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Editorial/advertising

Editor
Vladimir Orlov
orlov@rvs-holding.ru

English editor
Alan Norris

Maker-up
Irina Danenova

Advertising manager
Marina Bulat
bulat@rvs-holding.ru

Translator
Moscow Translation Agency MTA, Inna Frolova, Translation Agency Translink
Photographer
Dmitri Kazachkov

Photos by
Dmitri Kazachkov, Dmitri Lifanov, Alan Norris, Sergei Alexandrov, Michael Bibichkov, by companies Eurocopter, UTair Aviation, Russian Helicopters, Vertical-T, Ulan-Ude Aviation Plant, Aviamarket

Publisher
Russian Helicopter Systems
Moscow Region, Krasnogorsk, 65-66 km Moscow Ring Road, IEC "Crocus Expo". Pavilion № 3, office 332, 143402

Tel. + 7 (495) 926-60-66
URL: www.helisystems.ru

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Marina Bulat

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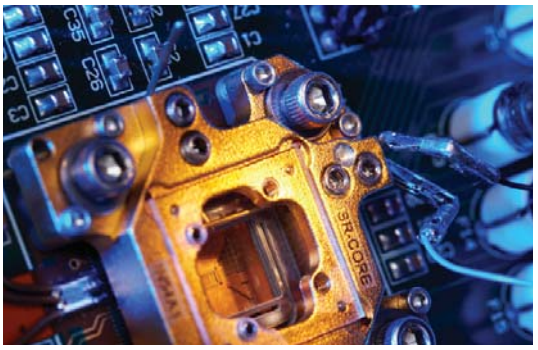

Russian civilian helicopters are actively used in the PRC and interest in these aircraft continues to grow

Russia Helicopters is a modern technology company looking to the future

An interview with the Deputy Director General for Marketing and Business Development of Russian Helicopters Alexander Shcherbinin

The East Asian market for helicopter equipment, which includes China, is very diverse in terms of its partnership preferences. A number of countries are invariably oriented towards American producers; somewhere the European vector predominates, mainly represented by Airbus Helicopters; and there are countries with an appreciable Soviet background. But currently those preferences are much more mobile than previously—competition among manufacturers is growing. Such major players as India and the People's Republic of China have long practiced profound diversification. What is the Russian Helicopters Holding Company undertaking to support a high level of trust in its products and step up its presence on this market?

The East Asian market is indeed extremely diverse, and although there are certain common traits, one must speak separately about the key players. Let us mention that India and China have very different histories of development of the helicopter industry. In contrast to India, the PRC entered into active cooperation with helicopter manufacturers in the US and Europe some 25 years ago; in earlier times China supplemented its entire military and civilian air fleet exclusively with Soviet and Russian-made helicopters.

And although Russian equipment during this period remained the largest component of the country's air fleet, re-armament and development of new programs was underway almost without our participation. The subsequent active promotion of Russian Helicopters on the global markets has brought a positive dynamic to the Russian-Chinese collaboration. At present, aftersale service programs and new opportunities for cooperation have supplemented the traditional advantages of our helicopters.

Russia Helicopters is for its Chinese customers not only a reliable partner but also a modern technology company looking to the future, constantly bringing to market new products within model ranges and continuing to modernize its proven bestsellers.

Currently, more than 400 Russian-made helicopters are in use in the civilian and military sectors of the PRC. These include different variations of civilian helicopters of Mi 8/17, Mi 26, and Ka 32 types and combat aircraft like the Mi 24/35 and Ka type helicopters of China's sea-based aviation.

Russian helicopters are reliable, safe, and efficient. They can be used in high mountain terrain as well as in challenging weather conditions or in high humidity. Trust of customers is of course earned by high flight performance, reliability, ability to be used under a wide range of conditions and temperatures (from 50 to +50 °C), multi-mission capability, ease of operation and maintenance.

It is worth mentioning that Russian civilian helicopters are actively used in the PRC for people search and rescue and firefighting, and interest in these aircraft continues to grow.

The Russian Helicopters Holding Company offers its Chinese customers the latest mid-class helicopters – the Mi 171A2 and Mi 38 – as well as the light "Ansat" helicopter; the Mi 38 is considered one of the most promising aircraft manufactured in Russia. This helicopter is made completely from Russian components and can fly at exclusively great speeds and heights. Its range of application is also broad: from carrying cargo and passengers to conducting search-and-rescue and medical missions.

Thanks to its relatively low price in comparison to competitors and high quality of helicopter equipment, I think we can hope for an increase in supplies both to China and other countries in the region.

I wonder what examples of Russian equipment do the Chinese operators try to master right now? When we speak about the latest deliveries.

At the beginning of March, China received a shipment of Mi 171s pursuant to a contract between China General Aviation Service and Russian Helicopters. The equipment is intended to be used for fighting forest fires and environmental protection.

The aircraft underwent the full cycle of testing at the plant, following which they were successfully delivered under their own power to the customer's base in the city of Shihezi in the Xinjiang-Uygur Autonomous Region of the PRC.

The equipment installed onboard the Mi 171 helicopters makes it possible to carry out air flight tasks, including in the very tough conditions of the Xinjiang-Uygur Autonomous Region. In particular, the equipment includes an auxiliary power plant, the SAFIR, which allows to increase altitude performance at starting, and external sling – for transporting oversize cargo with a weight of up to 4 tonnes, as well as a rescue hoist. This version of the Mi 171 features a wider right-side sliding door, a supplemental fuel tank inside the cargo cabin, and a searchlight.

Mi 171s in this configuration are already being used for environmental monitoring and for firefighting by the authorities of the most extensive Chinese province which has on its territory both a sandy desert and the high mountain ridges of the Eastern Tian Shan Mountains (at an elevation of around 7000 meters). This is yet another confirmation of the fact that Russian-made helicopters are successfully operated throughout the entire territory of China, including in regions with severe climatic and terrain conditions.

Mi 171 helicopters have long been used throughout the territory of the PRC for transporting and evacuating people from natural disaster areas, as well as for transporting various cargos, including medications, humanitarian aid, and construction materials.

The second place among the Russian helicopters for civilian purposes in the PRC is tightly held by Ka 32 helicopters with various modifications. Will China continue to purchase these helicopters for carrying out a wide range of civil missions?

Helicopters of the Ka 32 type have been actively operated in China for several years now for firefighting and search and rescue missions. Built on a coaxial design, this helicopter is considered one of the best for fighting complex fires under urban conditions. Therefore it has proved itself in China with its high mountain regions and modern megalopolises.

At the beginning of the year, Russian Helicopters completed a delivery of the first batch of Ka 32A11BC multipurpose helicopters to the Chinese company Jiangsu Baoli Aviation Equipment Investment.

The agreement for delivery of the four Ka 32A11BC helicopters was signed in November, 2015. Under the terms of the contract, the first batch of two aircraft has already been delivered to the customer, with two more helicopters to be delivered in 2017.

Russian Helicopters has previously delivered eleven helicopters of the Ka 32 type to various Chinese customers. Three aircraft were supplied in in 2015, and a number of contracts with Jiangsu Baoli were signed during the China Aviation and Aerospace Exposition 2016 exhibition, including delivery of one Ka 32A11BC helicopter in 2017, along with delivery of aviation inventory for aircraft of that type.

Considering the further growth in the fleet of Russian-made helicopters in China, the Russian Helicopters Holding Company is also actively working out the question of creating technical maintenance centers on the territory of the PRC.

As far as we know, customers in the PRC keep showing great interest in this aircraft, and we expect that collaboration regarding the Ka 32 as part of Chinese air fleet replenishment and renovation will be continued.

On 14 Aug 1932 TsAGI 1-EA helicopter under the control of A. Cheremukhin rose into the air up to a height of 605 meters

An inextricable linkage of times

This year Russia's helicopter community marks several significant dates together. The first and probably the most important is that the Helicopters Russia Holding Company becomes ten years old. By this time it has become one of the world's leaders in the field of helicopter construction. And that is not surprising: in spite of the fact that the holding company was founded in 2007, its key enterprises have more than a 70-year history. Another meaningful event, without doubt, is the tenth annual HeliRussia international exhibition to be held at the end of May this year, which has become a showcase of achievements of the Russian helicopter industry in the modern history.

Secret anniversary

And here is something about one anniversary that we celebrate in the 17th year of the second millennium, but probably few people know about it, although it is directly connected with the first two—if it hadn't been for that one, the first two would not exist…

Well, we won't keep you hanging. Let us just recall that 85 years ago—on 14 August 1932—an experimental TsAGI 1-EA helicopter under the control of the pilot and aircraft designer Aleksey Cheremukhin rose into the air up to a height of 605 meters. Cheremukhin then exceeded the official world record by 34 times! The creation of that rotorcraft, also known as Cheremukhin's helicopter, was a real breakthrough in the history of helicopter construction and a completion of the characteristics of such propeller-winged machines. But it should be noted here that at that time all work on such a helicopter was held in absolute secret, so nothing was known about the designer's record flight not only throughout the world but in the USSR as well.

