

Integrated sensor system for heart pumps

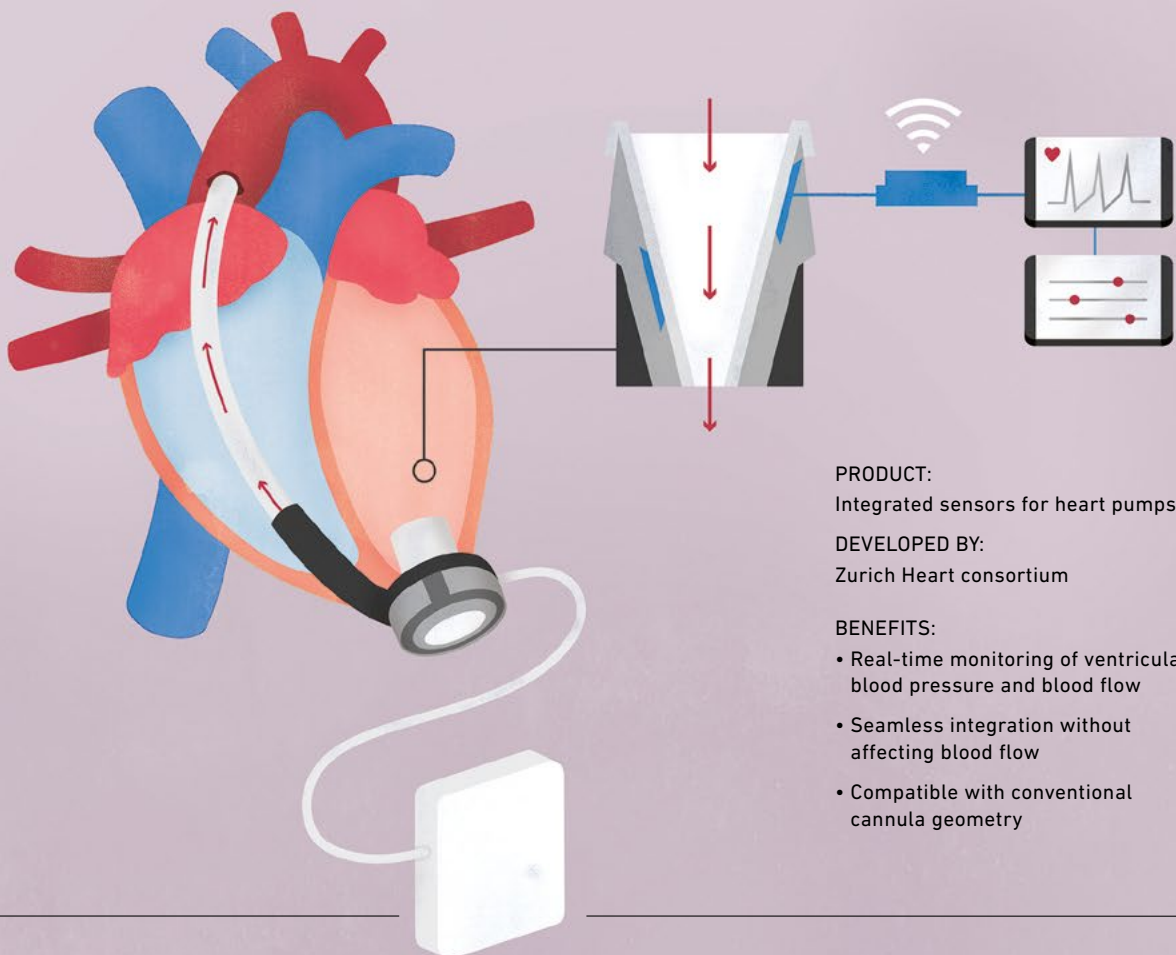
A ventricular assist device (VAD) is a surgically implanted pump used to support patients with advanced heart failure. It works by drawing oxygen-rich blood from the left ventricle and pumping it into the aorta.

VADs operate at a constant speed regardless of whether the patient is active or sleeping. This causes imbalances between blood supply and demand that lead to life-threatening complications

in the long term. To tackle this problem, the Zurich Heart consortium developed algorithms and an integrated sensor system that in combination adapt pump performance to the patient's needs.

The Zurich Heart team seamlessly incorporated two pressure sensors in small cavities in the wall of the inflow cannula, one of the tubes the pump uses to carry blood. The sensors are covered by a polymer coating on the inside of the cannula. This membrane serves as a sensing interface without interrupting the flow of blood through the cannula. The sensors are positioned in different sections of the tube, allowing them to measure pressure and calculate blood flow. ○

→ hochschulmedizin.uzh.ch/en/projekte/zurichheart



PRODUCT:

Integrated sensors for heart pumps

DEVELOPED BY:

Zurich Heart consortium

BENEFITS:

- Real-time monitoring of ventricular blood pressure and blood flow
- Seamless integration without affecting blood flow
- Compatible with conventional cannula geometry