

A Flow Measurement Guide
for Industry Bioengineers

ORGAN PRESERVATION DEVICES



www.transonic.com

Transonic Applications

Transonic began partnering with outside companies shortly after its inception in 1983 to develop innovative devices. Soon, a robust Transonic/Customer synergy developed between Transonic and device manufacturers and this vital Customer/Manufacturer relationship has become part of Transonic's DNA. It lies at the heart of the development of all Transonic products.

Our applications range from utilizing standard products straight off the shelf to creating such novel designs that they would not be recognized as a Transonic product. Together with our collaborators, Transonic has striven to push the limit on flow measurements including ultra-low flow applications in novel measurement mediums. Transonic customized Flowsensors and Flowboards are being used in a wide range of products and applications including:

Mechanical Circulatory Support Devices including:

1. Heart Lung Machines
2. Extracorporeal Membrane Oxygenation (ECMO) circuits
3. Artificial Hearts (AH)
4. Ventricular Assist Devices (VADs)

Renal Replacement Devices: Hemodialysis Machines

Organ Preservation Devices

Treatment Delivery /Therapy Devices

1. Anesthesia Delivery / Pain Management Systems including:
2. Organ Infusion Pumps
3. Urodynamic System / Urometer
4. Pediatric Hydrocephalus
5. Endometrial Ablation
6. Ocular Surgery

Many More Possibilities

A sampling of the broad spectrum of Transonic application will be presented along with the solutions that Transonic offers for each application.

Reduce Perfusion Damage in Harvested Organ

Over 110,000 patients are awaiting a transplanted organ in the United States. In 2018, 35,663 organ transplants were performed. Due to the lack of organ availability, patients awaiting an organ transplant die each day.

Once a human organ is harvested for transplant, the race is on to get the organ into the recipient. Until that time, an organ perfusion system perfuses the organ. Transonic's capability to measure volume flow rate of blood or other physiological solutions makes its Tubing Flowsensors the ideal "flow Inside" solution for organ perfusion systems.

By measuring flow, perfusate flow can be optimized within the perfusion system designed to maintain transplanted organs until their implantation. By optimizing flow, perfusion damage to the harvested organ is reduced which ensures longer viability of the organ.

Transonic's Transit-time Ultrasound (TTU) flow measurement through sterile tubing is the gold standard for flow verification and is an ideal quality measure in organ preservation devices where consistent flow measurements can signal the difference between organ viability and failure.

Organ perfusion systems often operate at colder temperatures than body temperatures to slow organ tissue requirements. Transonic Tubing Flowsensors can be calibrated for such low temperatures and perfusion buffer solutions.

Transonic Solution

Volume Flow Measurement

Provides independent verification of delivered dose to avoid over or under perfusion to minimize adverse events and improve outcomes.

Bubble Detection

Identifies bubbles in the infusion system to help reduce the risk of micro-emboli.