for Economics, Informatics and Control Systems, the editorial departments of several national media, and a number of other organizations, public and private companies operating in the field of information services, software development, energy, and law.

Alexander Kalinin noted: "Currently the linguistic processor can be used to process tens of millions of documents consisting mainly of media publications. This figure looks impressive, but it in fact represents a rather modest database of 'knowledge.' This figure should constantly grow due to the entry of new information into the system from various fields. This process will continue to expand and improve the system's analytical capabilities. This is exactly the problem that our system is designed to solve in cooperation with many partners who have been granted access to our system."

**Boris Dimitrin**



# INTERPOLITEX-2015

In October Moscow invites experts from around the world to VDNH

**The next 19th International Homeland Security Exhibition INTERPOLITEX-2015 will be held from 20 to 23 October 2015 in Moscow on the territory of the All-Russia Exhibition Center VDNH (Pavilion 75). The exhibition will be organized by the Russian Federation Ministry of the Interior, Federal Security Service and Federal Service for Military-Technical Cooperation and exhibition operator was Exhibition Companies Group "BIZON". The Interpolitex exhibition has become the central event of the Federal significance among all advertising and exhibition events in the sphere of national security held in Russia and CIS.**



The INTERPOLITEX-2015 exhibition showed good results. It was opened by the Russian Federation Minister of Internal Affairs Mr. Vladimir Kolokoltzev, Minister of the Russian Federation for Civil Defence, Emergencies and Elimination of Consequences of Natural Disasters Mr. Vladimir Puchkov, Ambassador Extraordinary and Plenipotentiary of People's Republic of China to the Russian Federation Mr. Li Hui and other officials.

Minister of Internal Affairs of the Russian Federation noted that the exhibition has become a traditional ground for demonstration of the latest developments and where representatives of the law enforcement bodies and agencies have a possibility for a direct dialogue with their designers and manufacturers.

According to Ambassador of People's Republic of China the exhibition is the event of special significance greatly contributing to further development of bilateral partner programs. And one can tell that the tendency of

People's Republic of China to closer cooperation with Russian designers and manufacturers working in the field of security industry was practically underlined by the number of Chinese companies who took part in the trade show as exhibitors.

Exposition was located in all three halls of the exhibition pavilion with a total exhibition space of 25,500 sq. m. The event was presented as a fitting combination of several exhibitions and specialized expositions divided into following sections including International Exhibition of Police Systems and Equipment, Military Technical Salon, Exhibition of Technical Systems and Facilities for Border Protection and Security "Granitsa" (Border) and Exhibition of Unmanned Multipurpose Vehicle Systems UVS-TECH 2014. That year 473 domestic and foreign companies and organizations from 21 countries of the world took part in the event. This number included 69 foreign companies, from 20 foreign countries.

Among them one could meet firms and companies from Austria, Belgium, Bulgaria, Canada, China, Czech Republic, Germany, India, Israel, Italy, Japan, the Netherlands, Republic of Belarus, Republic of South Africa, Singapore, Sweden, Switzerland, Taiwan, Turkey, Finland. Among them one could meet such companies, as LAHOX OPTICS B.V, Flir Systems, MKU, Česká zbrojovka, MicroSystemation, MAKINA VE KIMYA ENDUSTRISI KURUMU, Beth-El Industries LTD, Cellebrite Mobile Synchronization, ZHEJIANG ULIRVISION TECHNOLOGY CO., LTD, ST Electronics, Alpha Optics, Wuhan Guide Infrared Co. Ltd., ZHEJIANG DALI TECHNOLOGY CO., LTD and a number of others.

People's Republic of China was presented by 28 firms and companies and Republic of South Africa was present at the exhibition with a National Pavilion, which gathered 12 companies. Within the framework of wide science and business program of the Interpolitex 2014 exhibition were held 5 conferences, 5 workshops, 5 round table discussions and 8 presentations devoted to the most pressing problem of security of the state and its citizens. More than 2200 specialists took part in discussion of 71 reports and presentations.

One of the key events of the business program became the conference held by the Russian Federation Ministry of the Interior—"Prospects of Developing of New Items of Armaments and Special Equipment of New Generation". Besides, the most interesting events of the exhibition business program were: Research-to-Practice Conference of Russian Border Guard Department of the Federal Security Service: "Focal Areas of Technical Development of Protection of the State Border and Objects of Border Infrastructure"; International Specialized

Conference "Technologies of Unmanned Flying Systems - UVS-TECH 2014".

According to the information received from the Registration Desk the exhibition was attended by 16,500 visitors from 63 countries. Not less than 30% of the visitors were represented by top-management staff, i.e. decision makers. Large majority of participants and visitors of the exhibition (more than 84%) took a favourable view of the exhibition and its quality. According to their opinion they achieved their goals and received the information needed for their further work.

