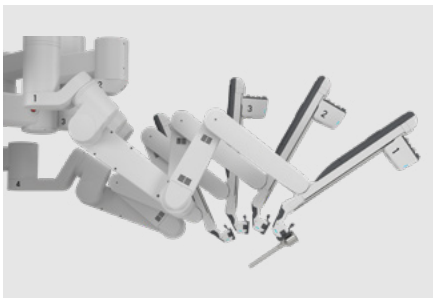


Da Vinci X surgical system information



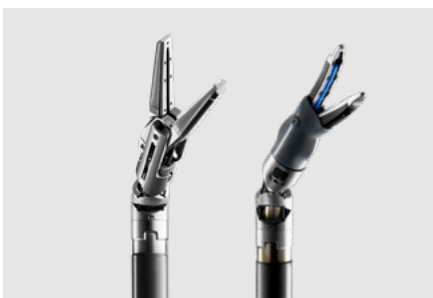
Advanced arm architecture



EndoWrist instruments



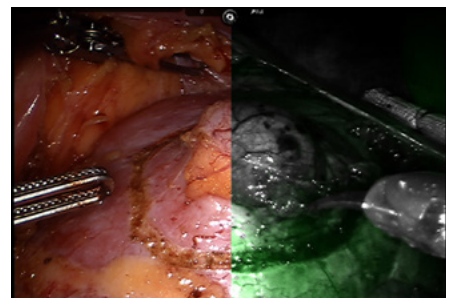
Da Vinci Stapling



Da Vinci Energy



SimNow



Firefly technology

Da Vinci X surgical system information

System components	• Single-cart system, surgeon console and vision cart (3 components)
System weight	• Surgeon console: 280.0 kg • Patient cart: 545.0 kg • Vision cart: 371.0 kg
System dimensions	• Patient cart: height (min.): 182-210 cm, width: 92.7 cm, depth: 158 cm (1.46 m²) • Vision cart: height (min.): 193-223 cm, width: 68.6 cm, depth: 92.7 cm (0.64 m²) • Surgeon console: height (min.): 145-180 cm, width: 96.5 cm, depth: 86 cm (0.83 m²)
Patient cart	• Total available instruments arms: 4 • Arm spar width: 4.3 cm • Recommended minimum port site distance: 6 cm • Possibility to stow one arm when setting up the da Vinci surgical Xi System for a 3-arm procedure • Apply feedback during arm collisions and range of motion limits • Touchpad control for automated set-up • Battery power back-up • Overhead boom design
Vision tower	• TilePro video input connections • Touchscreen monitor with telestration capability: 61 cm • Overlay of surgical image and control system settings • 3DHD video output connections • Off-screen tool indicator • Screen capture with USB flash drive
Surgeon console	• Dual console capabilities - two surgeons can operate simultaneously • 1080i 3DHD stereo viewer • Force and torque feedback capable master (instrument) controllers • Ergonomic control panel • Digital touchpad to access audio, video, user profile and system settings • Footswitch panel: monopolar, bipolar, advanced instrument and camera controls • Simulator-ready integration connections on operative surgeon console
Range of motion	• Outer yaw: 504° • Outer pitch: +/-75° • Insertion axis range of motion: 34.3 cm • 7 degrees of freedom for instruments • 540° rotation
Endoscope	• 8 mm Ø • Field of view: ~80 degrees • 10x optical magnification • 4x digital magnification • 3DHD integrated fluorescence imaging • Auto focus, white balance and 3D calibration • No draping required
Instrument availability	• 8 mm wristed instruments: monopolar, bipolar, harmonic, graspers, needle drivers, scissors, clip appliers, specialty, Vessel Sealer Extend, Suction Irrigator and SynchroSeal • 12 mm wristed instruments: 45 mm stapler, 30 mm stapler, SureForm 60 mm and SureForm 45 mm • No assembly required
Instrument length	• ~64 to 70.5 cm

Da Vinci X surgical system technical information

Advanced technologies

- Harmonic ACE Shears (ultrasonic)
- Da Vinci Vessel Sealer Extend (7mm vessel sealing)
- SynchroSeal (seal and cut vessels up to 5 mm)
- E-100 generator (used with SynchroSeal and Vessel Sealer Extend)
- Da Vinci Stapling: EndoWrist 30, 45. SureForm 45, 60
- Endoscope Plus
- Handheld Camera
- Fluorescence Imaging (near infrared)

Digital technologies

- SimNow
- My Intuitive
- Intuitive Telepresence
- Clinical Media Management
- Customer Portal
- Intuitive Learning

Electrosurgical unit compatibility

- ERBE VIO dV (included with X system)
- Medtronic (Covidien) Force Triad
- Ethicon GEN 11 (for Harmonic ACE Curved Shears only)

