



Roscosmos and Rostec Developing Earth Observing System

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Press Release*

Scientists of Russian Space Systems Holding (RSS, part of Roscosmos State Corporation) have developed a new-gen orbital observation devices to support the prospective fleet of Earth remote sensing satellites (ERS). The satellite observation devices use a unique material, silicon carbide, manufactured by engineers of Rostec's Shvabe Holding.

This domestic-originating system is being developed in cross-industry cooperation and will allow Russia to continuously monitor the Earth surface, providing high-resolution photos and videos. Specific materials, such as silicon carbide, help to reduce the weight and size of the spacecraft.

Silicon carbide manufactured by Lytkarino Optical Glass Factory of Rostec's Shvabe Holding makes the body and parts of the optical circuit of the multispectral observation device, for which steel, aluminum or titanium were previously used. The replaced material makes the device resistant to temperature fluctuations customary in space, greatly reduces the weight, and withstands even a temporary deformation of the outer shell exposed to aggressive environment.

"Silicon carbide is one of the most promising composite materials for the aerospace industry. It has high specific stiffness, strength and thermal conductivity. Through this, silicon carbide is the best fit to create optical devices operating under extreme temperature fluctuations, while maintaining image quality," says Oleg Evtushenko, Rostec's Executive Director.

Silicon carbide also allows to install new imaging instruments on small satellites weighing below 120 kg. Satellites now operating in orbit have to bear as much as 500 kg of imaging instruments alone, which affects the total cost of both the satellite and its launching into orbit.

Rostec State Corporation is Russia's largest manufacturing company. It is celebrating its 15th anniversary in 2022. The company comprises more than 800 scientific and industrial entities in 60 regions of Russia. Its key businesses include aircraft engineering, radioelectronics, medical technologies, innovative materials, etc. The corporation's portfolio includes renowned brands such as AvtoVAZ, KAMAZ, UAC, Russian Helicopters, UEC, Uralvagonzavod, Ruselectronics, Shvabe, Kalashnikov, etc. The company supplies its products to more than 100 countries worldwide. Hi-tech export sales make up almost a third of Rostec revenues.

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