Of course that's not a secret today, so let's just remember that person and his brainchild, for without them, as also without many others, there would be nothing for us to remember.

From the early days of the Central Aerohydrodynamic Institute (TsAGI), Aleksey Cheremukhin worked there together with other well-known students of professor N. Ye. Zhukovskiy and participated closely in creating the first Soviet aviation research establishment. He was the one named in 1927 to become the leader of TsAGI operations to design rotorcraft (autogiros and helicopters). The outcome of the group's joint work was the TsAGI 1 EA helicopter.

Helicopter technology development started at TsAGI in 1925, under the leadership of B. N. Yuryev. A year earlier it was he who headed the experimental aerodynamic section, consisting of a special helicopter group led by Cheremukhin. In addition to him, the group included young helicopter construction enthusiasts: V. A. Kuznetsof, I. P. Bratukhin, A. M. Izakson. Later M. L. Mil, N. K. Skrzhinskiy, N. I. Kamov, and V. P. Lapisov, who had worked on autogiros and were later to become well known Soviet helicopter designers, joined the group. Other Soviet engineers were also collaborators of Cheremukhin, and later they became leading specialists in the field.

Aleksey Cheremukhin participated closely in creating the first Soviet aviation research establishment

First of all, the developers plunged into theoretical research on various helicopter and rotor schemes. After that, on a test stand built at TsAGI, experimental research was begun on a rotor with a diameter of 6 meters. Later, in 1928, work was begun to create an experimental helicopter. The first experimental helicopter built in the Soviet Union was named TsAGI 1-EA (which means the first experimental aircraft). It was decided to build the helicopter according to a design that had already been proposed and created in 1909 to 1912 by B. N. Yuryev.

In July 1930, after developing unique, purely helicopter-related assemblies, including a central reducer, a four-blade rotor, freewheels, and other components of a complex transmission, the specialists turned to full-scale testing of the first helicopter. And our designers achieved phenomenal success in their work, as was shown two years later.

Alas, the TsAGI 1-EA, along with other helicopters built by the specialists from this world-renowned research center, were not destined to become prototypes for mass-produced machines, but without them it is impossible to imagine the establishment of the Soviet school of helicopter construction. Those who worked on the earliest model included outstanding scientists and designers, such as A. M. Izakson, K. A. Bunkin, A. F. Maurin, G. I. Solntsev, and I. P. Bratukhin, who became later a professor at the Moscow Aviation Institute, laureate of the State Prize, and chief designer of the Omega helicopters, and many others whose names are eternally inscribed in the history of our aviation construction.

That was the first world-level helicopter achievement, when the Soviet (Russian) helicopter industry made a bold and substantial step toward its great future.

Yes, then there was oblivion; yes, with the World War II it became necessary to solve other issues. After the war, again no prospects were seen for the development of rotorcraft until the Americans used helicopters massively in the Korean War and showed to the whole world their importance and indispensability. And then all the achievements of the domestic helicopter construction pioneers became useful, and their students created the USSR's powerful helicopter fleet.

Rotorcraft cyclicality

The revival of the industry at the end of the first decade of the millennium came with the creation of the Helicopters Russia Holding Company and the first HeliRussia Exhibition in 2007—a similar stage in the conversion

of the authorities to the industry with good domestic technological traditions.

And indeed, with the collapse of the Soviet Union helicopters again came to be forgotten, as was also the case with many branches of our economy, not to mention science. Thus, at the beginning of the 2000s Russian helicopter construction as a world business factor no longer existed.

Without TsAGI 1-EA it is impossible to imagine the establishment of the Soviet school of helicopter construction

There were a few separate manufacturing plants that struggled to survive and put out an extremely small volume of end products. The share of Russian helicopters at that time was estimated to be three percent, with a production rate of around 80 helicopters a year. Startup conditions for the competitive struggle were different from the beginning for us and for our foreign partners. The competitors were already serious world players at the time of the collapse of the USSR. Therefore, in order to get onto the level of the leaders it was necessary, in a very short time, to concentrate all our intellectual, manufacturing, financial, and personnel potentials and to create the sort of organization that could be accepted into that elite club and, the main thing, to compete with them.

So the Helicopters Russia Holding Company appeared, and along with it the HeliRussia Exhibition. And the important thing is that although there was demand in the field, the exhibition became a dynamic undertaking of private individuals, supported by the government. Like the one-time genius designers—Cheremukhin, Bratukhin, Sikorskiy, and Mil—now the new entrepreneurs started to put their efforts into developing the industry. HeliRussia became the platform for that process—gaining altitude, creating new programs and new helicopters, and recruiting single-minded people and new staff.

There is something to be proud of

Today, the geography of the primary domestic manufacturer of rotorcraft machines encompasses literally the entire country. The holding company includes a design office, helicopter and aviation repair plants, components manufacturing and maintenance enterprises, and also service companies providing after-market support to in Russia and beyond.

In order to apprehend the scale of the company, just look at the numbers: in 2015 more than 8400 helicopters manufactured in Russia were operated in more than 100

countries of the world, the holding company claimed 94% of the Russian helicopter market, and its world share of sales amounted to a 10%. The enterprises of Helicopters Russia manufactured 23% of the world fleet of military helicopters; the holding company's production amounts to 32% of the world's fleet of combat helicopters and 43% of mid-sized military transport helicopters. In the world fleet of civilian helicopters, Russian machines account for 60% among heavy-lift helicopters (maximum takeoff weight over 20 tons) and 66% in the class of medium helicopters (with a takeoff weight from 7 to 20 tons).

The Helicopters Russia Holding Company is not only the largest manufacturer of rotorcraft machines in the world, but is also the developer of the most advanced and truly unique technologies, exemplified in the world best-sellers and record-holders. Among them are the Mi-8/17, the most popular helicopter in the world over the entire history of the field; the Mi-26(T), the helicopter with the heaviest cargo lift capacity in the world, capable of moving cargo up to 20 tons; and the Ka-32A11VS, a multipurpose helicopter with a coaxial rotor design, having effective applications in firefighting and rescue operations.

Today the holding company's design offices are developing new helicopter models, responding to the latest market demands. In particular, this is the Mi-38, a mid-weight transportation helicopter for industrial and commercial enterprises, and also for servicing people in remote areas; the Ka-62, a mid-weight multipurpose helicopter in which the latest composite materials are used; the Ka-226T, a light multipurpose helicopter with superlative maneuverability for both urban and mountainous locations, capable of landing on a small sites; the Mi-171A2, one of the holding company's novelties, an improved version of the Mi-8/17 family with substantial modifications in design; and the Mi-26T2, a modernized version of the record-holding Mi-26T helicopter that includes state-of-the-art avionics and more.

Showmanship

The level of the HeliRussia Exhibition is also not standing still. The organizers, as it were, are keeping their fingers on the pulse of things, trying to present all the latest novelties in the field.

Oer the last decade, almost all modern helicopters of Russian and foreign manufacture have been presented at the HeliRussia Exhibition. This is not only a helicopter show but also a wide set of business meetings, conferences, and forums; here the previous year is traditionally summed up, potential is assessed, and new tasks are set.

Today, rotorcraft developers and manufacturers, operator companies, repair and servicing enterprises, aviation equipment dealers, service providers, and other companies involved in the helicopter industry traditionally take part in the exhibition. HeliRussia is the only place to discuss current issues in the field and around. It fosters the development of international cooperation in the helicopter industry and is an inseparable part of the global helicopter market.

> That was the first world-level Soviet helicopter achievement

And we owe it all to such people as Yuryev, Cheremukhin, Bratukhin, Mil, Kamov, and many others, who did indeed lay that inextricable linkage of times, without which it would have been impossible for the current generation of helicopter manufacturers to raise the prestige and authoritativeness of our industry and to regain high positions in the international market.

Dmitriy Gnatenko

Egypt has applied to Russia with a request for selling helicopters previously intended for the Mistrals

Return to the Mistrals

One of the most curious news items on the weapons market with participation of the RF during the last half-year may have been the beginning of implementation of the contract between Russia and Egypt for delivery of Ka 52 helicopters in deck-based version.

Conclusion of the contract for delivery of the Ka 52K helicopters to Egypt has first become widely known during the MAKS-2015 air show in Zhukovsky. The lot size and the contract value were not disclosed. The cost of 50 helicopters of that type, taking into account expenditures for weapons, infrastructure, crew training, etc., can reach two billion dollars.

Later, in December of 2015, Alexander Mikheyev, then head of the Russian Helicopters holding company, has announced the preparation of deliveries of 46 Ka 52 “Alligator” helicopters to Egypt. It was reported that implementation of the contract would begin in 2017.

