Fig. 1: Ground-level helipads that have predominated at hospitals until now are increasingly being replaced by rooftop helipads (Photograph: DRF Luftrettung)

Improving helipad safety with a new landing information system

Author:
Thomas Wysk
Keppel Data-Systems
Thomas.Wysk@keppel.de

Even though pilots of rescue helicopters are absolute professionals, they still need reliable conditions to work in. Much remains to be done in this respect, because as far as the safety and approval of helicopter landing pads, or helipads, is concerned, very little has actually been achieved in recent years – despite the fact that this is a very important area for aviation and air rescue. Very few helipads have permanent approvals, and others are only approved in emergency situations – they have never officially been put into service and are simply operated without an official permit.

EASA standards and hospital helipads

This year, however, things have really started moving regarding helipads and the legal framework for them. The problem of helipads at hospitals re-emerged as a result of efforts by EASA to achieve uniform standards in European aviation. Minimum demands for even the smallest airfields – such as being able to call up the latest data on weather conditions and landing direction – were simply not satisfied by most helipads. In view of this problem, Keppel Data-Systems has now developed a complete landing information system especially for hospital helipads.

Keppel Data-Systems has been an important player in German aviation for around ten years thanks to msFIS, a landing information system for smaller airfields and landing spaces that it developed in cooperation with Markus Software. In response to a request from a customer, the company developed the Helipad-LIS landing information system using know-how gained from earlier projects. The system has already been installed in several locations. It helps ensure safety at helipads where there had previously been no radio contact with the approaching rescue helicopter.

Are rooftop helipads better?

The ground-level helipads that have predominated at hospitals until now are increasingly being replaced by rooftop helipads which – despite the higher initial investment – offer a number of benefits to hospitals. Ground-level helipads were (and still are) a world unto themselves, featuring various dangers and problems that should not be under-estimated. For example, in only a very few cases are ground helipads sufficiently protected from curious onlookers – something that can impede a safe landing. Furthermore, pilots often have to make a second landing without ground support. Although that is part and parcel of day-to-day business, it does cause unnecessary stress for crews. In addition, hospitals have had to put aside relatively large areas of their premises for their helicopter landing pad. Now, with the construction of a rooftop helipad, this area can be used for other purposes, opening up new scope for the hospital to expand.

Practical example

The problem of noise pollution in the approach and landing area also makes it a good idea to move modern

Figs. 2 and 3: This innovative LED strip-based ground lighting system is now to be employed for the first time (Photographs: T. Wysk)

helipads to the hospital roof wherever possible. But this can create a completely new risk situation, for which a solution now has to be found. Kliniken der Stadt Köln, a group of hospitals in the city of Cologne, is a pioneer when it comes to the safety of roof-based helipads. Roman Lovenfosse-Gehrt, Commercial Director of Kliniken der Stadt Köln and himself a crew member on rescue helicopters for many years, is convinced of the advantages of Helipad-LIS, emphasising how important the system is for ensuring flight safety at hospitals. He decided to install the system at "his" hospitals, to help rescue helicopters approach safely. Helipad-LIS essentially closes the communication gap between the ground (helipad) and the air (helicopter), replacing the need for the extra personnel that would otherwise be required. In other European countries, a landing deck officer (with JAR/OPS3 training in radio communications), for example, is standard at hospitals. In Germany this will continue to be a pipe dream, primarily due to limited finances.

Landing on the ground is completely different to landing on a roof. In the first case the pilot can carry out the approach more or less protected by surrounding buildings, but when landing on a rooftop helipad, pilots are exposed to all the caprices of wind and weather. Furthermore, an accident on a rooftop helipad can easily go unnoticed from the ground for a relatively long time. The topic of the presence on site of a "qualified expert" is still something of a hotly debated issue, as it is well known that this expert can basically do nothing to rectify things, even if he or she manages to reach the helipad before the helicopter lands.

Data updates as and when needed

The developers attached great importance to ensuring that their product requires no additional installations to be made in rescue helicopters operating in Germany. Thanks to direct cooperation with leading air navigation manufacturers, the system can transmit the very latest data updates, including warnings of possible temporary obstacles in the approach to the hospital, directly to cockpit crews as soon as the helicopter lifts off from the pickup point. This not only makes the roof approach far safer, it also helps to reduce noise and increase the acceptance of the helipad among the hospital's neighbours.

This indirect radio contact also activates a whole chain of functions and landing aids, ranging from automatic switching on of the landing lights through to the provision of information to all emergency staff at the hospital. Helipad-LIS also enables live monitoring of the landing by the rescue services and documents the whole procedure. During its development phase, the system was examined by the Institute of Flight Guidance at the Technical University of Braunschweig and classified as "highly recommended" for all helipads.

Ground lighting with LEDs

The new rooftop helipad at Merheim, one of the three hospitals of Kliniken der Stadt Köln, is being equipped not only with a Helipad-LIS system, but with an LED strip-based ground lighting system to ensure adequate safety. Dortmund-based airport technology company DeWiTec is providing this technology. LED lighting systems have been in use for years in other European countries as they offer enormous advantages. In Germany, long-winded approval procedures lasting years have prevented their prompt introduction. This innovative ground lighting system is now to be employed for the first time (see Fig.).

Conclusion

The use of Helipad-LIS has significantly increased safety for crews on hospital roofs and for landings on offshore platforms. Pilots are being provided with completely new optical landing aids alongside the novel lighting concepts. Just like Helipad-LIS, these are helping to improve safety standards at helipads for all concerned, bringing them into line with EASA's efforts to introduce Europe-wide standards.

For more information, visit:
››› **www.keppel.de**
››› **www.helipad-lis.de**
››› **www.dewitec.de**
››› **www. helipad-consulting.de**