

# Getting rid of sweat at the push of a button

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Hot fun in the cold: During winter sports, the body produces a lot of moisture. Nevertheless, new functional clothing ensures a pleasantly warm and dry microclimate. Credit: KJUS

The Swiss sportswear manufacturer KJUS presented the world's first ski jacket with an integrated electronic user-controlled membrane on November 15. Thanks to the HYDRO\_BOT technology developed

together with Empa, the ski jacket actively pumps out sweat from inside the jacket to keep skiers dry and warm.

Efficient clothing is needed to keep the body warm and dry during winter sports. The demands placed on such textiles are high, as people sweat up to one liter per hour on their upper body alone when skiing. The new ski [jacket](#) of the Swiss premium sportswear brand KJUS removes [sweat](#) from the inner clothing and transports it out of the jacket. This eliminates the problem of cooling down after skiing, which is otherwise caused by the moisture trapped in the inner clothing. This ensures that skiers spend minimal energy to stay warm and, thus, have more energy for their sport.

This is made possible by the innovative HYDRO\_BOT technology, in which two functional membranes are integrated in the back zone of the jacket, where one usually sweats the most. The technology consists of three layers: a membrane of billions of pores per square meter surrounded by an electrically conductive fabric. By means of a small electrical impulse, the pores turn into micro-pumps that actively conduct moisture away from the body quickly and efficiently. The jacket is extremely easy to switch on and off using the integrated control unit or the iPhone & Android app.



Credit: KJUS

Developed and patented by the Swiss company Osmotex, HYDRO\_BOT is a revolution for the [clothing industry](#) and the first significant innovation since the introduction of waterproof and breathable membranes 40 years ago. More than ten years of research and development in collaboration with Empa and Swiss textile manufacturer Schoeller have formed the basis for this innovation.

The new membrane [technology](#) solves one of the biggest challenges in the ski and sportswear sector: breathability and the problems that inevitably occur when a skier sweats at sub-zero temperatures while

wearing warm, waterproof [clothing](#). Ski jackets with normal membranes cannot transport moisture away from the body quickly enough, especially in colder outdoor temperatures, because the breathability of normal membranes quickly diminishes.

The new jacket is up to ten times more efficient than normal [membrane](#) jackets and is not affected by freezing temperatures. It is the first garment that can keep up with human perspiration rates in terms of breathability.

Provided by Swiss Federal Laboratories for Materials Science and Technology

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