The Ka 52 “Alligator” combat reconnaissance and strike helicopter has been mass-produced for the needs of the RF Ministry of Defense since 2010. The helicopter is intended for destroying tanks, armored and unarmored combat vehicles, manpower, helicopters, and other enemy's aircraft at the front line and in tactical depth in any weather conditions and in any time of the day. Simultaneously with the Army version, the shipborne modification, Ka 52K, has been developed. It was the type of helicopter intended for completion of air groups of universal Mistral type landing ships.

It is worth briefly recalling the scandalous circumstances of that Russian-French project. The contract for building of two Mistrals—the Vladivostok and the Sevastopol— at the cost of 1.2 billion Euros was concluded in 2011. In 2015, for political reasons, the contract was terminated. The Kremlin announced that France had transferred the money that had been paid by Russia according to the contract (in the amount of 950 million Euros), and after the return of equipment Paris acquired the right of ownership and could again freely dispose of the ships. Soon both Mistrals have found their new owner, the Egyptian Air Forces. In autumn 2016 Egypt has applied to Russia with a request for selling fifty K 52K and Ka 29/31 helicopters previously intended for the Mistrals. There was no other solution since the landing ships had been built and equipped taking into account the dimensions of Russian helicopters.

The participation of Egypt in this nonstandard configuration with the participation of European and American politicians, French ship builders, and Russian manufacturers of combat helicopters appears to be not so accidental. This Arab Republic historically has frequently turned up in French sphere of influence, and starting from the “Cold War” period Russia in the form of the USSR had become such a regional actor. We might say that both countries are the key regional partners of Egypt. It has become possible to resolve that “dead-end” situation into which the French party had gotten itself after refusing to deliver the Mistrals to Russia with the help of mutual-friendly Egyptian Arab Republic and money from Saudi Arabia.

The Ka-52K helicopter and the large anti-submarine ship «Vice Admiral Kulakov»

The historical image

The cooperation between Russia and Egypt in the military technology area has a long history. It was exactly Egypt that had become the first country of Arab world to buy weapons from the USSR. The first agreement in the military area was signed in 1955 and provided for delivery of Soviet weapons to the amount of $250 million. From 1956 to 1973 Egypt was the leading purchaser of Soviet military equipment and weapons in the Middle East. The total volume of Soviet military aid to Egypt in that period was equal to almost $3 billion. In addition, Egypt addressed USSR with a direct request for military aid, and in 1967 and 1973, the USSR provided support to Egypt during the military operation against Israel. However, in the mid-1970s a period followed which was marked by deactivation of the Soviet-Egyptian contacts in political and military areas. In 1976, Egypt had unilaterally denounced the bilateral Agreement on Friendship and Cooperation of 1971. In 1978, during the signing of the Camp David Agreements with Israel, Egyptian President Anwar Sadat had assumed the liability to stop purchase of Soviet weapons and switch to US-manufactured weapons. Relations with the USSR in the military technology

The participation of Egypt in this nonstandard configuration with the participation of European and American politicians, French ship builders, and Russian manufacturers of combat helicopters appears to be not so accidental

Ka-52K «Katran» helicopter during the sea trials phase

area had been broken. For Sadat personally his new political course ended deplorably: In October 1981, he was assassinated by the group of Egyptian airborne troops officers during a parade in tribute of the anniversary of the Arab-Israeli War of 1973.
Hosni Mubarak, who had become the president of Egypt in the same year of 1981, began to follow a course for normalization of relationships with the USSR.

The history of helicopter deliveries to Egypt begins with the Mi 4 combat helicopters that were delivered to Egypt by the USSR in the late 1960s as part of a large batch of weapons. By the beginning of 1970 a separate brigade equipped with Mi 4 helicopters operated as part of the ARE Air Force. Along with the "Four", some heavy Mi 6T military transport helicopters were supplied to Egypt during the same period. Two batches of these helicopters, totaling 19 in quantity, were delivered in 1965 and 1971.

Here in Egypt in 1967, the baptism of fire of currently advanced Mi 8 helicopters has occurred, which have become the basic helicopter transport for the Egyptian Army by 1973. And even today, the Mi 8 helicopters remain the most mass type of combat Russian-made helicopter in this Arab republic (40 units as of 2016).
Renewal of the delivery channel for helicopters manufactured in Russia has taken place only in the end of 1990s. Thus in 1997 a deal was concluded for delivery of 20 Mi 17 1V military transport helicopters and several Mi 172s. In 2008, the RF and the ARE have signed a contract for delivery of 14 Mi 17 helicopters to Egypt to the amount of about $150 million.

On June 23, 2009 in Cairo, during an official visit by the president of RF Dmitry Medvedev, an Agreement for Strategic Partnership between Russia and Egypt was signed, providing, among others, for development of cooperation in military technology area.

During the period of 2010 to 2012 negotiations were conducted between Russia and Egypt for delivery of multipurpose helicopters and anti-aircraft rocket systems; however, no contracts were signed, since the parties could not reach a settlement relative to payment conditions.

These interactions however were not entirely fruitless, and cooperation in the military technology area has started to gain momentum. On November 13 14, 2013 the first Russian-Egyptian meeting was held in Cairo, and during the negotiations the contracts were agreed upon in the value of over $3 billion for delivery of up to 24 MiG 29M/M2 fighters and twelve Mi 35M strike helicopters; the package agreement has also included a "Kornet" antitank rocket system and Mi 8/17 type helicopters.

The "Egyptian" Ka 52K have been first shown to journalists

Even though the deck-based Ka 52s had already been through the running-in process for several years on ships of the Russian Navy, with training of crews and obtaining normal operating experience, for journalists this helicopter was a novelty, almost a sensation. Interest in the new helicopter has arisen in earnest only now, after conclusion of an impressive contract with Egypt.

On March 9, 2017, during the visit of the Deputy Minister of Defense of the RF Yury Borisov to "Arsenyev Aviation Company "Progress" named by N.I. Sazykin" public stock company (located in the Primorsky Territory of the RF), the export version of the Ka 50 helicopter was shown to journalists.

The main feature of the helicopters in version intended for Egypt is the OES 52 optoelectronic aiming system, which is installed under the nose section of the helicopter in place of the standard GOES 451 optoelectronic system. The OES 52 was first presented on the one of preproduction Ka 52K "Katran" helicopters at the MAKS-2015 air show.

"The helicopters will first be delivered to Egypt. The Ka 52 has good export potential. I think the Syrian campaign has made a very good advertisement for it, and so we hope that the list of countries will expand," said Yury Borisov. "Also this year we will complete all tests of the shipborne version of the Ka 52 in order to decide on the ships of the Russian Navy on which they will be based upon."

Andrey Vezhnovets

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喀山直升机制造厂其业务"厨房"丝毫不掩饰。喀山直升机制造厂所有的敏感地方，都很最开放，允许记者参观该厂和登录博客。. «这就是领导政策», — 该厂员工在参观时介绍说到。 年轻员工康斯坦丁陪同参观之旅

潘九赫是 高级设计工程师. 他是从喀山飞机制造厂来这里工作的研究生, 并已经成为了喀山直升机制造厂明星 : 2014 最优秀员工, 2015最优秀员工, 一切应感谢总经理, 夺得WorldSkills世界技能大赛赛段冠军。确实, 他的领导叶甫根尼尼古拉耶夫说了, 成为航空明星很难得. 并不少见 - 明星团队。

«航空 - 是集体的事情。如果想发光需要许多的明星团队. 就像图波列夫— 很少人知道, 他曾与尼古拉·茹科弗斯基在中央航空流体力学研究所工作过。这个团队除了很多的明星, 这就是一个明星组成的团队: 别特列耶夫, 苏赫夫,米利, 舍干勒特特. 他们之中各个都是明星», — 叶甫根尼尼古拉耶夫这样说道.

建造一架飞机简单, 而建造一架直升机就很难了, 建造一个«库里槟»,就可能需要建造一个组装台. 如果我们认真严肃地处理这个事情，我们需要调成共同一水平高度叶甫根尼尼古拉耶夫这样说道. 他除了在喀山直升机制造厂工作，还任教于图波列夫喀山国立技术大学教授学生，重点培养那里的人才。

我们在统筹部与他们相遇了,空气动力学部门,后面就是— «技术工程师». 这是喀山直升机制造厂最费脑子的两个部门. 在第一个部门的工程师计算直升机在空中的运行 (影响运行新的速度，操控性，机动性细节), 在第二 部门- 是结构强度的可靠性。对于每一个员工 都要进行具体细节计算。日常工作：在直升机5万部件中，为了技术创新,需要每一个细节都经过精心设计。尽管直升机改动的范围不是经常变动，例如，汽车，每一个设计变更都需要仔细计算。部门员工总结，在生产过程中创新不断的改变。

喀山直升机制造厂主要生产全世界的米-8直升机系列— 最流行的直升机 - 广泛改装：运输，客运，救援，空中交通等。

叶甫根尼尼古拉耶夫 自豪的是，喀山直升机制造厂较强的苏联学校，分配到 WorldSkills 世界技能专业比赛工厂团队里。

«喀山直升机制造厂团队赢得了2016年秋天各项奖项 我的任务是计算元素的变形强度，因此，我们做了一个非常轻巧的设计», — 康斯坦丁潘九赫介绍道.

