

Rescuing at the limits

08/12/2014 Rescue teams from Air Zermatt fly up to 20 missions a day—sometimes at the limits of what is possible.

The Matterhorn rises above the canton of Wallis in Switzerland at the Italian border. One of the best rescue helicopter pilots keeps his Bell 429 (cost: 7 million dollars) hovering next to the imposing 4,000-meter peak. Scaled for the first time 150 years ago, the mountain now attracts huge numbers of climbers and skiers, some of whom take too many risks. Rescue teams from Air Zermatt fly up to 20 missions a day—sometimes at the limits of what is possible.

Falling into a deep crevasse is one of the most dangerous things that can occur high in the mountains. It usually happens to careless vacationers, but also on occasion to experienced alpinists or daring professional climbers. Many people lose their lives as a result, because it is usually extremely difficult and time-consuming for rescue teams to reach the victims and free them. Body temperatures drop from contact with the ice, and hypothermia can easily lead to death. For the rescuers, this means that every second counts.

The rescue team is more valuable than any life insurance

“When people fall into a crevasse they often keep sliding deeper and deeper until they get wedged in with either their hips or head,” says Gerold Biner (50). A resident of the Swiss village of Zermatt, which is famous for its winter sports and its prohibition on cars, Biner uses his red mountain bike to get around. And he usually rides quite fast. “It keeps me in shape,” he says. A fit and impressively calm individual, he is more valuable than any life insurance policy for the climbers and skiers on the Matterhorn—4,478 meters above sea level and Switzerland's most striking peak.

Biner is the pilot and CEO of the Air Zermatt AG helicopter company (65 employees, 9 helicopters). He has been rescuing people from extreme situations for three decades now. Between missions, Air Zermatt's team works to continuously improve its rescue abilities, including its forays into crevasses. “If you survive a fall into a crevasse these days, we can usually get you out alive,” says Biner.

New methods allow a faster rescue

That has not always been the case. “Many victims used to die before our eyes because we had to spend hours hacking our way through the ice in order to free them,” says Biner. Today this work goes much more quickly, thanks to a solution that looks surprisingly simple. When the team is called out they take a special set of equipment on board the helicopter: an extendable tripod, a generator, and powerful hammer drills.

The tripod is anchored across the crevasse in such a way that a rescuer can rappel directly down to the destination. He uses a hammer drill that is run by the generator and equipped with special chisel heads to quickly shatter the ice. As soon as victims are freed and triaged, they are winched out of the crevasse along with the rescuer, readied for transport, and flown to the hospital.

The Swiss were the first to use tripods, and today Air Zermatt's crevasse rescue techniques set international standards. “We view problem situations as an opportunity for improvement,” says Biner. “We always try to become even better at what we do and to make our work safer, which improves the prospects for accident victims. That's part of our company's culture.” When a mission is completed, the team often sits down together at the round table in the standby room. Fortified with mugs of strong coffee, its members discuss new ideas.

A rescue station at the foot of the peaks in the Himalayas

Another part of the company's culture consists of sharing its expertise. The head of the disaster response agency in Russia, for example, travelled to the Matterhorn to learn more about rescue methods from crevasses. As part of the International Commission for Alpine Rescue (ICAR), the Zermatt team regularly exchanges ideas with specialists from around the world. In 2010 they even went to

Nepal to help set up a rescue station at the foot of the 8,000-meter peaks in the Himalayas together with local colleagues from Fishtail Air. No pilot had dared to undertake a helicopter rescue at heights of up to 7,000 meters there before.

Vicious winds and thin air make such missions too risky. Conventional helicopters cannot hover at those altitudes and the pilots have to wear oxygen masks, for otherwise they would lose consciousness and die. Two members of Biner's crew—pilot Daniel Aufdenblatten and rescue specialist Richard Lehner—were the first to make a successful rescue from an altitude of 7,000 meters. Completely exhausted, half frozen, and suffering from altitude sickness, a climbing party on Mount Annapurna (8,091 meters) now has the two Swiss natives to thank for their lives.

The Zermatt team members are courageous, but not foolhardy. "Even if the lives of accident victims are hanging in the balance, we have to respect the limits of both humans and technology," says Biner. Precisely those flights under extreme conditions need to be approached as a series of stages as opposed to a single trip straight to the destination. "Along every part of the way I always have to know where I could land in an emergency," he says. "And in that type of situation I can't let myself be guided or distracted by emotions."

That requires a lot of experience. Which Biner passes on to the next generation as a flight instructor. The young pilots on his team first have to thoroughly consolidate their skills over the course of tours, shuttle runs, and cargo flights before they may embark on their first rescue mission.

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