

Section VII. Technical Specifications

Notes for Preparing the Technical Specifications

A set of precise and clear specifications is a prerequisite for Bidders to respond realistically and competitively to the requirements of the Procuring Entity without qualifying their Bids. In the context of Competitive Bidding, the specifications (*e.g.* production/delivery schedule, manpower requirements, and after-sales service/parts, descriptions of the lots or items) must be prepared to permit the widest possible competition and, at the same time, present a clear statement of the required standards of workmanship, materials, and performance of the goods and services to be procured. Only if this is done will the objectives of transparency, equity, efficiency, fairness, and economy in procurement be realized, responsiveness of bids be ensured, and the subsequent task of bid evaluation and post-qualification facilitated. The specifications should require that all items, materials and accessories to be included or incorporated in the goods be new, unused, and of the most recent or current models, and that they include or incorporate all recent improvements in design and materials unless otherwise provided in the Contract.

Samples of specifications from previous similar procurements are useful in this respect. The use of metric units is encouraged. Depending on the complexity of the goods and the repetitiveness of the type of procurement, it may be advantageous to standardize the General Technical Specifications and incorporate them in a separate subsection. The General Technical Specifications should cover all classes of workmanship, materials, and equipment commonly involved in manufacturing similar goods. Deletions or addenda should then adapt the General Technical Specifications to the particular procurement.

Care must be taken in drafting specifications to ensure that they are not restrictive. In the specification of standards for equipment, materials, and workmanship, recognized Philippine and international standards should be used as much as possible. Where other particular standards are used, whether national standards or other standards, the specifications should state that equipment, materials, and workmanship that meet other authoritative standards, and which ensure at least a substantially equal quality than the standards mentioned, will also be acceptable. The following clause may be inserted in the Special Conditions of Contract or the Technical Specifications.

Sample Clause: Equivalency of Standards and Codes

Wherever reference is made in the Technical Specifications to specific standards and codes to be met by the goods and materials to be furnished or tested, the provisions of the latest edition or revision of the relevant standards and codes shall apply, unless otherwise expressly stated in the Contract. Where such standards and codes are national or relate to a particular country or region, other authoritative standards that ensure substantial equivalence to the standards and codes specified will be acceptable.

Reference to brand name and catalogue number should be avoided as far as possible; where unavoidable they should always be followed by the words "*or at least equivalent.*" References to brand names cannot be used when the funding source is the GOP.

Where appropriate, drawings, including site plans as required, may be furnished by the Procuring Entity with the Bidding Documents. Similarly, the Supplier may be requested to provide drawings or samples either with its Bid or for prior review by the Procuring Entity during contract execution.

Bidders are also required, as part of the technical specifications, to complete their statement of compliance demonstrating how the items comply with the specification.

Technical Specifications

Item No.	Specification	Statement of Compliance
		<p><i>[Bidders must state here either "Comply" or "Not Comply" against each of the individual parameters of each Specification stating the corresponding performance parameter of the equipment offered. Statements of "Comply" or "Not Comply" must be supported by evidence in a Bidders Bid and cross-referenced to that evidence. Evidence shall be in the form of manufacturer's un-amended sales literature, unconditional statements of specification and compliance issued by the manufacturer, samples, independent test data etc., as appropriate. A statement that is not supported by evidence or is subsequently found to be contradicted by the evidence presented will render the Bid under evaluation liable for rejection. A statement either in the Bidder's statement of compliance or the supporting evidence that is found to be false either during Bid evaluation, post-qualification or the execution of the Contract may be regarded as fraudulent and render the Bidder or supplier liable for prosecution subject to the applicable laws and issuances.]</i></p>
1	Slotted masses Item Weight 5-500g Material Stainless Steel	
2	Pump (- Max. Infusion Distance: 90 mm - Acceptable Sample Syringe: 5µl – 60ml - Linear Speed: 7.9 µm/min - 79.4 mm/min - Adjusting Resolution: 7.9 µL/min - Distance Resolution: 0.165 µm - Linear Force: > 90 N - Setting Mode: Membrane keypad and rotary coded switch - Control Accuracy: <0.5% (when the stroke is more than 30% of the full stroke) - Display: 128x64 Graphic LCD - External Control Interface: Start/Stop control, fast forward control, fast reverse control - Communication Interface: RS485 - Power Supply: AC 100 V - 240 V or DC12V - Power Consumption:< 40W - Operating Condition: Temperature 0 to 40°C, relative humidity < 80% - Controller Dimensions (L x W x H): 235 x 178 x 74 (mm) - Controller Weight:	