它的领导者持怀疑态度比赛：他们往往需要不惜任何代价和速度，为了解决问题,获胜不摆在首位。团队可以获胜，即使你创造了一个梦幻般的机器模型，将现实永远不能飞起来。

但比赛有助于培养团队精神和提高日常工作。员工平均年龄 40—42 岁, 这是一个很年轻的团队, 每一位工作人员都相互帮助. 在喀山直升机制造厂 制定了导师制度，设立了年轻专业人员委员会, 在喀山直升机制造厂人才培养和发展部门进行内部系统技术教育 . 所有这一切都是为了支持最近毕业生的航空文化原创精神。.康斯坦丁的第一个工作就业地点就是 - 喀山直升机制造博物馆 . 这是该项目任何新员工的第一个工作地点。

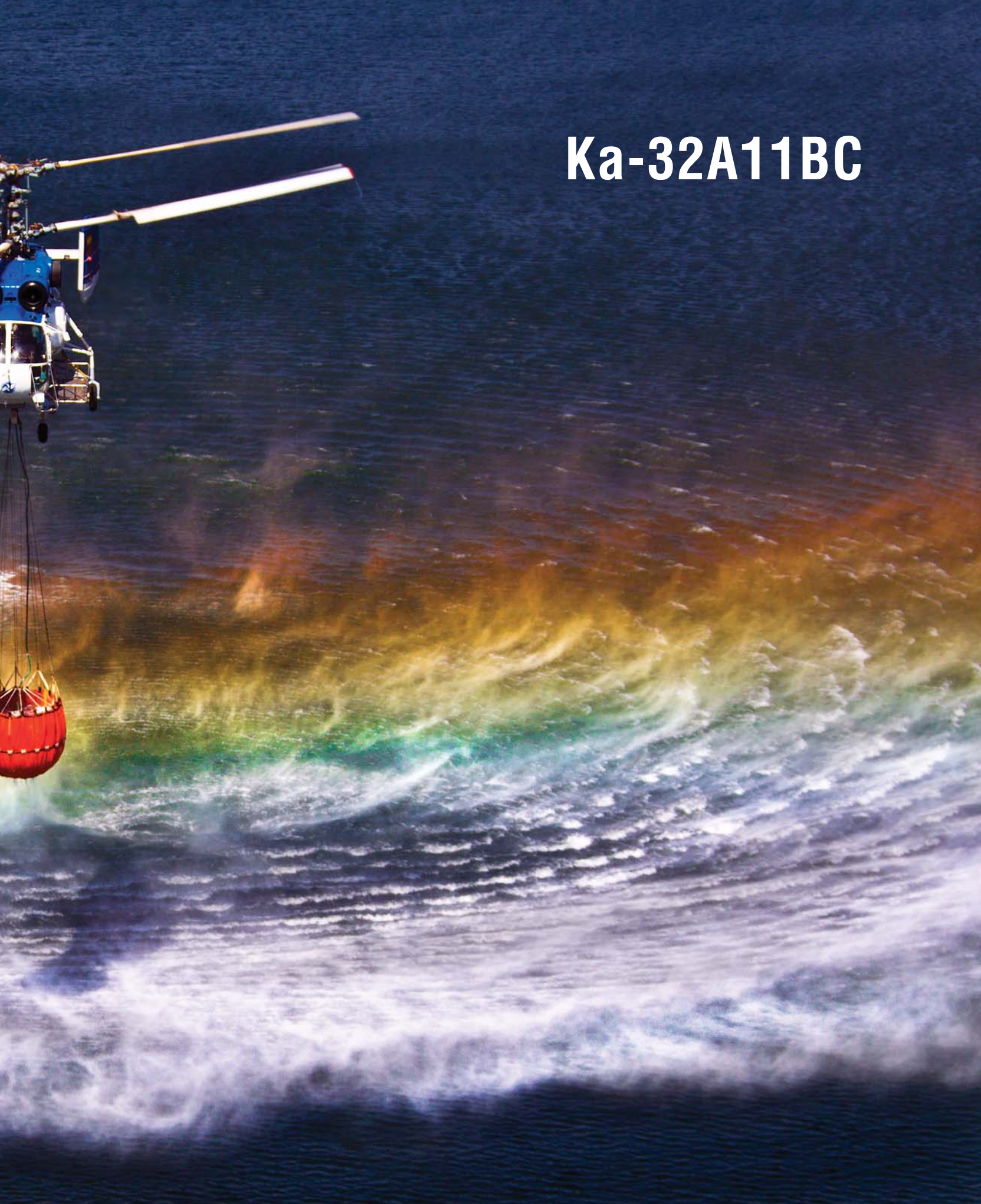
«当我去喀山直升机制造公司上班时, 我只是想看看真正的直升机, 摸摸它. 当你在大学，研究直升机和飞机 - 只是一个相对抽象的样子。 这里把幻想成为了现实。此外，你可以看到你的想法如何影响设计», — 康斯坦丁潘九赫这样说道.

他的部门负责，不仅计算作出设计改变现有的模型， 也有新的发展要素。甚至是新的直升机。如今，研究最紧迫的任务 - 创造“安萨特”直升机版本。

它在90年代已成为国内各个行业工程复兴的象征。 “安萨特”是从鞑靼文翻译过来就是“轻松”，“简单”的意思。简约而现代，所以今天可以这样描述。它可用于大范围的应用: 货物配送，旅客运输，搜索和救援行动，巡逻，

紧急医疗服务，交通运输管理，培训试点。俄罗斯军队购买“安萨特”教练版用于教学。私人客户同样需求配有VIP-设备的“安萨特”直升机。

« 我想发展«安萨特»到这样的水平, 让它得到普及. 我去过很多城市，看到有很多直升机停机坪, 但是直升机很少。我相信，直升机将会成为公共交通工具。 或者至少像出租车那样, — 潘九赫这样说道. — 实验设计局的每个员工都是发明者 。无论日常任何任务, 他都不轻易忽略，他要做出某种革命性创作。如果他突然有一个绝妙的主意，他总能得到上级的支持。 这样的好主意总能实现。这样的先例经常发生在我们面前»。



Ka-32A11BC

The technological updating of the entire model line of RH involves the introduction of the latest developments

The cooperation brinks

Today, more than 400 helicopters of Russian manufacture are in use in the civilian and military sectors of the PRC. Civilian organizations use the well-known helicopters of the Mi 8/17/171, Mi 26, and Ka 32 types. Chinese naval forces successfully employ the Ka 28 and Ka 31 ship-based helicopters.

Considering the further growth of the fleet of Russian-made helicopters in China, the Russian Helicopters Holding Company is actively explores the possibilities of establishing technical service centers within the territory of the PRC. Relevant negotiations are in progress with multiple companies.

Helicopters Russia offers to its Chinese partners helicopters that have already well recommended themselves, such as the Mi 26, Mi 171 and the Ka 32A11BC, and the most modern models, including the new multipurpose Ansat and the Mi 171A2.

The joint project to create a new heavy-lift helicopter became a breakthrough in the Russian-Chinese cooperation. So far, Russian Helicopters and AVIC have worked out the preliminary technical requirements and are continuing work on an agreement on how this machine will look. It is planned that the takeoff weight of the new helicopter could be 38 t; the maximum payload inside the cabin will be 10 t, and that for exterior suspension, 15 t. The helicopter will be equipped for round-the-clock operation under any weather conditions. It will be suitable for carrying out a full variety of tasks: transport, evacuation, fire-fighting, and many others.

The “999” service and the Ansat

The gradual transition from predominantly military applications to service and civilian-commercial areas is perhaps the most interesting perspective in the developing cooperation between the two countries. These two sectors in China are anticipating a real flowering in the near future. Therefore new helicopters and new helicopter technology from Russia will be more and more in demand in the domestic economy of the People’s Republic of China. And Russian companies like never before are making the effort to develop cooperation with their Chinese partners.

In April, Russian Helicopters held a presentation of the Ansat medical helicopter at the Chinese air show in Zhengzhou.

Specialists from the Russian Helicopters Holding Company displayed Russian helicopter equipment for conducting emergency operations for human rescue and to eliminate the consequences of emergencies to potential clients from China.

