

# First-of-a-Kind Liposuction System

Making lipoplasty safer and more effective



A wide variety of body-shaping aesthetic surgical procedures are available and popular, however the mortality risk associated with complications from liposuction is 1 in 5,000. Andrew Technologies commissioned MPR to develop HydraSolve, a novel liposuction system using heated, pressurized and pulsed saline to actively remove adipose tissue making lipoplasty safer and more effective.

## 01 THE CHALLENGE

### Devise a first-of-a-kind system

The challenge was in designing a first-of-a-kind water spray system that could safely break up adipose tissue without the risk of damage to other tissues. The system had to be designed such that the water could be both heated and also pressurized to deliver the optimal level of energy. At the same time, the water supply and delivery system had to be closed and sterilized to prevent the risk of infection.



## 02 THE SOLUTION

### Craft multiple innovations

MPR developed several innovations to create the ideal solution. First, a single-use high-pressure pumping element was created. The pump was integrated with a cartridge that snaps into place between heating plates. Finite element analysis was used to design the pump for safe and reliable operation. Finally, the water spray delivery tube was integrated inside the aspiration cannula so that only adipose drawn into the cannula would be impacted by the spray.



## 03 THE RESULTS

### A new system cleared by the FDA

This new system was developed from sketch to FDA submission in 12 months. Now cleared by the FDA, it significantly reduces procedure time, requires less physical effort from the surgeon to perform the procedure, reduces swelling and bruising for the patient, and accurately removes fat tissue while impacting neither fibrous connective nor vascular tissue.