Washer/disinfector and validated sterilizers

- Instruments: several automated washer/disinfectors validated in accordance with ISO-15883. Compatible with autoclave pre-vacuum sterilizer
- Endoscopes: several low temperature sterilizer validated for endoscope sterilisation
- Reprocessing manual in accordance with ISO-17664
- Customer validates the process in accordance to the applicable standards/regulations

Da Vinci X surgical system features

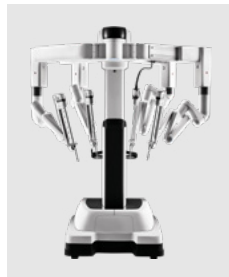
Platform mobility and setup	• All components easily movable with wheels and a motor-driven patient cart • Components fit through a standard size door (<100 cm). • Single-cable connection interface connects all three components. • Voice guided patient cart set-up.
Surgical site access	• 8 mm – 12 mm multi-port
Instrument availability	• 8 mm fully wristed • 12 mm fully wristed • No assembly required for all wristed instruments
Advanced instrumentation	• Fully wristed vessel sealer & stapler • Non-wristed ultrasonic shears • Energy instruments: Vessel Sealer Extend and SynchroSeal
Instrument controls	• Instrument controllers replicate natural hand movements by maintaining eye-hand-instrument tip alignment vs. counter-intuitive controls. • Automatic tremor filtration and multiple motion scaling options • Footswitch panel provides immediate access to all instrument controls including monopolar, bipolar, advanced energy and advanced instrument functionality. • Immediate access to camera controls and additional instrument arm engagement from footswitch panel • Instrument controllers capable of applying both force and torque feedback when high force on the arms or instruments are encountered • Second console instrument controllers can become 3D pointers for teaching.
Range of motion	• Slender arm design enables close port proximity (up to 6 cm distance). • All wristed instruments provide 7 degrees of freedom and 540° rotation, extending instrument control beyond the limits of the human hand. • Haptic cues provided at range of motion limits for all active joints • Automated pivot point on all arms minimizes movement at patient body wall.
Vision	• 3DHD optics viewable in an immersive 3DHD display, no glasses required • 10x optical magnification with additional 4x digital zoom capability • Telestration capabilities on Vision Cart Touchscreen provide improved communication and teaching for non-sterile OR staff, residents and fellows. • Handheld Camera: 2D camera used with 5-10 mm third-party laparoscopes to provide visualization of the surgical field for minimally invasive procedures
Advanced imaging	• Near-infrared fluorescence imaging provides real-time visualization of vessels, bile ducts and tissue perfusion (standard equipment) • 3DHD fluorescence imaging robotic endoscope
Advanced OR & system integration	• Second surgeon console integration provides opportunities for resident and fellow training or second surgeon operative assistance. • Multi-window surgeon console display provides viewing of external video sources in parallel to endoscopic view. • 2D and 3D high definition video outputs for external OR monitor integration • 3rd party electrosurgical unit integration provides safety controls to disable unintentional activation of electrocautery. • Two-way audio linked to all components for improved OR staff communication • Table motion integrated with the patient cart for intra-operative table movement without removing instruments from the robotic arm
Ergonomics	• Ergonomically adjustable console saves preferences under unique user profiles. • Fingertip controls enable instrument disengagement for ergonomic hand, arm and shoulder repositioning.
System control preferences	• Touch pad interface at surgeon console provides control of audio, video, display, instrument and system control settings. • Surgeon preferences saved under unique user profiles for automatic recall • Touchscreen monitor on vision cart provides OR staff real-time surgical information and access to system controls, audio, video settings, instrument information and troubleshooting support.

Da Vinci X surgical system features

Safety	• Automatic cannula detection locks surgical cart in position during surgery. • Over 1,300 continual system safety checks per second detect potential system faults. • Stereo viewer sensors lock instrument controls when operator's head is out of the viewing console. • Automatic system fault notifications • Unintended instrument-movement fault notifications • Guided instrument exchanges ensure instruments are returned to their intended position in the surgical field. • Stapler tissue-thickness sensing provides information on appropriate tissue thickness relative to reload type.
System reliability	• 98% and higher uptime guarantee available to customers
OnSite monitoring	• Remote system condition monitoring, failure prediction, and proactive maintenance service
Remote access	• Service interface for remote system troubleshooting
Technical support	• 24/7, 365 days-a-year Technical Support with 99% of calls answered within 10 seconds
Consumables supply	• 95% of order shipped same or next day
Account support	• Over 250 worldwide field engineers (over 40 dedicated to Europe) • Dedicated sterilization and reprocessing support team • Clinical support representative every 3-5 systems
da Vinci system & procedures supported	• 5,989 da Vinci systems in hospitals around the world through 2020 • Over 8.5 million of minimally invasive procedures performed worldwide through 2020 using the da Vinci surgical systems
Indications (please refer to the intended use)	• Gynecology, Urology, General Surgery, Thoracic, TORS (Trans-oral otolaryngology surgical procedures)
Training	• 5 dedicated European training centers • Technology Training and Surgeon Led Training Programs • In person peer-to-peer training (proctoring) • Over 35 skills simulation modules using surgeon console controls
Education	• Fellowship training • Research grant support • Online training
da Vinci system publications	• Over 24,000 scientific articles on Intuitive products and procedures (more than 3,000 in 2020)
Program development	• Dedicated OR efficiency program support team for new and existing accounts • Program benchmarking vs. similar da Vinci® programs • Procedure economics optimization
Validation and Verification	• All instruments go through reprocessing and clinical use testing to ensure high fidelity movement throughout the instrument life.