During the official portion of the event, specialists from the Russian Helicopters Holding Company conducted a seminar on the theme "Application of Russian Helicopters in Emergency Rescue Operations." The organizer of the seminar was the Chinese Union of Civil Aviation Emergency Rescue Operations. The organization unites Chinese air rescue forces and interacts with the government in emergencies, and, together with the Chinese Red Cross Society, forms the "999" service, a single air and ground rescue service throughout all provinces.
The guests invited to the conference included leaders of the Chinese Red Cross Society, the Chinese Seismological Agency's Center for Earthquake Rescue, the Agency for Economic Operations of the Ministry of Industry and Computerization, aviation companies involved with search and rescue, and a number of other organizations.

In the course of the event, specialists from the Russian Helicopters Holding Company also presented the light Ansat helicopter with the medical module.

According to experts, the model has a number of important competitive advantages over its peers. The medical module of the helicopter provides the ability to render first-response medical, physician, and emergency medical aid to victims on the spot. In addition, it is possible to carry out resuscitation and intense therapy and monitoring of a victim's basic vital signs while being transported to a medical establishment.

The medical version of the Ansat may be quickly converted into the passenger-carrying version and vice versa. In this way it can be used to render aid to victims in locations with rough terrain and in hard-to-reach remote regions. As the holding company noted, thanks to the important competitive advantages in its class the Ansat helicopter is arousing interest among helicopter operators not only from Russia but from other countries as well.

Russian Helicopters held a presentation of the Ansat medical helicopter at the Chinese air show in Zhengzhou

The new generation of onboard radio electronic equipment for civilian helicopters

Aside from the new reliable engines and transmission, the latest Russian helicopters will be equipped with the latest competitive avionics. The technological updating of the entire model line of Russian Helicopters involves the introduction of the latest developments, some of which are unique in the avionics market.

A major supplier of avionics, the Roselektronika, a part of the Russian Technologies State Corporation, is creating a new generation of avionics for civilian helicopters. The modern equipment will significantly reduce the dependency of helicopter manufacturers and operators on foreign components and services.

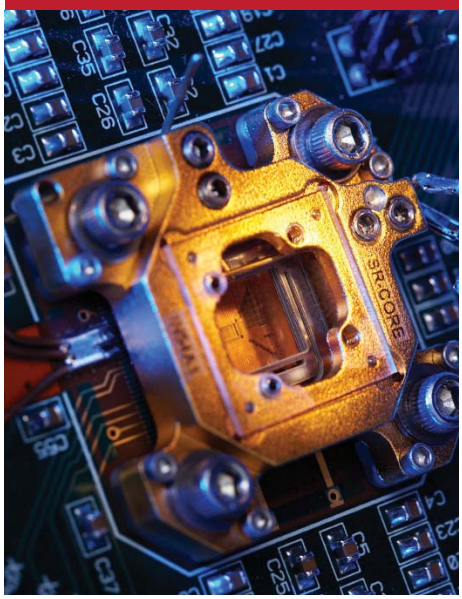
In the realm of import substitution of critical avionics equipment, specialists from the Luch Design Bureau in Rybinsk, have created a compact Doppler speed and drift meter (DSDM) for helicopters, combined with an altimeter. The device is intended for measuring speed, altitude, and inclination range of an aircraft, whether flying or hovering.

The equipment is part of the autonomous navigation system, by means of which a helicopter can automatically maintain course and orient itself under conditions of radio electronic interference, in the absence of satellite communications and signals from the traditional GLONASS/GPS navigation system. The new domestic DSDM automati-

cally determines the inclination range to the underlying surface and its type—water, ground, forest—which fully eliminates the human interference and the likelihood of piloting errors in a number of situations.

The Deputy General Director of Roselektronika, Arseniy Brykin, commented, “Today the market for civilian DSDMs and many other elements of avionics is almost completely dominated by foreign manufacturers. That implies dependency on suppliers of imported equipment, components, and services, and also severely impacts the price of the products and the cost of their operation. The situation here has to do with critically important onboard radio electronic equipment that influences navigation, maneuvering, and flight safety as a whole. In military helicopters, there are no such problems, and the time has come to solve these issues in civilian aviation.”

The DSDM-altimeter can be installed in any type of civilian helicopters. It possesses a significantly reduced weight and size characteristics, and in addition it fulfills the functions of an altimeter. Such a combination has made it possible to reduce the number of devices on board and to optimize the internal space of the helicopter.



In contrast to traditional DSDMs, the new device reduces the crew’s dependency on visibility conditions. It provides stable hovering of the helicopter at low altitudes and increases flight safety in fog, rainfall, and snowfall, and in other unfavorable conditions.

Such qualities make the equipment ideal for machines that participate, for example, in search and rescue operations, fire-fighting, etc.

In 2017, the Russian Technologies state corporation has merged the United Instrument Manufacturing Corporation and the Roselektronika Holding Company. The combined holding company is the Russia’s largest developer and manufacturer of radio electronic components and technologies, communications equipment and systems, automated control systems, robotic technical complexes, microwave radio electronics, and computer and telecommunications equipment. It combines more than 170 enterprises and research organizations in the radio electronics field. It employs 75,000 people. The holding company’s products are exported to more than 30 countries around the world, including countries in Europe, Southeast Asia, the Middle East, Africa, and Latin America. At present, the overall annual earnings of the enterprises in the holding company exceed 180 billion rubles.

With regard to collaboration between the PRC and the Russian Federation in creating helicopter equipment, a good many points of common ground can be expected, including joint development and exchange of experience in the avionics design and implementation. The Russian Helicopters holding company is also looking forward to deeper cooperation in the area of setting up joint ventures to manufacture helicopter equipment in the territory of China.

In 2017, the Russian Technologies state corporation has merged the United Instrument Manufacturing Corporation and the Roselektronika Holding Company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United Engine Corporation on the road to creating the engines of the future

联合发动机公司建立未来的引擎

苏联解体后，俄罗斯航空业面临着一整套关于飞机发动机的开发和生产问题。许多制造和设计部门都成了独立的共和国，作为俄罗斯自己多年来也资金匮乏。人力资源和技术的差距也同样严重的打击着飞机和直升机制造商。21世纪末，俄罗斯航空工业几乎没有重振自己的飞机发动机产业。

今天的中国，已经开始建立一个国家发动机工作项目。尽管俄罗斯有一定的储备，但两个国家的工程师面临处理同样的问题。

俄罗斯的经济恢复, 创建联合发动机公司恢复高科技领域。

联合发动机公司 –成产一体化结构，生产的军用和民用航空，航天计划，安装各种生产电能和热能，瓦斯抽采和船舶的燃气发电机组的发动机。在联合发动机公司工作人员超过7万人.

