Annual Media Conference
Press release

Rega base, Dübendorf
Friday, 12 April 2019

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The new Rega drone flies and searches autonomously

Today, at its Annual Media Conference, Rega presented a new type of aircraft for searching for missing persons: the newly developed Rega drone can autonomously scan large search areas and is equipped with various sensors, such as a thermal camera. As a result, in future, Rega will have at its disposal an additional device to help it search for people in distress.

Over the last year and a half, Rega has been working on its own drone project. In future, the Rega drone is to be deployed on missions to search for missing, injured or ill persons to supplement the conventional resources – for example, if the helicopter has to remain on the ground due to poor visibility. Such missions are performed in close collaboration with other rescue partners, in particular the police. Further comprehensive test flights are necessary before the drone system can be used in search operations as from 2020.

Valuable expansion of Rega's scope of operations

"Ever since it was founded, Rega has continually used cutting-edge technology to further improve air rescue and to come to the aid of even more people in distress", says Rega CEO Ernst Kohler. "I am confident that the Rega drone will expand our scope of operations even further." When developing the drone system, Rega was able to draw on its decades of experience in conducting countless search missions. In the last year alone, Rega searched for missing persons from the air on around 160 occasions because there was good reason to believe that a person needed help.

Taking the initiative

"We observed the development of drone technology from an early stage and were always convinced that drones could be of help in particular on search missions," says Head of Helicopter Operations Sascha Hardegger, who is in charge of the project. However, there is currently no drone system on the market that meets all of Rega's requirements. In particular, it is not possible to operate a relatively small, lightweight and flexible drone over a distance of several kilometres and for several hours without visual contact with the drone pilot. "As a result, we took the initiative and decided to develop a Rega drone ourselves in collaboration with suitable partners", says Hardegger. Rega has spent the last 18 months or so intensively working on its own drone project with the aim of making this additional operational device available for search missions in the very near future.

The drone looks like a mini helicopter

With its three rotor blades and a rotor diameter of just over two metres, the new Rega drone looks like a mini helicopter and in appearance has little in common with commercially available multicopter drones. During a search mission, it flies at an altitude of 80–100 metres above ground level and, using satellite navigation, it scans large search areas precisely and autonomously following a predefined route. It is also able to independently detect and avoid other aircraft or obstacles, such as helicopters and overhead cables. This is possible thanks to anti-collision systems, coupled with countless data stored in the drone's in-flight computer, such as digital models of the terrain and obstacle databases. The drone is not deployed over densely populated regions or in the vicinity of airports or airfields. In addition, it is equipped with an emergency parachute.

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Sensors on board to locate missing persons

Various sensors on board the drone make it possible to locate missing persons from the air. The signals from the infrared and daylight cameras are categorised in real-time on board the drone with the aid of a self-learning algorithm. This software is being developed in collaboration with the ETH Zurich. If, based on the pixel pattern of the images, the algorithm "presumes" to have located a person, the drone immediately relays this information to the operator on the ground. It is also planned to use an integrated mobile phone tracking function to search for injured or ill persons. This allows the Rega drone to locate a mobile phone in an uninhabited area from a distance of several hundred metres and thus most probably also find its owner. The prototype of this device is currently being trialled in collaboration with the police, who are responsible for emergency searches for missing persons. Here particular attention is paid to protecting sensitive data.

The drone as a supplementary aid

"Even if the drone is unmanned and can fly autonomously, it still needs a well-trained drone crew, comprising an operator and a pilot, to coordinate the search with the various rescue teams and to deploy the drone effectively," Sascha Hardegger explains. "Difficult person searches only have a chance of succeeding if all the rescue teams involved work closely together. In certain cases, the drone will be a useful supplementary aid, but it will never completely replace the Rega helicopter and its crew. If the search for an ill or injured person proves successful, a Rega helicopter or other form of rescue will still be needed to recover the person or fly medical assistance to the site of the incident."

Images and video material on the Rega drone, as well as further documents relating to the Media Conference, are available in electronic form at: www.media.rega.ch

Rega in 2018
Rega can look back on an intensive year of operations: in 2018, its Operations Centre organised a total of 17,124 missions, 7.3 percent more than in 2017. On average, that is equivalent to around two missions per hour – day and night. Both the helicopters with 12,573 missions (+6.8 %) and the ambulance jets with 980 missions (+10.8 %) were in the air more frequently than in the previous year. Rega crews attended to 11,579 patients (+7.3 %), which corresponds to approximately 32 patients per day. Further information about Rega's missions in 2018 can be found in the press release dated 1 February 2019.

47,000 new patrons in 2018
Rega's patrons enable it to provide air-rescue services for the Swiss population with their annual contributions. Rega was delighted to welcome 47,000 additional patrons as per the end of 2018, which as a comparison is roughly equivalent to the population of the town of Thun. Currently, 3,483,000 patrons support Rega.

The Rega business year 2018
In 2018, Rega's operating revenue totalled CHF 166.2 million, while the operating expenditure came to CHF 164.1 million. This gave a positive operating result of CHF 2.0 million. The annual result amounted to CHF 2.8 million. In the past year, Rega invested above all in modernising the Rega fleet and in large-scale IT projects. In line with its strategic goals, Rega is almost 100 percent self-financed and does not need outside capital to finance its investments.