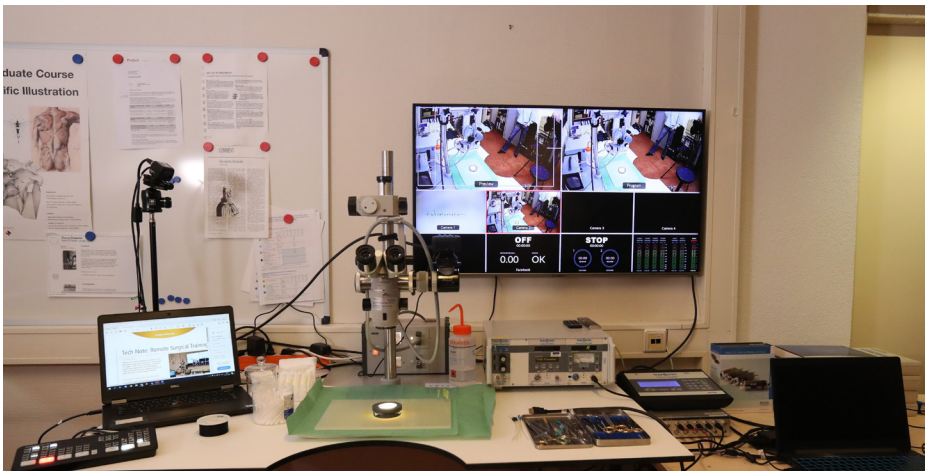
# Technical Note: Remote Surgical Training




*Remote surgical demonstration and training set-up at the RRSSC in Almere, the Netherlands*

## Introduction

When an in-person demonstration or surgical training is not possible, it can take place virtually. Training is important in order to comply with the 3Rs associated with animal research: replace, reduce, and refine. Successful use of ultrasound transit-time flow probes, pressure and pressure-volume catheters depend on the (surgical) skills of the user. In this Technical Note, Dr. Astrid Haegens shares the René Remie Surgical Skills Centre (RRSSC) set-up and procedure for performing a virtual surgical demo, as an online training and demonstration support for Transonic customers.

Training sessions can be either uni-directional, where Dr. Haegens broadcasts her surgical set-up or bi-directional, where the customers perform their own surgery in tandem with Dr. Haegens.

## Video and Audio from Us to the Customer

Video conference is held via Microsoft Teams. Video views switch between face to face and surgical arena as needed.

A permanent workstation (shown in the picture above) is set up at the RRSSC in Almere, the Netherlands, the same location where Transonic's European Rodent Surgery Workshops take place, in close collaboration with the RRSSC.

## Video and Audio from the Customer to Us

The customer will have our incoming video via Microsoft Teams and must have good internet connection to ensure quality video and audio performance.

For bi-directional training, the customer needs to have a surgical camera which can communicate with Teams. For those who do not have an appropriate camera, Transonic is able to lend out a Dino-lite camera. This small, easy-to-handle microscope camera is detected as secondary camera in Teams and will allow to us follow the surgery performed by the customer without the need for a trinocular microscope.

## Equipment/Requirements

Transonic equipment associated with the application is required on the customer side for bi-directional sessions

- T402-PB + precision flowprobes or nanoprobe and any needed extension cables
- ADV500 with small animal module + mouse/rat PV or pressure catheters

Other requirements needed to participate in bi-directional sessions.

- Approved animal ethical protocol
- Surgical tools and suture material: see Transonic's Pressure & Flow Workbook.
- Heating pad
- Warm saline, cotton tips
- Mice, rats
- Anesthesia: isoflurane is preferred
- Data acquisition system
- Laptop with analysis software and Microsoft Teams

For uni-directional sessions only Microsoft Teams is required.

## Market Availability

1) One-on-one demo and training for surgeries associated with Transonic rodent probes and catheters in Europe.
2) Live demonstration webinars at pre-determined times that customers can sign up for limited spots.
3) A similar set-up is in development in Canada to expand these services to our customers worldwide.

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