AMENDMENT TO TENDER - II

BID REFERENCE: CI:SCI:NP/SOG/P-V/2019-20/01, Dt. 10.04.2019

TENDER FOR SUPPLY, INSTALLATION & COMMISSIONING OF ROBOTIC SURGICAL SYSTEM TO DEPARTMENT OF SURGICAL ONCOLOGY AT CANCER INSTITUTE (WIA), ADYAR, CHENNAI.

Section – VII

Technical Specifications

	The robotic system should be capable of working in the master slave mode with the surgeon as the master whose hand movements are translated into minimally invasive instruments capable of navigating inside the human body and performing surgeon desired manoeuvres as per instrument capability for dissection and suturing.
Capabilities:	
	The Equipment must be capable of performing minimally invasive Robot assisted operative procedures in Urology, Gynaecology, Thoracic, Colorectal, transoral head and neck surgery for both benign and Cancer Surgeries.
	The Main Equipment should comprise of the following fully integrated subsystems:
	One Surgeon's console-with Master controls and an integrated true High Definition 3D display stereo viewer. In case of expansion with an additional surgeon's console, ability to switch surgeon console from one console to the other during surgery should be available.
	Surgical Cart with Camera Arm and three instrument arms (interchangeable). Rotating structure with laser for targeting.
	Vision Cart containing camera image processing units and integrated true high definition display monitor for interaction.
	High Quality Three Dimensional view of the field of operation is to be provided by the vision system through its stereo endoscope.
	High Density Xenon - LED Light source to be provided for illumination of the Surgical Field with a standby lamp.
	The Surgeon should be able to magnify the images with his own controls upto 6 to 10 times.
	Integrated camera and endoscope
	Built In energy source suitable for monopolar, bipolar and Vessel sealer-
	The Stereo Endoscopes should be capable to view at 0° and 300°. Capability for Real-time near-infrared guidance through visualization of inject able fluorescence dye with suitable endoscope, illuminator and camera should be available.
	Camera should provide high resolution images of the operative field along with perception of depth of field.

	Instruments to be used with the system should be able to provide surgeons with natural dexterity and a range of motion far greater than even the human hand. Such instruments are to offer a wide range of tips suitable for performing procedures for benign and onco surgeries across multiple disciplines. These instruments shall offer 7 degrees of motion mimicking the dexterity of human hand.
	The masters at the surgeon's console should be capable of translating the natural hand and wrist movements into corresponding precise and scaled movements to the instruments and camera attached to the surgical cart arms minimising fatigue. Such movements of the instrument tips shall replicate the experience of open surgery.
	There should be a facility for scaling of surgeon hand movements to corresponding smaller instrument tip-movements. The surgeons hand movements shall be replicated at the instrument tip after filtering tremors if any in real time.
	There should be facility for learning hand – eye co-ordination movements by a Simulator subsystem.
	The system should perform self-checks to provide safety during usage.
	Ability to change instruments during surgery safety with proper guidance should be in built.
	Features to provide ability for the assistants in the OR to see and communicate with the surgeon through monitor and Telestation.
	Ability to adjust the surgeons view ports and console to suit individual comfort and ergonomics should be available.
	Ability to enable the surgeon to view two additional video sources from other medical systems with compatible video sources.
	While the robotic arms shall be operated by sterile persons the vision system and surgeons console shall be non-sterile in the operating room.
	Adequate safety features to prevent inadvertent movements of the surgeon affecting the instruments shall be available.
	The sub systems shall be easily movable with in the OR. If wheels are used there should be features to lock the wheel to prevent movements.
	The system shall provide video output suitable for connecting to external devices such as recorders and additional video monitors.
	The system shall have all software required to support all disciplines of surgery which is possible by the system under the control of the surgeon.
	System shall have features for emergency release of the robotic instruments from the surgery.
	Insufflations system with capability to maintain constant Pneumo-peritoneum pressure and smoke evacuation suitable for easy performance of onco surgery shall be provided as a standalone equipment with initial lot of consumables if any.
	OTHER REQUIREMENTS