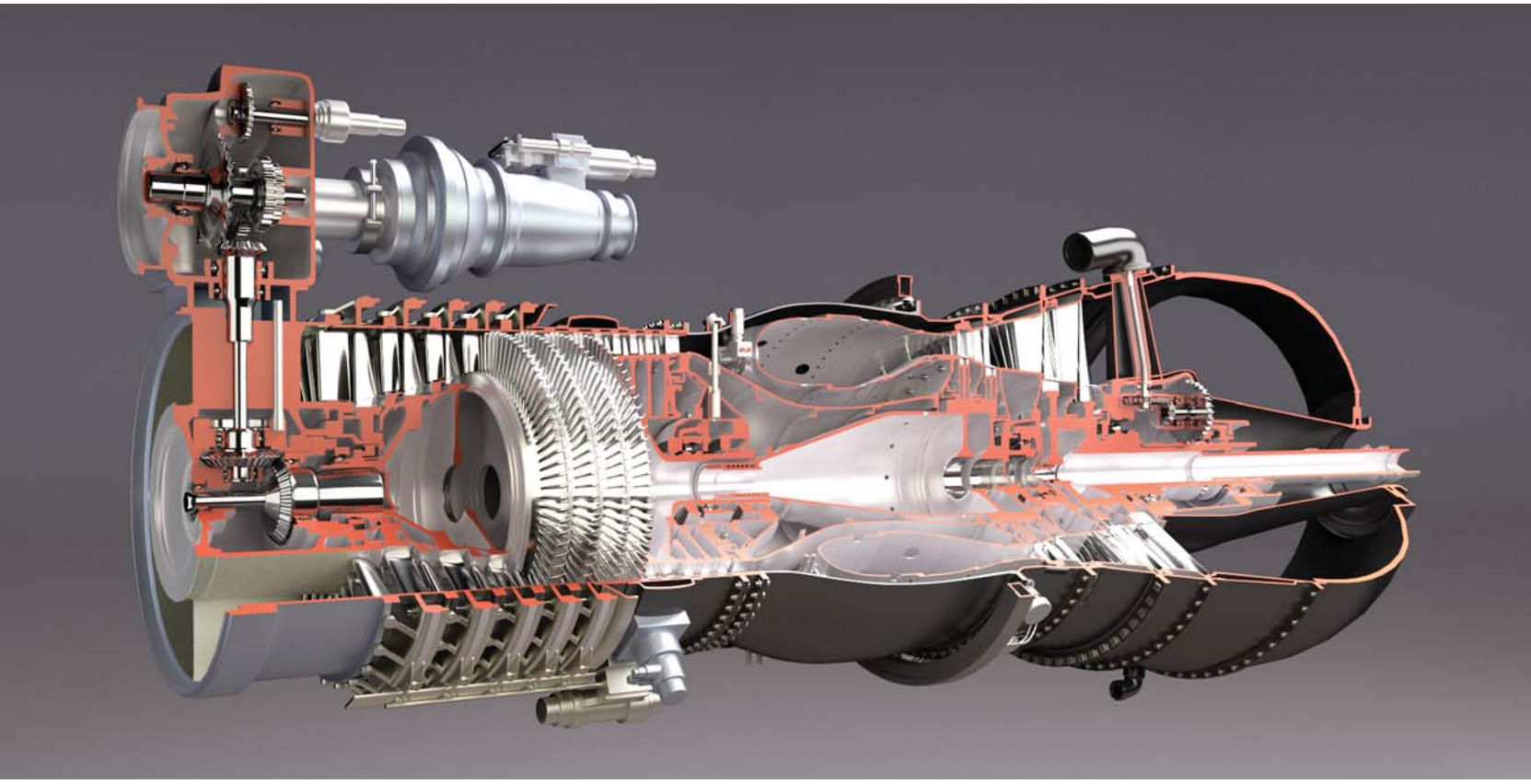
3D-打印机和新材料

Rostec俄罗斯科技公司引进添加剂技术开始生产俄罗斯先进燃气涡轮发动机，将在2025 - 2030年推出。要做到这一点，为了这个项目，建立了一个国有企业添加剂技术中心。添加剂技术，分层或合成技术 - “数码化”生产是最蓬勃发展项目之一。它们加工的复杂和独特的功能,极少使用昂贵的磨具，因此降低产品的制造成本。

添加剂技术联合中心(添加剂技术联合中心) 将在雷宾 «木星»科技联合生产基地创建一个 添加剂技术联合中心 (隶属于联合发动机公司) – 现在这里已经代表了所有最流行和最有超前的工业添加剂技术。研发中心是由俄罗斯最大的航空工业的代表组成: 飞机联合制造公司, 联邦航天局, 联合发动机公司, «俄罗斯直升机» 公司, 无线电电子技术公司 ,«技术动力»公司, 还包括有俄罗斯 - 新加坡商业理事会的代表。现在成立一个工作组，落实Rostec俄罗斯科技公司添加剂技术联合中心的创建项目。

引进添加剂技术将降低三倍时间和两倍零部件的制造成本.

«引进添加剂技术将降低三倍时间和两倍零部件的制造成本. 联合发动机公司新的燃气涡轮发动机, 我们计划在2025 - 2030年来完成，肯定会配合使用的添加剂技术. 通过这种方法制成的部件，将达到发动机的总质量的20%



。 为了缩短生产实施计划，我们打算联合其他俄罗斯公司的力量», – 副总经理 - 总设计师尤里.斯莫金这样强调. 目前添加剂技术中心专业从事零件，模型和燃气涡轮发动机的飞机和地面应用程序的组件的制造。 这里介绍相关技术：热处理，激光焊接和冲压，大型的冶金实验室，计算机断层扫描，非接触式光学数字化的电子显微镜实验室和逆向工程。

研发中心解决了许多关键的科学，技术和技术挑战，如降低周期和生产发动机零部件的成本，以及使用构造材料，传统技术要不是不可能或非常昂贵的材料。

在“土星”项目开发并通过3D模型的开发,选择性熔断测试的制造零件过程，包括最后一个功能件。引进创新的设计原则，如所谓的仿生设计。 该中心积极参与了国内获得金属粉末组成的工作 - 主要由全俄科学研究所航空材料进行测试。 从2015年至2016年选择钴合金，钛合金，不锈钢制成的300多个各种先进的组件，已成功地通过台架引擎的一部分试验。

这项新技术得到了重视,并用到了直升机发动机上。 托木斯克国立大学的专家(托木斯克国立大学) 创造了俄罗斯首部3D打印机, 制作了整体陶瓷。 2017年，由“克里莫夫”公司委托(隶属联合发动机公司) 他们打算打印的新一代直升机发动机的细节样品。

在托木斯克国立大学计划实现完整的技术周期。 首先，陶瓷粉末生产。然后将它们的制造热塑性贴 - “墨”打印机。 在此之后，在将样品在高温下烧结，使它们获得必要的性能。

“克里莫夫”公司创建了一个直升机燃气轮机厂和一个新的发动机零部件需要的样本。过几个月后托木斯克国立大学 就可以制作出“克里莫夫”原型陶瓷印刷的三维打印机。 «为了提高燃气轮机设备的效率，有必要提高在热区控制温度1300-1500°C。在该温度范围化学腐蚀环境中的任何金属都不能正常工作。因此，设计人员正在寻找新的材料，并从他们的制造产品的新途径», – 托木斯克国立大学高级研究员弗拉基米普罗马赫夫这样说道.

陶瓷，3D印刷机优于高合金钢，非铁金属和合金硬特性. 以前，为生产高品质的产品,使用简单方法的设备是不能的. 托木斯克科学家们已经能够通过使用添加剂技术（分层合成）来解决这个问题。

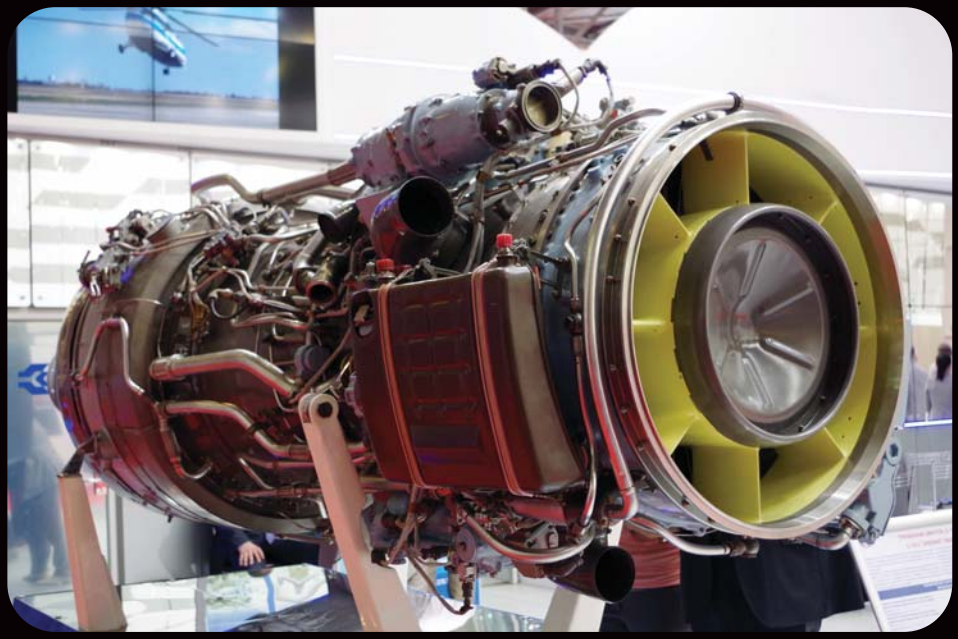
逐渐大学从中用激光栽培颗粒材料制造发动机部件。 在2017«克里莫夫»公司即将推出.

联合发动机公司扩大了未来引擎的市场资源

其中一个重要的商业特点，其引擎的可靠性，这是一种资源。 如今已经使用最新动力系统的技术，没有同类产品有这样的性能和耐用性。

乌法发动机工业协会(乌法发动机工业协会),隶属于联合发动机公司, 拥有一个独特的航空钛合金硬化技术。三年之内，将有可能创造新的引擎，这样类似的技术特点和使用寿命在世界上还没有出现。

乌法发动机工业协会 它已经与乌法国立航空技术大学一起开始了建立一个新的技术项目的最后阶段(乌法国立航空技术大学). 值得一提, 大学获得俄罗斯教育部进行科学研究的资助，就是计划在乌法国立航空技术大学使用先进技术制造将来的发动机.



俄罗斯最大的发动机制造企业,为了该项目给乌法大学拨款3000万卢布。乌法联合发动机公司也投入更多的资金来研究, 并派遣了离子植入部门 ，中心实验室，钳工和机械装配车间部门的专家代表工作。

三年之内，合作伙伴将充分掌握创新技术，并将在生产中应用，以扩大未来引擎的资源。在新的研发过程中,会制造出独特的超精细金属结构部件。因此，专家们认为，飞机发动机的生产商将能够创造一个未来的动力单元，其技术特性和使用寿命目前在世界上还没有类似的产品。

2019年底之前将会生产50个米-38直升机的发动机.

