

# SURGICA

THE NEXT GENERATION OF SURGICAL SIMULATORS



KRN LABS

# SURGICA ProHaptics

THE HIGHEST-FIDELITY HAPTICALLY ENHANCED SURGICAL TRAINING

- Provides the most realistic training experience with high-fidelity haptic force feedback in all degrees of freedom.
- Enables users to precisely feel the resistance and feedback of virtual tissues.
- Features state-of-the-art simulation technology offering unparalleled realism and immersion.
- The most efficient surgical training in a controlled and safe environment, crucial for learning complex laparoscopic procedures.
- A wide selection of freely interchangeable tools (e.g. grasper, dissector, camera, needle driver, clipping tool, diathermy hook).
- Automated tracking and assessment of training progress
- Surgica Pro is a lightweight, non-haptic version of the simulator striking the balance between highest-quality training and affordability for medical institutions.



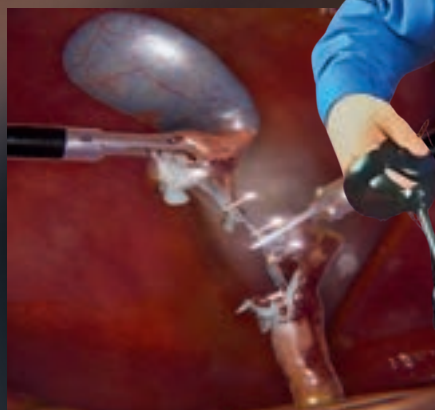
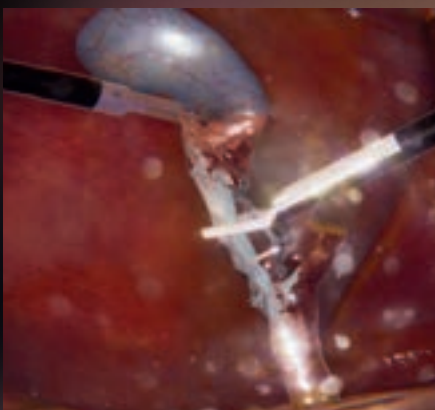
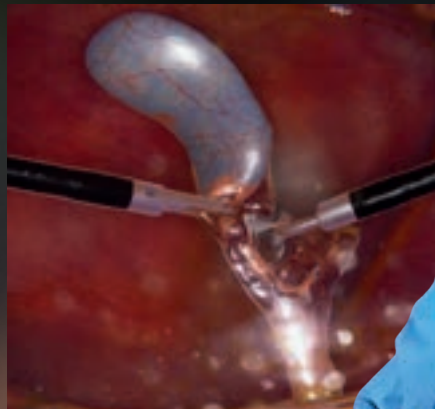
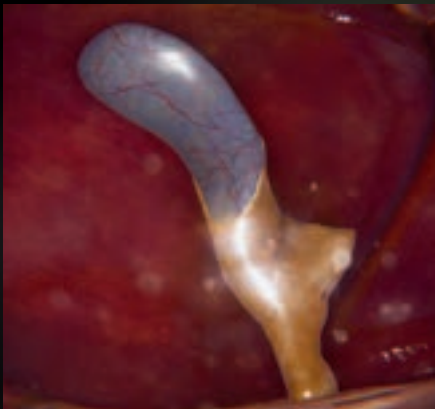
	Surgica Pro	Surgica ProHaptics
Hardware Device	BBZ srl SimLap	Follou AB Haptic Avatar
Update Frequency	Up to 200 Hz	Up to 4000 Hz
Insertion Resolution	0.5mm	0.005 mm
Angular Resolution	0.5°	0.01°
Range	Yaw $\pm 90^\circ$ Pitch $\pm 90^\circ$	Yaw $\pm 90^\circ$ Pitch $\pm 60^\circ$
Peak Angular Force-Feedback	N/A	Yaw 0.8 Nm Pitch 1.0 Nm
Peak Insertion Force-Feedback	N/A	18 N
Peak Handle Force-Feedback	N/A	15 N

# SURGICA VR

THE MOST AFFORDABLE & ACCESSIBLE SURGICAL TRAINING



- A cutting-edge VR simulator for robotic and laparoscopic surgical training.
- Provides a safe, controllable, and repeatable training environment, minimizing risks to patients.
- Ultra-portable - enables students and residents to practice anytime and anywhere, ideal for busy medical professionals.
- State-of-the-art simulation technology from ProHaptics offering unparalleled realism and immersion.
- User-Friendly Interface Accessible to trainees of all technical skill levels.
- A low-cost solution for medical universities, teaching hospitals, and training centers.
- Ideal for professionals in remote or underserved areas, allowing continued training outside traditional settings.
- Free Access for Early Adopters to democratize access to high-fidelity surgical training!





## KRN LABS SURGICA PRODUCTS CHART



	SurgicaVR	Surgica Pro	Surgica ProHaptics	Surgica ProHaptics Ultimate
<b>Mobility</b>	Ultra Mobile	Mobile	Mobile	Stationary
<b>Platform</b>	VR Goggles	Laptop	Laptop	Desktop (Laptop optional)
<b>Interface</b>	VR controllers with optional stand	Lightweight Laparoscopic Interface	Haptic Laparoscopic Interface	Haptic Laparoscopic Interface
<b>Number of instruments ports</b>	2	2	2 (max 3)*	3 (max 6)*
<b>Number of port mount points</b>	Freely configurable	2 Fixed	3 Fixed	3 Adjustable (max 6)
<b>Included Physical Instruments</b>	Emulated with VR controllers	2 Graspers	2 Graspers*	2 Graspers EndoCam Diathermy Hook Needle Driver Clip Applier
<b>Haptics</b>	Vibrations	Vibrations	High-Fidelity Force-Feedback in all 4 Degrees-of-Freedom	High-Fidelity Force-Feedback in all 4 Degrees-of-Freedom
<b>Graspers Haptics</b>	Vibrations	Vibrations	Optional	High-Fidelity Force-Feedback on handles
<b>Foot pedal</b>	No	Yes	Yes	Yes
<b>Touchscreen</b>	N/A	No	No	Yes
<b>Ergonomics</b>	Freely configurable	Desktop stand	Height adjustable desktop stand	Adjustable screen Adjustable ports
<b>Dedicated wheeled cart</b>	N/A	Optional	Optional	Yes
<b>Transportation case (airplane suitable)</b>	Yes	Optional	Optional	Optional (with laptop)
<b>Transport weight**</b>	1 kg	3 kg	15-20kg	20-30kg
<b>Hardware Warranty</b>	2 years	2 years	2 years	2 years

\* ProHaptics can be freely configured in terms of ports and instruments

\*\* Without the dedicated cart and screen