Da Vinci surgical systems specifications comparison

Da Vinci Xi



Da Vinci X



Da Vinci Si



Range of motion	Outer yaw	504°	504°	336°
	Outer pitch	177°	149°	149°
	Insertion axis	34.3 cm	34.3 cm	29.2 cm
General specifications	8 mm instruments	✓	✓	✓
	5 mm instruments	×	×	✓
	Additional 4.4 cm in instrument reach	✓	✓	×
	Arm spart width	4.3 cm	4.3 cm	7.4 cm
Core technology	EndoWrist technology	✓	✓	✓
	Intuitive motion	✓	✓	✓
	Immersive 3DHD stereo viewer	✓	✓	×
	Upgradeable architecture	✓	✓	×
	Da Vinci OS4 compatible	✓	✓	×
Technology enhancements ¹	Firefly Fluorescence Imaging	✓	✓	✓
	Multi Port instruments and endoscope	✓	✓	×
	Integrated energy	✓	✓	×
	Platform modularity	✓	✓	×
	Handheld Camera	✓	✓	×
	Endoscope Plus	✓	✓	×
Capability enhancements ¹	Streamlined port placement	✓	✓	×
	Extended anatomical access	✓	×	×
	Integrated Table Motion	✓	×	×
	Boom rotation	✓	×	×
Ease of use enhancements ¹	Automated setup tasks	✓	×	×
	Advanced intraoperative adjustments	✓	×	×
	Universal cart positioning	✓	×	×
	Optimized patient side access	✓	×	×

1. Compared to the da Vinci Si surgical system. Results of testing on file.

Da Vinci surgical systems specifications comparison

Continued

Vision/Endoscope	Camera arms	4	4	1
Sizing		8 mm	8 mm	8.5 & 12 mm
Field of view		80°	80°	60°
Auto 3D calibration		✓	✓	×
Auto white balance		✓	✓	×
Drape free		✓	✓	×
Advanced technology	EndoWrist Stapler 30 mm	grey, white, blue, green	grey, white, blue, green	×
	EndoWrist Stapler 45 mm	white, blue, green	white, blue, green	×
	SureForm 45 Stapler	grey, white, blue, green, black	grey, white, blue, green, black	×
	SureForm 60 Stapler	white, blue, green, black	white, blue, green, black	×
	Vessel Sealer	×	×	✓
	Vessel Sealer Extend	✓	✓	×
	EndoWrist Vessel Sealer generator	✓	✓	×
	E-100 generator	✓	✓	×
	SynchroSeal	✓	✓	×
Digital technology	SimNow	✓	✓	✓
	My Intuitive	✓	✓	×
	Intuitive Telepresence	✓	✓	×
	Clinical Media Management	✓	✓	×
	Customer Portal	✓	✓	✓
	Intuitive Learning	✓	✓	✓
System weight	Surgeon console	280 kg	280 kg	264 kg
	Patient cart	861 kg	545 kg	544 kg
	Vision cart	371 kg	371 kg	202.3 kg
Patient cart dimensions	Height	182 x 250.2 cm	183 x 210 cm	175 cm
	Width	104 cm	92.7 cm	91 cm
	Depth	150 cm	158 cm	127 cm
Surgeon console dimensions	Height	145 x 180 cm	145 x 180 cm	178 cm
	Width	96.5 cm	96.5 cm	97 cm
	Depth	86 cm	86 cm	86 cm
Vision cart dimensions	Height	193 x 223 cm	193 x 223 cm	193 x 223 cm
	Width	68.6 cm	68.6 cm	68.6 cm
	Depth	92.7 cm	92.7 cm	92.7 cm

Product Information

Da Vinci X Surgical System

The Intuitive Surgical Endoscopic Instrument Control System (da Vinci X Surgical System) is intended to assist in the accurate control of Intuitive Surgical Endoscopic Instruments during urologic surgical procedures, general laparoscopic surgical procedures, gynecologic laparoscopic surgical procedures, general thoracoscopic surgical procedures, thoracoscopically-assisted cardiomy procedures, and trans-oral otolaryngology surgical procedures restricted to benign tumors and malignant tumors classified as T1 and T2, and for benign base of tongue resection procedures. The system can also be employed with adjunctive mediastinotomy to perform coronary anastomosis during cardiac revascularization. The system is indicated for adult and pediatric use (except for trans-oral otolaryngology surgical procedures). It is intended to be used by trained physicians in an operating room environment.