米-38直升机的发展历史，就直接关系到俄罗斯生产发动机的复兴计划。最初是按照Pratt&Whitney直升机发动机发展的，但后来出现政治上的困难,影响了该项目的开发。第二次是因为乌克兰的一系列政变, 打破了加拿大新型安全直升机引擎后，与«索契发动机»公司的合作也葬送了。 这些都是俄罗斯直升机引擎发展的挑战。好的机会不能浪费.

联合发动机公司 (联合发动机公司) 2019 年年底之前将要生产50 个TB7-117B 米-38多用途直升机。 第一批引擎在2016年已经完成好了. 其余部分将在喀山直升机厂到2019年年底前完成。

安德烈依 威斯诺威兹

A too intensive development of a military export component fraught with problems of economic and defensive nature

Attack helicopters for export and not only

According to predictions of Forecast International, during the period from 2016 to 2025 the world industry will make 4791 medium-sized/heavy military helicopters with a total cost of $115.7 billion.

development of the export potential, and they have to be tackled not by enterprises, but by the management of the industry. The Assistant to the President of the Russian Federation Vladimir Kozhin considers that many partners of Russia in MTC (military and technical cooperation) - China, India, Turkey, Malaysia and so on - raise the issue not just about purchase of arms and military equipment, but about the deployment in their countries of the localized production facilities in order to manufacture complex military systems. This is a very difficult economic and political issue. If Russia withdraws from such cooperation, it may lose partners, if it agrees, it will put its own industry in a difficult situation. "What are we going to do with our powerful state-of-the-art factories and shipyards?" Kozhin asked directly. In his opinion, it is necessary to "seek the golden mean", but keep in mind that any mistake here will be very expensive.

The FI forecast was made only for new helicopters without upgraded and retrofitted aircraft. The thing is that in recent years, focus in most military purchase programs has been shifted in favor of new helicopters. And a part of modernization programs is transformed to new developments (MH-60R, UH-60M, CH-53K). Development and introduction of production technologies sharply reduced a difference in cost between the new and upgraded models.

Perhaps, the main sensation of the new prediction made by Forecast International turned out to be an unchallenged leadership of the Russian company "Russian Helicopters" in the near future.

According to the number of aircraft made "Russian Helicopters" will be the leader on the market during the forecast period. The Russian company will manufacture 1767 helicopters that would make a 36.9% share of the market. Sikorsky will conquer the second place with 1271 helicopters and a 26.5 percent market share. Boeing will occupy the third place with production of 399 helicopters and 8.3% of the market share. For Avicopter, the forecast promises 351 helicopters and a market share of 7.3%.

The Ka-52 attack helicopter supporting a landing party during exercises of the Russian Pacific Fleet

One might think that great success is predicted for this Russian company, however everything is not so clear as seems to be. A too intensive development of a military export component in high-tech industries may be fraught with problems of economic and defensive nature.
There are also serious issues in the sphere of

Syria has changed a lot

Since the beginning of the participation of the Russian Aerospace Forces in the Syrian conflict, Rosoboronexport has acquired for the first time over many years a platform for vivid demonstration of the advantages of Russian military equipment. But apart from the spectacular show-room, Russian arms

manufacturers received an extensive training range for improving their weapons, correcting mistakes and eliminating shortcomings. A recent example. Naval aviation of the Russian Navy will soon be replenished with the latest shipborne helicopters. Highly upgraded ship-based helicopters will enter into service with the Russian Navy before 2025.

These are Ka-52K attack helicopters, Ka-31R radar surveillance helicopters, and Ka-226T shipborne helicopters capable of being deployed on small displacement ships.

At the present time, on the instructions of the Main Command of the Navy, a number of research and development works are under way to create fundamentally new aircraft, unmanned aerial vehicles and aircraft weapons systems in terms of their performance.

The CEO of "Avintel Aviation Technology Alliance", air expert Viktor Pryadka, said on Sputnik radio that the ship-based helicopters will be deployed on the latest frigates, corvettes, patrol ships which will be operated by the Russian Navy.

In his opinion, new helicopters are already entering service with the Russian Navy.

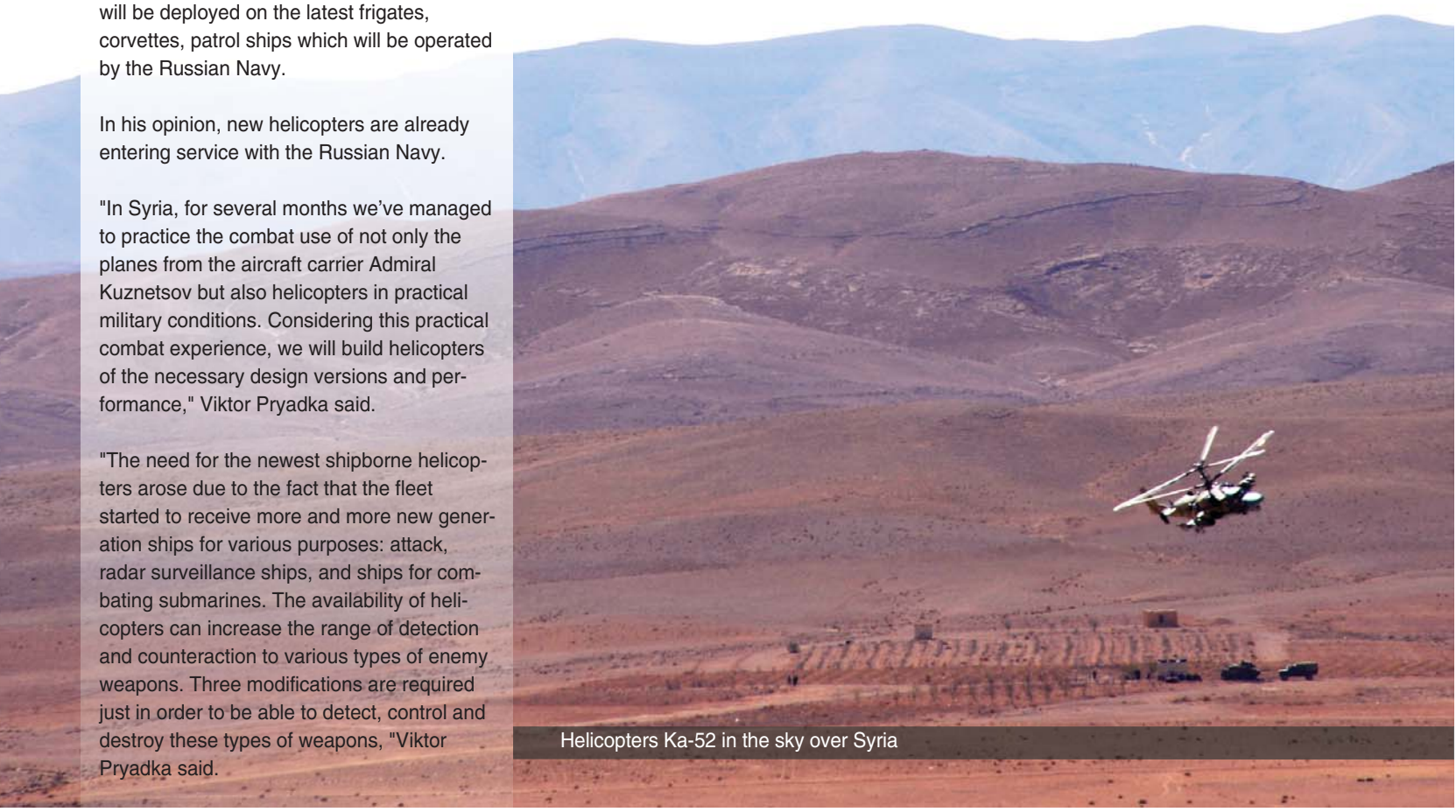
"In Syria, for several months we've managed to practice the combat use of not only the planes from the aircraft carrier Admiral Kuznetsov but also helicopters in practical military conditions. Considering this practical combat experience, we will build helicopters of the necessary design versions and performance," Viktor Pryadka said.

"The need for the newest shipborne helicopters arose due to the fact that the fleet started to receive more and more new generation ships for various purposes: attack, radar surveillance ships, and ships for combating submarines. The availability of helicopters can increase the range of detection and counteraction to various types of enemy weapons. Three modifications are required just in order to be able to detect, control and destroy these types of weapons, "Viktor Pryadka said.

According to experts, the recent news about the return of the Mi-14PS amphibious helicopters to duty was also driven by the Syrian experience.