	Surgeon Training: A set of 6 surgeons who will eventually use the Robotic Surgery System shall be trained by the vendor for using the system to perform Robot Assisted Surgeries particularly Oncology procedures in the Abdomen and Pelvic Areas, Thoracic and Head, Neck Areas. The duration of the Training and the Training Method in any Developed Countries shall be described.
	O.T . Staff Training: A Set of OT Staff such as Nurses and O.T Technicians and Biomedical Staff shall be trained by the Vendor for handling the system covering powering on, moving and positioning the system and observing the system for right function and errors if any etc. The training method and duration shall be outlined by the vendor. There may be multiple batches of OT Staff required to be trained over a period of time.
	Instruments, consumables & Accessories: The vendor should provide a list of Instruments, consumables and Accessories available for the use of the system for benign and cancer surgeries suitable for the capabilities of the system including facilities for recording high definition signals from the system
	Special Additional Equipments: Vendor to specify any special additional equipment that may be required for the use of the Robotic Surgery System such as special cleaning and sterilization equipment and UPS with adequate backup capacity.
	Environment and power: All Equipment shall be capable of working on 230V AC, +/- 5%, 50 Hz Power supply. The system shall be capable of working between 22 to 33 deg.C Air conditioned Environment.
	Spares and Accessories: The Minimum set of Emergency Spares that may be required for immediate replacement during procedures. A Set of Reusable Accessories required for common procedures shall also be proposed.
	An initial set of instruments & accessories (limited use, reusable and disposable) required for performing 500 common oncological procedure must be provided.
	Compatibility or future upgradation without any additional charges
	The vendor must ensure that all equipment necessary for full functioning of the device and its uninhindred use for surgery are quoted and provided
	Highly desirable: a) Ability to use artificial intelligence for trouble shooting b) Internet Connection for accessing Robotic Videos real time **c)** To be integrated in the Hospital Pax/ MedMantaraEMR system
	Bidder shall quote for the following Optional Items also: a) FK Retractor for tranoral surgery – 1no. b) CO2 insufflators c) Plasma sterilizer compatible with and recommended for sterilization of endoscopes - 1 No. d) Ultrasonic bath with ultrasonic frequency of 38 KHz or greater power density of 48 watts/gallon or greater & tank size large enough to fully submerge instruments with atleast 1 inch clearance around all instrument surface & minimum tank length of 28 inch – 1 no. e) Instrument & accessory sterilization tray that is compatible with instruments number – plasma sterilizer. f) Recording system for recording high definition signals from the system. g) Details of video recording system for robotic surgery: 1. The unit should be a high definition medical image and video recorder. 2. The recorder should be able to record various types of signals (SD & HD) with reliable

simultaneous recoding and play back features on internal HDD or external USB device.

3. Internal HDD should be a minimum capacity of 500 GB.
4. Should have a dual recording feature.
5. Simultaneous recording and playback feature should be available.
6. Auto signal detection & auto resolution features should be available.
7. The recording device should have a inbuilt LCD monitor (minimum of 3.5").
8. Various search features should be available for retrieving patient data.
9. External foot switches for controlling recording
10. The following video characteristics should be available.

Maximum Brightness	900 cd/m2 (Typical)
Contrast Ratio	1400:1 (Typical)
Pixels	1920 (H) x 1200 (V)
Color Gradient	1,073,740,000
Color Reproduction Range	BT.709
Video Input	
Signal and Connector	Composite (VBS)
	ICH:BNC (with loop through)
	Y/C (S-VIDEO) ICH:S terminal (with loop through)
RGB/Component Input	
Signal and connector	R,G,B or Y, Pb, Pr
	ICH:HD-15 [D-Sub 15pin] (with loop through)
DVI Input	
Signal and Connector	DVI-D (equipped with cable compensation equipment: Max 30m)
	ICH:DVI-D 24 pin Max. Clock 162 MHz
SDI Input	
Signal and Connector	3G-SDI (Level A)/HD-SDI/SD-SDI
	ICH:BNC (with loop through)
DC5V output	1A output
Safety Approval	ANSI/AAMI ES60601-1, CSA C22.2 No. 60601-1, EN60601-1, GB4943.1-2011
EMC	FCC Class A, VCCI Class A
	EN60601-1-2, GB9254-2008 (Class A) GB17625.1-2012
Power Requirement	Monitor: DC 24V +/- 1V
	AC Adaptor: 100-120V/ 200-240V
Power Consumption	65W or less
Ambient Temperature	+5C to 35C
Dimensions	W640 x H405 x D84mm (excluding protrusions)
Weight	Approx. 8kg (excluding stand)
Available Display Signal for DVI-D/HD15 (D-Sub 15p	
DVI-D	VGA, SVGA, XGA, SXGA, WUXGA 480i/60, 575i/50,

			1080i/60, 1080i/50
			720P/60, 720P/50, 1080P/60, 1080P/50
		HD15 (D-Sub15p)	VGA, SVGA, XGA, SXGA, WUXGA
			480i/60*, 575i/50*, 1080i/60*, 1080i/50*
			720P/60, 720P/50, 1080P/60, 1080P/50

All other terms & condition of this tender remains unchanged

Dt. 13.05.2019 **Director**