

Russian Helicopters: Still a Major Player

Its latest products point to interest in light helos and Western certification standards.

Rotor & Wing International

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Amid Western sanctions and the crises of the oil and gas sector, times are challenging for the Russian rotorcraft industry. Russia's economy is known to depend heavily on oil and gas, the revenues of which account for almost half of the federal budget. In this context, Russia is now eyeing privatization of state assets for major businesses.

Since December, Russian Trade Minister Denis Manturov has said several times that Moscow would partially privatize the Russian Helicopters holding company in 2016. Russian Helicopters is part of state corporation Rostec, whose head, Sergey Chemezov, added in a March interview for *The Wall Street Journal* that it received the right to sell as much as 49% of the company's shares to private investors.

Chemezov said discussions are ongoing with the United Arab Emirates' Mubadala Development Co., which would be interested in buying a 20 or 25% share.



The Mi-171A2's fifth prototype should enter certification tests by July. Photo courtesy of Russian Helicopters

In April, Economic Development Minister Alexey Ulyukayev even told reporters that French companies, particularly Airbus Helicopters, were interested in the privatization of Russian Helicopters.

Airbus immediately denied that, saying it “has informally inquired about the announced sale of a part of Russian Helicopters” and “has not, however, expressed any intention in making an offer for such stake.”

In 2011, Russian Helicopters tried to hold an initial public offering in London and Russia, but had to cancel it from a lack of interested investors. Now is the time to attract private investors, continuing the company's modernization.

While acknowledging the actual “uneasy economic situation,” Russian Helicopters stated that it “managed to preserve achieved financial indicators and production volumes.” It added that it has “a number of new contracts with both the Russian and foreign operators.”



Late last year, the first "arctic" helicopter, Mi-8AMTSh-VA, was delivered to the Ministry of Defence. Photo courtesy of Russian Helicopters

In 2015, Russian supplied 212 helicopters, 59 less than in 2014, but thanks to export orders and to devaluation of the ruble, the revenues increased to 220 billion Russian rubles, or about \$3.4 billion, and profits doubled to achieve 42.2 billion Russian rubles, or about \$652 million.

According to Airbus Helicopters' latest charts, in 2015 Russian Helicopters held 5% of the civilian turbine market and 19.5% of the military market, ranking second after Sikorsky on the latter.

During February's Heli-Expo trade show, AHS International's predictions even foresaw Russian Helicopters ranking first globally on the 2015-2020 period in production value, with 17.9% of the market shares. On the 2010-2014 estimate, it already ranked second after Sikorsky.



The TV7-117V engine is installed on all Mi-38s. Photo courtesy of Russian Helicopters

One reason for such optimism lies on the Russian models' low prices, making the company attractive in primary military markets. Other analysts point out strong military demand in China, India, Middle East and Latin America.

Recently, Russian Helicopters CEO Alexander Mikheev noted that the company's main strategic mission is to fulfill government defense orders. In 2011, Russian Helicopters entered long-term contracts with the Russian Ministry of Defence for the supply of more than 600 helicopters up to 2020 in the framework of the rearmament program. Russian Helicopters said it is "fulfilling the government defense order ahead of time." But it is noteworthy that given the current economic situation, defense spending is suffering. In The Wall Street Journal interview, Chemezov said that government defense orders might be reduced by 10% this year.

As for the 2015 results, Mikheev explained the drop in sales by a universal tendency of decreasing military budgets in the global market. Should that continue, his estimates for sales are conservative and count on growth in the civil market.



The medium multirole Ka-62 can be configured for cargo transportation, medevac and search and rescue operations, and also can be used in the oil and gas sector and for corporate purposes. Photo courtesy of Russian Helicopters

Indeed, diversification is on track. As of 2014, Russian Helicopters said it has produced a record 71% of the global ultra-heavy helicopter fleet (MTOW more than 20 metric tons), as well as 69% of the global medium helicopter fleet with MTOW from 7 to 20 metric tons. But it is almost absent in the light category.

Expanding global reach today means attracting new foreign customers, extending the range toward lighter helicopters and developing after-market services.