There are three Mi-14PS helicopters (search and rescue version) on preservation in Yeisk on the premises of the 859 Center for Combat Use and Retraining of Naval Aviation personnel. In the near future, they will be handed over to the 570 aircraft repair plant, which is also located in Yeisk. But the fate of helicopters will depend on their technical condition. If the operating life of the hull, assemblies and units is insufficient, they will not be returned to service.

Since the beginning of the participation of the Russian Aerospace Forces in the Syrian conflict, Rosoboronexport has acquired for the first time over many years a platform for vivid demonstration of the advantages of Russian military equipment



Helicopters Ka-52 in the sky over Syria

Equipped with special floats, the aircraft can land on the water and take off even in a storm. It is expected that the restored and upgraded helicopters will patrol the coastal zone, as well as the search and rescue of people in distress. Currently, the Ministry of Defense and the Ministry of Emergency Situations use Ka-27PS helicopters for these tasks.

Growth despite sanctions

At present, the portfolio of export orders of Rosoboronexport amounts to $ 45 billion. These are fixed-price export agreements.

"If you do not sign anything at all, it's three years of continuous work. And this year we expect to sign much more fixed-price contracts than in previous years," said Viktor Kladov who heads the joint delegation of the state corporation Rostec and Rosoboronexport at the International aerospace and naval exhibition LIMA 2017 (Malaysia).

Signing major contracts with India, Indonesia is on the agenda 2017. In particular, contracts were signed with India for the construction of four frigates, as well as for the construction of 200 light multi-purpose Ka-226T helicopters. No less impressive is the contract for 48 Mi-17V5 helicopters.

"This is already a huge portfolio of orders. This year, the portfolio will receive more orders than in previous years, "he added. Despite the sanctions against Russian companies, Russian Helicopters Holding Company continues to repair and service helicopters in Afghanistan, which were purchased by the USA from Russia.

"You know that Rosoboronexport is under US sanctions, but the helicopter issue is outside the scope of these sanctions. The Americans bought more than 60 of our aircraft and delivered them as aid to Afghanistan. The aircraft there operate fine. But they need to be serviced, repaired, spare parts are needed" Kladov said.

In November 2015, the US Department of State partially lifted sanctions on the repair of those helicopters that were delivered to the Pentagon and used in Afghanistan. As Sergey Goreslavsky, the deputy director of Rosoboronexport, said, this was done to facilitate the service of the helicopters supplied earlier and will "prolong the operating life of helicopters".

Andrey Vezhnovets

Foreign helicopter producers can boast of having such equipment being so impressively undemanding

Special Equipment – strong point of the Russian Helicopter Sector

In March, 2017, at the "Arctic – Territory of Dialog" International Forum which took place in the city of Arkhangelsk, Russian Helicopters presented a new special type of helicopter – the promising multipurpose "Arctic" Mi 8AMT. While the military version of this helicopter had its debut last year, now the time has come for the helicopter that is of interest for commercial operators. In particular, the Mi 8AMT in the Arctic modification is a civilian version of the Mi 8AMTSh VA developed based on the Mi 8AMTSh V and specially adapted to use in Arctic conditions.

One of the most important factors affecting the Arctic development rate is the availability of transportation capable to withstand low temperatures and operate under the conditions of the Polar day and night. Other countries located within the Arctic zone have their own fleet of helicopter equipment adapted to the severe environment of the Polar region. However, these are basically military multipurpose helicopters that are engaged in search, rescue and surveillance missions in border regions. The Russian Helicopters company believes that the "Arctic" helicopters will help create a transportation infrastructure in the northern regions and will also attract interest of oil and gas and geological survey companies.

The "Arctic" helicopter has a number of design features that allow it to be operated in low-temperature conditions. A quick engine start system which is unparalleled anywhere in the world provides engine launch with autonomous and non-hangar helicopter storage at temperatures down to 60°C. Non-hangar storage has been a real know-how of Russian helicopter producers since the 1960s. Neither European nor American helicopter producers can boast of having such equipment being so impressively undemanding.

The cargo hold of the "Arctic" Mi 8AMTSh is equipped with special thermal insulation, a heating system, equipment for heating food and water, heat-insulating blinds, and also the latest flight navigation and radio communications equipment. If equipped with additional tanks, the flight range of the aircraft will exceed 1400 km, and the endurance will increase to more than seven hours.

In November 2016, Russian Helicopters built two Mi 8AMT multipurpose helicopters with the new PKV 8 flight navigation kit onboard for Rosneft oil and gas company. The new onboard equipment allows to fly in automatic mode via a given route, as well as improves substantially the helicopter's controllability and flight stability and besides enhances flight safety. The aircraft also features a multifunction navigation system operating both with GPS and GLONASS satellites, and the TsNS 02 digital navigation system with a built-in map generator. The multipurpose Mi 8AMT helicopters owned by Rosneft are intended for transportation of both cargo and personnel and are capable of operating under the conditions of Russia's northern regions.

The Ka 226 in a ship-based version

The Russian State Special Purpose Aviation has started to replenish its fleet with ship-based Ka 226T aircraft. The helicopter will be used for patrolling and search and rescue missions.

The Russian Helicopters Holding Company has completed the supply of the first two ship-based Ka 226T's to the client. A festive ceremony was held on the premises of the Kumertau Aviation Production Enterprise where these aircraft are mass produced. In contrast to the land-based version, this light multipurpose ship-based Ka 226T helicopter features a mechanism providing for main rotor blades folding and is equipped with the latest avionics set, while the helicopter's components are adapted to operation in a harsh marine environment.

Thanks to its small dimensions, the aircraft can be carried by small displacement ships and vessels. It is expected that the ship-based Ka 226T will be used for patrolling and search and rescue missions, as well as a transport helicopter.

The closest military Russian-made "ship-based" versions have almost a three times heavier takeoff weight compared to Ka-226T. That is why, their use on small vessels became impossible or difficult

"The state-of-the-art design solutions implemented in the ship-based Ka 226T significantly broaden the range of tactical tasks this helicopter is able to perform. The aircraft is distinguished by outstanding maneuverability and controllability, easy in operation, and boasts a high power-to-weight ratio," emphasized Andrey Boginskiy, General Manager of the Russian Helicopters Holding Company, at the ceremony.

The light multi-purpose Ka-226T

According to Mr. Boginskiy, they see currently a high demand for light helicopters that can be carried by vessel both in Russia and abroad.
The closest military Russian-made "ship-based" versions have almost a three times heavier takeoff weight compared to Ka-226T. That is why, their use on small displacement vessels making up a significant portion of coastal patrol boats and special-purpose ships became impossible or difficult.

The light multi-purpose Ka-226T, with a rotor system featuring two coaxial rotors, has a maximum takeoff weight of 3.6 tonnes and is capable to carry up to one tonne of payload. The primary distinguishing feature is the modularity of its design. There is a possibility to either easily install a cargo hold on the helicopter in order to carry up to six passengers, or modules equipped with special equipment.

The Mi 26TS extinguished a large fire in China

The Mi 26TS helicopter manufactured by the Russian Helicopters Holding Company and delivered to China in the summer of 2016 managed to fight a large forest fire in the environs of the city of Yangtai (province of Shandong). Helicopters of this type—Russian giants—remain the only helicopters of the super-heavy class of its type.

The extensive fire in a mountainous forested region a few kilometers from inhabited localities where Hyundai and Kia automotive plants and a number of other industrial enterprises are located was extinguished by Mi 26TS helicopter made by Russian Helicopters. The Mi 26TS carried eight loads of water, 10 tonnes each. Thanks to the equipment's unique capabilities, quick and professional actions of the crew members, operators, and workers of the local station, the fire was put out in the shortest possible time.

The Russian holding company and the Chinese company Lectern Aviation Supplies signed in 2014 a contract on delivery of this heavy aircraft. The helicopter was purchased for Shandong province where work is actively underway to save and expand forestry. Aviation equipment produced at the Rostvertol plant was delivered to the republic last year in July.

This is the fourth Mi 26TS helicopter now in operational use in the PRC. Apart from the one which was purchased by Lectern Aviation Supplies, two other helicopters are operated in the helicopter fleet of QingDao Helicopter, and the fourth one is used by China Flying Dragon General Aviation.

The Mi 26TS is used in fighting fires and transporting equipment and large-dimension cargo. It was also employed to ensure fire safety for the G20 summit that took place in Hangzhou in early September, 2016. The aircraft is able to transport up to 20 tons of cargo inside the cargo hold or on external sling.
The helicopter has many times proved its effectiveness when putting out large fire fronts in the PRC. When dealing with emergencies, the Mi-26TS fulfilled its main task, namely delivery of fire brigades to the seat of fire and dropping water on burning forests. Its characteristic features during operations are efficiency, invariable accuracy and speed in carrying out tasks assigned.

Nikolay Korobov