The da Vinci X Surgical System is a class IIb medical device CE marked (CE 2460) under the European Medical Devices Directive (93/42/EEC) manufactured by Intuitive Surgical, Inc. Refer to Instructions For Use before use.

FireFly

The da Vinci Firefly Imaging System is intended to provide real-time endoscopic visible and near-infrared fluorescence imaging. The da Vinci Firefly Imaging System enables surgeons to perform minimally invasive surgery using standard endoscopic visible light as well as visual assessment of vessels, blood flow and related tissue perfusion, and at least one of the major extra-hepatic bile ducts (cystic duct, common bile duct or common hepatic duct), using near infrared imaging.

EndoWrist Instruments

EndoWrist Instruments, including blunt and sharp endoscopic dissectors, scissors, scalpels, forceps / pick-ups, needle holders, endoscopic retractors, electrocautery and accessories are intended for endoscopic manipulation of tissue, including grasping, cutting, blunt and sharp dissection, approximation, ligation, electrocautery, suturing, and delivery and placement of microwave and cryogenic ablation probes and accessories.

EndoWrist Instruments are class IIa and class IIb medical device CE marked (CE2460) under the European Medical Devices Directive (93/42/EEC) manufactured by Intuitive Surgical, Inc. Refer to Instructions For Use before use.

EndoWrist Stapler

The EndoWrist Stapler 45 and Stapler 30 Instruments, Stapler 45 and Stapler 30 Reloads and other Stapler Accessories are intended to be used with the da Vinci X, da Vinci Xi or da Vinci Si Surgical Systems for resection, transection and/or creation of anastomoses in General, Thoracic, Gynecologic and Urologic surgery. The devices can be used with staple line or tissue buttressing material (natural or synthetic).

The EndoWrist Stapler 45 and Stapler 30 Instruments, Stapler 45 and Stapler 30 Reloads and other Stapler Accessories are class IIa, IIb and Is medical devices CE marked (CE 2460) under the European Medical Devices Directive (93/42/EEC), manufactured by Intuitive Surgical, Inc. Refer to Instructions For Use before use.

SureForm

The SureForm 60 and SureForm 45, SureForm 60 and SureForm 45 Reloads are intended to be used with a compatible da Vinci Surgical System for resection, transection, and, or creation of anastomoses in General, Thoracic, Gynecologic, Urologic, and Pediatric surgery. The devices can be used with staple line or tissue buttressing material (natural or synthetic).

The SureForm 60 and SureForm 45, SureForm 60 and SureForm 45 Reloads are class IIa and IIb medical devices CE marked (CE 2460) under the European Medical Devices Directive (93/42/EEC), manufactured by Intuitive Surgical, Inc. Refer to Instructions For Use before use.

Vessel Sealer Extend

The Vessel Sealer Extend is a bipolar electrosurgical sealing and cutting instrument for use with the da Vinci Xi and da Vinci X Surgical Systems and the compatible electrosurgical generator. It is intended for grasping and blunt dissection of tissue and for bipolar coagulation and mechanical transection of vessels up to 7 mm in diameter and tissue bundles that fit in the jaws of the instrument. The Vessel Sealer Extend has not been shown to be effective for tubal sterilization or tubal coagulation for sterilization procedures, and should not be used for these procedures.

The Vessel Sealer Extend is a class IIb medical device CE marked (CE 2460) under the European Medical Devices Directive (93/42/EEC), manufactured by Intuitive Surgical, Inc. Refer to Instructions For Use before use.

SynchroSeal

SynchroSeal is a bipolar electrosurgical instrument for use with a compatible da Vinci Surgical System and a compatible electrosurgical generator. It is intended for grasping, dissection, sealing and transection of tissue. SynchroSeal can be used to seal vessels up to and including 5 mm in diameter and tissue bundles that fit in the jaws of the instrument. SynchroSeal has not been shown to be effective for tubal sterilization or tubal coagulation for sterilization procedures and should not be used for these procedures.

The SynchroSeal is a class IIb medical devices CE marked (CE 2460) under the European Medical Devices Directive (93/42/EEC), manufactured by Intuitive Surgical, Inc. Refer to Instructions For Use before use.

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Please contact your local Intuitive representative for product availability in your region.

Refer to the da Vinci X Surgical System User Manual for indications, contraindications, warnings and product information.

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