Of course, the Mi-8/17 is still selling well. New models are appearing to broaden its reach in the international market and also among the demanding oil and gas operators. The new civil Mi-171A2 is progressing toward certification next year. Meanwhile, the modern 15.6-metric-ton Mi-38 was certified in December to Russian Standards AP-29, which the company said are equivalent to European and American standards.

Concerning lighter models, the 3.6-metric-ton Ansat has been approved last year for passenger transportation. The improved Ka-226, dubbed Ka-226T, was also certified with Turbomeca engines. Turbomeca is also involved in the new 6.5-metric-ton Ka-62 helicopter, a category that attracted ambitions from Western manufacturers and will thus face stiff competition.

Cooperation with the French engine manufacturer can be fruitful in terms of after-sale experience, new technologies and economics. (Russian engines are said to be robust, but suffer from a weak TBO compared to Western engines).

Despite the sanctions, cooperation is still running with Western companies, the most visible being the HeliVert joint venture with AgustaWestland. The joint venture, located in Tomilino, is already assembling AW139s and could be in charge of producing 160 AW189s following an agreement with oil and gas giant Rosneft. But neither party commented on the status of the work. Observers say that very few AW139s have been assembled so far and that the AW189 might face restrictions related to the Western sanctions on the oil and gas sector.



The Mi-26T can carry heavy loads and assist in such missions as firefighting and evacuation. Photo courtesy of Russian Helicopters

India and China remain strong allies and customers to Russia. The recent agreement for the assembly and maintenance of Ka-226Ts in India should boost Russian Helicopters' presence in southeast Asia. Moreover, negotiations with China around the development of a new super-heavy helicopter have been ongoing.

The main growth axis lies in programs of after-market services, which have always been considered very weak on Russian helicopters. Developing such programs for Russian-made civil and military helicopters both in Russia and abroad is "one of our priority directions," said the company, which consequently is developing a network of service centers. Recently, the

company established service centers in Egypt and Iran. It is also working on the development of centers in other countries, including China, India, Peru, Brazil, South Korea and Kazakhstan.

In the meantime, the Western sanctions have raised the importance of the import substitution program, consisting of minimizing the use of foreign components. Klimov in St. Petersburg is taking on engine production to replace those produced by the Ukrainian Motor Sich. Late last year, the first "arctic" helicopter, Mi-8AMTSh-VA, built at Ulan-Ude Aviation Plant in accordance with the import substitution program, was delivered to the Ministry of Defence.

The major manufacturer's latest products demonstrate new interest in the light segment and in satisfying Western certification standards.

In the last year, two new models have been certified for commercial operations in the light helicopter segment, a sector from which Russian Helicopter had long been absent.

The multipurpose 3.6-metric-ton Ansat was awarded a type certificate in 2013, but it had been limited to cargo flights. In December 2014, authorities approved it for passenger transport.

The Ansat has a metal fuselage and layered fiberglass rotor blades with an unhinged main rotor. Powered by two 630-hp Pratt & Whitney Canada engines, it can fly at 148 kt and has a range of more than 270 nm. Originally, the Ansat was developed as a fly-by-wire aircraft, but difficulties in certifying that led to the production of a hydromechanical version for certification.

In March 2015, the 3.6-metric-ton coaxial helicopter Ka-226T, a significantly modified Ka-226, was also certified. In addition to a new reduction gear and new avionics with multifunction displays, the main improvement comes from the two fadec-controlled Turbomeca (rebranded as Safran Helicopter Engines in May) Arrius 2G1 580 hp turboshaft, providing 20% more power than before, which enables the helicopter to take off and land safely even if one engine fails.

The Ka-226T is well-suited for high-altitude operations (with an operational ceiling of 5,700 m), as was demonstrated during trials in the Himalayas. The helicopter is equipped with a replaceable transport module enabling a variety of configurations.

In December, Rostec reported the signing of an agreement with India, under which not less than 200 Ka-226T and its variants would be coproduced in India under the "Make in India" initiative — a follow-on to the canceled military tender for a light-utility helicopter.

