UNIVERSITI SAINS MALAYSIA

TO SUPPLY, DELIVER, INSTALL AND COMMISSIONING "SMALL ANIMAL VENTILATOR" TO INSTITUT PERUBATAN DAN PERGIGIAN TERMAJU UNIVERSITI SAINS MALAYSIA, BERTAM, 13200 KEPALA BATAS, PULAU PINANG
TECHNICAL SPECIFICATION SCHEDULE

QUOTATION NO. : SH1/18/END/CIPPT/P/00182

ITEM NO.	UNIVERSITY'S DESCRIPTION	QUANTITY	BIDDER'S SPECIFICATION (Please Write Your Specification In This Column)	TECHNICAL EVALUATION (FOR OFFICIAL USE ONLY)
A.	**ITEM NAME** Small Animal Ventilator **B. DESCRIPTION** Ventilator set for maintaining respiration in small animals from 250g to 5kg e.g. rats, hamsters, rabbits, cats, monkeys, small dogs, during surgery under deep anaesthesia. **C. ESSENTIAL COMPONENTS** 1. Small animal ventilator 2. Ventilation and connection Kit 3. Overhaul kit 4. Anesthetic vaporizer 5. Vaporizer Anti-Spill Device 6. Intubation kit for rat	1 set		

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D.	**TECHNICAL SPECIFICATION** 1. Small animal ventilator 1.1 Shall have gas inlet and outlet ports: supply gas in, gas out (to animal), gas return (from animal) and ventilator exhaust. 1.2 The ventilator exhaust shall be attached to a column of water to achieve positive end expiratory pressure (PEEP) when long term animal ventilation is necessary. 1.3 Shall be able to monitor PEEP. 1.4 The unit shall have tubing graduated sizing connectors that can accommodate different size tubing easily for linear volume and rate control. 1.5 Shall be able to control tidal volumes from at least 0.5 to 30 cc in 0.5 cc increments. Interchangeable cylinder volume shall be accepted, and provided in the kit. 1.6 Shall be able to control cylinder stroke between gradations to achieve finer resolution in tidal volume settings. 1.7 Shall be able to set the respiratory rate from at least 18 to 150 breath/minute, with a numerical LED display. 1.8 Shall be able to adjust the tidal volume at least 0.2 to 30ml/stroke and respiratory rate between at least 30-150 breath/min while the ventilator is running. 1.9 The unit shall come, and be used together, with an anesthetic vaporizer for isoflurane, intubation kit with stylets and endotracheal tubes and illuminator for small animals.			

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	2. **Ventilation and connection kit** 2.1 Shall have necessary connection between small animal ventilator and anaesthesia system. 2.2 Shall directly connect anaesthesia to ventilator for appropriate delivery to intubated or tracheotomized animals. 2.3 Shall be able to remove pressurized gas to waste port preventing lung and ventilator damage. 3. **Overhaul kit** 3.1 Shall be available for the type of cylinder used. 3.2 Shall come with complete instructions and replacement parts. 4. **Anesthetic vaporizer** 4.1 Shall be used to vaporize Isoflurane with a capacity of at least 160ml. 5. **Anti-spill device** 5.1 Shall aid in pouring the anesthetic agent into a funnel fill vaporizer to minimize loss due to spillage. 6. **Intubation kit** 6.1 Shall have Intubation cannula for rats - with Luer Adapter, with tubing which can be connected to the ventilator. **STANDARD REQUIREMENTS AND INSTRUCTIONS** 1. Suppliers shall furnish a clause-by-clause commentary (detail comments) on the above requirements. The supplier who commented with texts such as "Yes", "Complied", "Refer to catalogue" or any text of this nature shall be considered as NON-RESPONSIVE. 2. The supplier shall tag and highlight in the catalogue or other related documents the statements that conform to the specification requirements. 3. Power requirement to follow Malaysia's national voltage: 230V, 50 Hz for single phase.			

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	4. Voltage stabilizer, AVR and/or UPS shall be included if required for the performance stability of the item offered. 5. The equipment supplied must be brand new with proper serial number to prove it and must not be a used or a reconditioned instrument. 6. The equipment must be fully installed and made fully functioning at site. 7. The equipment supplied must be warranted against manufacturing defects for at least 12 months from the date of accepted commissioning. 8. At least 2 free preventive maintenance services every year during the warranty period. 9. The supplier has to give information regarding their servicing capabilities / after sales service for the equipment quoted. 10. Quotation that does not quote prices exclusive of tax will not be considered. 11. All installation charges inclusive of M&E and builder's works must be borne by the supplier. The supplier shall be responsible for making good of any damages done to the buildings, structures and furnishes. 12. Site assessment and evaluation is compulsory to understand site constrains and on-site installation works that need to be carried out. 13. Service contract and software upgrading must be quoted separately. 14. Supplier shall provide Original Catalogue of all the equipment supplied.			
E.	**Documentation** At least two copies of the following documents in English must be provided: 1. Operating Manual. 2. Technical Manual. 3. Layout drawings, assembly drawings, electrical and hydraulic schematics; 4. Performance test certificates.			

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	5. Original Catalogue. 6. Maintenance instructions, part list and recommended spare part list. 7. Manufacturing certificates. 8. Shop drawing (if applicable). **Training** 1. On - site training must be provided with sufficient period of time. 2. The training must include theory, application and troubleshooting aspects. 3. Functioning and maintenance of the machine. 4. Safety of the machine. 5. Assembly on site. 6. Schematic interpretation.			