Airconditioning and humidification efficiency and sustainability in the healthcare industry

EIT Health InnoStars application January 2024 – Ditusz Kft.

Ditusz Kft (headquarters: 1061 Budapest Székely Mihály utca 5 Hungary, EU tax number HU13706452, representative: Dr. János Szinetár managing director, www.ditusz.hu) is a company operating in the field of high-pressure adiabatic mist-cooling and humidification. Our company develops, designs, manufactures, installs and services the equipment, controls, and software required for high pressure humidification and mist-cooling.

With our solutions, through the high-pressure misting of water, we are able to cool open spaces and large interior spaces in an energy-efficient and environmentally friendly way, and we can control the humidity of the interior spaces when the relative humidity of the ambient is very low.

In Europe, the buildings of the health industry and health institutions are mostly cooled and air-conditioned with high-power chillers. Due to climate change, summers consist of longer and longer warm periods. In hot weather, the demand for cooling power increases, which significantly increases the electricity consumption of air conditioners. The adiabatic cooling solution developed for air conditioners developed by Ditusz Kft. is suitable for cooling the condensers of air conditioners (chillers) located on the roof. The the chillers, cooled by Ditusz work at a more favorable operating point, which reduces their electricity consumption, while simultaneously increasing their cooling performance. This has a very favorable effect on the energy savings, lifetime, maintenance requirements and operating costs of the equipment. Overall, in addition to better operation, significant cost savings are also available. The amount of savings depends on the type of air conditioners and the environmental conditions, but typically ranges between 5-15%.
The cooling performance of many older types of air conditioners - whose useful life can be as long as another 10-15 years - decreases during hot weather and often becomes inoperable and stops. At that time, the facility's air conditioning will be completely stopped! The equipment only becomes operational again when the ambient temperature is lower. Ditusz Kft.'s solution for adiabatic cooling of the chillers also helps with this problem. Air conditioners cooled by Ditusz Kft. remain functional, there is no downtime, and thus the investment due to their forced replacement can be postponed. This means an additional economic advantage for the institutions.

In healthcare institutions where dry air is unfavorable for workers and patients, we can control the humidity of the interior spaces based on high-pressure direct misting or misting built into the air ducts of the ventilation system. This type of humidification improves air quality, binds airborne dust and can neutralize odors.

In Hungary, we already use Ditusz Kft.'s evaporative cooling and humidifying technology in many other industries. The technology used is environmental friendly which contributes to a sustainable environment.

The way of the implementation of the above-described projects are innovation of Ditusz Kft. containing Ditusz owned intellectual property.

Adiabatic cooling of a chiller with Ditusz high pressure mist-cooling

Dr. Szinetár János
managing director