56 exhibitors presented their products within the framework of the «National Security» Contest. The winners of the contest were awarded with the «Quality and Security Guarantee» Gold Medal and with the Diploma of Laureate of the Contest. 23 enterprises and companies took part in live demonstration of technical, operational and combat capabilities of 47 various types of police and military technical equipment for specialists, held on October 22 on the special testing and shooting range of the Federal State Enterprise "Geodesia" in the town of Krasnoarmeysk, Moscow Region. Within the framework of live demonstration program special units of Internal Troops of the Russian Federation Ministry of the Interior showed their skills and abilities. Live demonstration was attended by more than 2500 visitors.

**OCTOBER 20-23  
MOSCOW, ALL-RUSSIA  
EXHIBITION CENTRE (VDNH)**

**INTERPOLITEX**  
MEANS OF STATE SECURITY PROVISION

## Safety and Protection

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Presentations of the T-90MS tank and a comprehensive program for ensuring security of states, large administrative units, cities, state borders, and crucial importance facilities, aimed at a wide range of specialists, will take place at Conference Room A on February 23 and February 25, respectively.

In addition, Rosoboronexport's booth will provide information on the T-90S tanks, MSTA-S 152/155mm self-propelled gun with an automated laying and fire control system, BMP-3 IFV, Iskander-E tactical missile system, Smerch and Grad multiple rocket launchers, Kornet-EM ATGM system, engineer equipment, a variety of close-combat weapons, special technical means for counter-terrorism units.

Regional partners might be interested in the Yak-130 combat training aircraft and Mi-35M and Mi-28NE attack helicopters, air defense systems like the Pantsir-S1 SPAAGM, Tor-M2E and Buk-M2E SAM systems, and naval equipment such as patrol and missile boats, as well as Project 636 diesel-electric submarines.

"We are offering a comprehensive approach to equipment of security agencies and are confident that Russian military products can signif-

icantly enhance their combat capabilities. Given the growing threat posed by terrorist and extremist groups, we are ready to offer our partners effective tools that have been developed keeping in mind Russia's vast experience in counter-terrorism operations," — said Igor Sevastyanov.

### LIMA 2015

As part of the International Maritime and Aerospace Exhibition, LIMA 2015, to be held from 17 to 21 March on the Island of Langkawi (Malaysia), Rosoboronexport, part of the Rostec State Corporation, will continue to actively promote Russian defense products in Malaysia and other South-East Asian countries.

"We have a good position in the Malaysian market and we look forward to continuing fruitful cooperation. We are ready not only to supply finished products, but also to discuss the issues of establishing joint and licensed production. We will hold talks with virtually all the commanders and senior officers of the Malaysian security and law enforcement agencies, including defense minister and commander-in-chief of the country's armed forces. We hope that military-technical cooperation between the two countries will



increase in the coming years," — said Vladimir Ereschenko, Head of Rosoboronexport's Regional Department, who leads the company's delegation at the exhibition.

Major interest among Malaysian specialists is expected in air defense weapons like the Pantsir-S1 SPAAGM system and Igla-S MANPADS, as well as in Mi-171Sh helicopters. Rosoboronexport will hold a presentation of a comprehensive security sys-

tem for cities, industrial facilities and state borders. In the naval sector, among Russian products that are most relevant to Malaysia are the Sobol, Mirazh and Mangust class patrol boats, an integrated coastal zone surveillance system, and a variety of shipboard weapon systems, which can also be installed on non-Russian-built ships.

For its other regional partners, Rosoboronexport will also carry out

presentations of the Yak-130 combat trainer aircraft, Be-200 amphibious aircraft, Mi-35M and Ka-226 helicopters, Project 636 submarines and Project Gepard 3.9-class frigates.

Rosoboronexport will showcase a total of over 170 Russian defense products and conduct consultations with Malaysian arms manufacturers about the prospects for joint projects.

The Royal Malaysian Air Force's Su-30MKM and MiG-29 fighters, allotted to the Smokey Bandits national aerobatic team, will traditionally participate in the demonstration flights during the exhibition.

The 1993 agreement to supply MiG-29 multi-role fighters, which later underwent heavy upgrade, became the first contract in the area of military-technical cooperation between Russia and Malaysia. In the early 2000s, Russia and Malaysia signed delivery contracts for the Metis-M1 ATGM systems, Igla MANPADS and Su-30MKM multi-purpose fighters. In 2007, the first Malaysian astronaut flew on board the Soyuz spacecraft to the International Space Station, as part of the offset program under a Su-30MKM delivery contract.

**Sergey Smirnov**