	0.9Kg - Drive unit Dimensions (L x W x H): 245 x 100 x 95 (mm) - Weight: 1.3 Kg - IP Rating: IP41)		
3	Cabinets for Laboratory ((W85xD40xH185 cm)Grey Made of 0.6 mm thick cold-rolled steel sheet in the powder-coated finish with 2.5 mm thick ordinary glass. Normal lock with key.)		
4	Centripetal Force Apparatus (Rotating arm length 24.6 cm Motor 12 VDC, 0.5 A Frame dimensions 15 x 11.5 x 8.5 cm Frame mass 2.10 kg Free mass holder mass (with screws) 4.0 g Fixed mass holder mass (with screws) 2.5 g Ball bearing swivel mass 12.5 g)		
5	Cork (High quality rubber material, non-toxic, non-irritating, corrosion resistant from acid and alkaline. Rubber plug is in chemical experiments used to seal equipment, mainly used in pharmaceutical, chemical, mechanical, and scientific research industry. Stopper or plug, is mainly used for the container or sealed glass tube perforation of the carrier. (which can be conveniently used to make holes in the diameter of each of them). Type: Rubber Stopper Material: Rubber Temperature Range: -20 ~ 100 Celsius Degree Features: Non-toxic, Corrosion Resistant, Easily Perforated Size: (Upper Diameter x Lower Diameter x Height) 000#: 12.5 x 8 x 17mm)		
6	Cutter Blade (Color Family: Silver Size & Spec.:100×15×8MM(box) Material: Carbon tool steel Spec. 1 : 0.4×9×70MM(blade) Spec. 2: 8 snap-off blades Sales Point 1: Hard SK5 steel blade for easy cutting Sales Point 2: Easy access and hangable PP box package Sales Point 3: 30 degree blade tip for sharper, easier cutting)		
7	Digital Multi-Tester ((Basic Features: Counts: 50,000 True-rms readings: ac+dc Basic dc accuracy: 0.025% Wide bandwidth: 100kHz Auto/Manual ranging: • / • Digits: 4-1/2 Measurements: Voltage ac/dc: 1000V Current ac/dc: 10 A Resistance: 500 MΩ Frequency: 1 MHz Capacitance: 100,000 μF Temperature: (+) 1350 °C Conductance: 50 nS/ 60 dB)		
8	Digital Oscilloscope 100M Hz 1G SA 2 CH Color TFT (320x234)5.7-inch LCD screen Memory depth of ADS1000 is 4K and that of ADS1000M is 2M		
9	Dynamic Cart and Frictionless Dynamic Track (Combination 1.2 m Track/Optics Bench; Standard Cart with magnetic and hook-and-pile		

	end caps;Plunger Cart with magnetic and hook-and-pile end caps; 4 hexagonal masses, 125 g each; Mounting hardware for Dual-Range Force Sensor and accelerometers; Adjustable End Stop;2 Adjustable Two-Foot Levelers; Motion Detector Bracket;Motion Detector Reflector Flag Rod Clamp; 2 Photogate Brackets; Ultra Pulley; Pulley Bracket Fasteners for Force Sensor and Accelerometer)	
10	Fuse wire (Length: 60m Outer Diameter: 0.71mm Maximum Operating Temperature: +1150°C Conductor Material: Nickel Chrome Alloy)	
11	Glass plate of size similar to friction board Type: Clear, Size: 4" x 4"	
12	Hanging mass Item Weight 500g Material Stainless Steel	
13	Laboratory Stool for Physics and Chemistry Laboratory (Laboratory Stool for Physics and Chemistry Laboratory (Seat Size: W30xD30cm Height: 76 cm Molded resin seat board, epoxy coated steel legs and frames with hard rubber footing.)	
14	Mass with Hook (Capacity (g) 500,00 g Capacity (kg) 0,50 kg Material Stainless Weight class M1)	
15	Metal Rods (10mm steel bar weight:- 10mm of steel bar, rod)	
16	Metal stand Material : iron Color: Blacksilver Size: Length of pole: 50cm Base: 19x12cm	
17	Phenolphthalein Sulfuric Acid Solution DO meter (Phenolphthalein, Indicator Solution in 95 Percent Isopropyl Alcohol, Concentration 1 Percent w/v, Chemical Container Material Plastic, Chemical Container Type Bottle, Chemical Grade Lab, Chemical Container Size 500 mL, Chemical Family Type Standards and Solutions, Shelf Life 24 mo .)	
18	Platform/Triple Beam Balance (Capacity: 2610g Readability: 0.1g Pan Size: 152mm ø Weighing Units: g Stabilization Time (sec): 3 Calibration: External Display: Graduated beam with 7mm-high digits Housing: Die-cast aluminum Overall Dim: 550x110x160mm (wxdxh) Net Weight: 2.7kg	

19	Power Supply ((Specification for 0-40 V/0-50A DC Power supply) Input: 230 V AC,+/- 10%, 50 Hz, Single phase. Output Voltage: 0 – 40 V DC continuously variable through coarse and fine potentiometers. Load current: 0 – 50 Amps (with settable limit from 0.2 A to 52 Amps max. thorough Coarse and Fine Potentiometers Line Regulation: +/- 0.015 % of max output voltage or better for variation in input voltage. Load Regulation: +/- 0.015 % of max output voltage or better for variations load current. Ripple: Less than 2 mV rms or 10 mV peak to peak. Protections: a) Fuse protection is provided at AC Input. b) Unit Output is protected against overloads and short circuits. c) Miniature Circuit Breaker is provided at AC Input. Controls: a) ON/OFF Circuit Breaker at AC Input b) Coarse and Fine Voltage set potentiometers on front panel. c) Coarse and Fine Current set potentiometers on front panel.)		
20	Ramp/launcher Ranges 1.2, 3, 5 m Launch Angles 0 to +90° Launcher Length 21 cm		
21	Spring Spring constants range from 4 N/m to 14 N/m. Spring lengths vary between 11 cm and 22 cm.		
23	Time of flight receptor pad		
24	Tripod (Rings and legs made of chromeplated steel Round ring Triangular sharped With rubber caps Diameter 150mm Height 200mm)		
25	Waveform Signal Generator (5MHz AC 110-220V 2Channels 100MSa/s Sweep Modulation Shift Keying Burst Function)		
***** Nothing Follows*****			

Additional Requirements:

- a. *offered product specifications as supported by brochures or catalogues;*
- b. *certification from manufacturer/distributor that bidder is authorized to resell; and*
- c. *certification from the bidder of availability of Service Center for offered devices within the Philippines.*