A bit heavier at 6.5 metric tons, the Ka-62 enters the attractive and competitive intermediate segment. The Ka-62 is the first conventional single-rotor helicopter designed by Kamov. Apart from its modern aerodynamic design and ducted tail rotor, the helicopter features a glass cockpit made by Transas.



The modern 15.6-metric-ton Mi-38 was certified in December to Russian Standards AP-29. Photo courtesy of Russian Helicopters

According to Russian Helicopters, it should comply with the Russian AP-29 and European CS-29 flight standards. Cooperating with European component manufacturers helps to achieve its goal aimed at the international market. The Ka-62 is fitted with two Ardiden 3G 1,680 hp engines, which are made by Turbomeca and feature a modular design and a dual-channel faDEC.

Turbomeca delivered the first engines in 2014. After a delay in its first flight, the Ka-62 finally took off April 28 in Arsenyev.

A step up from the Mi-8/17 series, the 15.6-metric-ton Mi-38 has been designed, unlike its predecessors, from the start “with consideration for modern Russian and foreign airworthiness standards,” said Russian Helicopters.

On Dec. 15, 2015, Russian authorities certified the helicopter according to Russian Standards AP-29.

Designed by Mil and assembled by Kazan, the Mi-38 has all its main systems and components produced in Russia, the company said. That’s a long way from the origins of the program in the 1990s, when it was to be produced by Euromil, a cooperation between Eurocopter, Kazan and Mil. Eurocopter dropped out of the cooperation in 2003 because of Russian legislation’s heavy constraints.

Even Thales, which entered a cooperation with Transas for its avionics in 2006, said it's not on any of the Mi-38s anymore. Perhaps due to difficulties related to the sanctions, Pratt & Whitney engines have more recently been replaced by two Klimov TV7-117V (2,800 hp).

The Mi-38 is a modern helicopter, featuring the engines on the fuselage toward the rear, limiting cabin noise. The Transas IBKO-38 integrated avionics offers a good deal of automation, with information displayed on five multifunction displays.

According to Russian Helicopters, its main advantages lie in the cargo capacity (6 metric tons in the transport cabin or up to 30 pax) and its high speed (max 160 kt). The anti-ice system allows operations in regions with adverse natural climate conditions. Serial production is starting this year with the first body, which has been assembled by Kazan.

The new Mi-171 A2 (13 metric tons) aims at perpetuating the success of the robust Mi-8/17 helicopters, of which 12,000 have been produced to date. Capitalizing on the main features of its predecessor, the Mi-171 A2 adds a deep modernization aiming at a certification by Russian authorities in 2017 after missing a 2015 target.



Mi-8 models are selling well, particularly in the military sectors. Photo courtesy of ISAF Headquarters Public Affairs Office

A fifth prototype of the Mi-171A2 has been prepared and should enter certification tests by July. Two prototypes already took off in November 2014 and October 2015. Meanwhile, tests were conducted in a flying test bed made on the basis of the serial Mi-8/17.

Compared to the Mi-8/17, the Mi-171A2 replaces the two TV3-117 engines (2,200 hp each) with new VK-2500PS-03 engines (2,400 hp) produced by Klimov. It is equipped with a KBO-17 avionics suite, including a glass cockpit with five MFDs. This suite allows a reduction in the number of crew from three to two.

The rotor system underwent deep modernization. The Mi-171 A2 has a new main rotor and x-shaped tail rotor made of composite material, as well as a new rotorhub and swashplate. This results in better controllability and a significant increase of rotor lift. The cruise and

maximum speeds (140 kt and 150 kt, respectively) also have increased by 16 kt, and the range now stands at 800 km (430 nm) instead of 600 km (320 nm).

The Mi-171A2 will be produced in transport, passenger, firefighting, search-and-rescue, medevac and VIP configurations. According to Russian Helicopters, the oil and gas industry has expressed a strong interest in the model for offshore transportation.

The new model is aiming at markets that are traditional to the Russian helicopter industry: the CIS countries, Asia-Pacific region, and African and Latin American countries. But it may face stiff competition. Airbus Helicopters is now marketing the H215 as the "low-cost" Super Puma assembled in Romania. R&WI