

Technical Specification for Organic Synthesizer with Buy Back

**** Note: Vendors Need to mandatorily quote for buy back item. Price for the buyback item need to be quoted separately in the Financial Bid. Bids submitted without buyback option will be construed as disqualified.**

Organic synthesizers are specially designed with the flexibility to accommodate the wide range of conditions called for in modern organic synthesis. 5-lanes Parallel Organic Synthesizer ChemiStation with pressure measurement and pressurized gas purging facility with facility for measuring 5 set of independent experiment with individual/independent temperature control and magnetic stirring with reflux, gas flushing, heating, cooling and stirring. Such instruments are capable of inert atmospheres and temperatures from -10 °C to 150 °C. Organic synthesizers can nowadays perform most synthetic reactions currently utilized in modern synthetic organic chemistry.

a) Components and required features

S. No	Description	Complied / Not Complied	Catalogue Pg. No.
1.	Test tube : 1-5pcs		
2.	Synthesis scale : 0.5-60 mL (Variable scale)		
3.	Stirring system : Ferromagnetic stirrer		
4.	Temp. Control range : From -10 to 160 (5x independent temp. control)		
5.	Temp. Control : Individual /Independent Temp. controlled in each cell		
6.	Accuracy of Temp. control : ± 0.5		
7.	Rotation speed range : 100-2000rpm		
8.	Setting temp. display : Sheet key input, digital display		
9.	Setting stirring display : Volume setting, digital display(20-2000rpm)		
10.	Gas flushing : Vacuuming + Infusing Inactive gas		
11.	Reflux : Reflux adaptor/cool water manifold and reflux block		
12.	Adding sample : Pipetting, Syringe, dripping funnel (with interchangeable joint)		
13.	Adding sample : Pipetting, Syringe, dripping funnel (with interchangeable joint)		
14.	Observing reaction : Through the glass on aluminium block(with LED light)		
15.	Safety features : Double chamber, fuse, tray, variable overheat Protector, low liquid level thermo protector.		

16.	Material of liquid contact part: Glass (Teflon)		
17.	End connection to cool water : External diameter: 12mm (hose port)		
18.	Foot print : 460-470Wx 330-340Dx 380-390H (Bench-Top ceiling)		
19.	Net weight : 25-30 kg		
20.	Configuration Manifold-		
21.	Aluminum block		
22.	Double chamber		
23.	Cooling cartridge		
24.	Temp. controller & Stirring portion		

b) Low temperature circulator

S. No	Description	Complied / Not Complied	Catalogue Pg. No.
1.	Circulation method : Closed loop		
2.	Temp. control range : -20°C to Ambient		
3.	Cooling capacity : 1200W (1030kcal/h) at liquid temp. 10 °C 950W (820kcal/h) at liquid temp. 0°C 650W (560kcal/h) at liquid temp. -10°C		
4.	Pump max. flow : 14L/min		
5.	Temp. setting & display : Sheet key input digital display, LED digital setting		
6.	Safety features: Leak/over current breaker; Refrigerator high pressure switch, Overload relay, Refrigerator protection timer, Fuse for service outlet, temperature control, self diagnosis function, pump thermal protector.		
7.	Refrigerator coolant : Air cooling, 650W, R407C		
8.	Bath capacity : 14L		

c) Oil vacuum pump

S. No	Description	Complied / Not Complied	Catalogue Pg. No.
1.	Ultimate pressure : 5×10^{-3} Torr		
2.	Pumping speed : 50L/min		
3.	Ultimate vacuum : 6.7×10^{-2} Pa (5×10^{-3} Torr/mbar)		
4.	Motor output : 200W, Oil capacity : 500 to 800ml		
5.	Safety feature : Thermal protector, check valve, oil filter, oil can		

6.	Prevention of mixing moisture with sample at power off/power failure through automatic solenoid		
7.	Foot print : 150W x 390D x 247H mm,		
8.	Weight-15-20 kg		

II. Required accessories

S. No	Description	Complied / Not Complied	Catalogue Pg. No.
1.	Reactor tube with side neck (dia30 NS14/23, GL14) – min 5 pcs		
2.	Dimroth condenser NS14/23, GL14 – min 5 pcs		
3.	Test tube adaptor (dia30) – min 5 pcs		
4.	Drip-proof cover (dia30) – min 5 pcs		
5.	Screw thread GL14 NS14/23 – min 10 pcs		
6.	Screw cap GL14 with hole – min 10 pcs		
7.	Hose connection, Straight – min 10 pcs		
8.	Suba seal (silicon rubber, for NS14, min 10 pcs)		
9.	Septum (natural rubber, for NS14, min 10 pcs)		
10.	Stirrer bar (Egg shape, diameter 10x20H) for dia30 & 34 – min 5 pcs		
11.	Keck clip NS14, TS15 metal – min 10 pcs		
12.	Stopper – min 10 pcs		

Note: The all necessary accessories and spare parts for the above equipment should be supplied by same manufacturer.

- III. Instrument should have 5 independent *ChemiStation* with pressure measurement and pressurized gas purging facility to facilitate 5 set of independent experiment with individual/independent temperature control and Magnetic stirring with Reflux, Gas flushing, heating, cooling and stirring.
- IV. Instrument should also capable of doing pressure reaction with pressure monitoring and provision for high pressure gas purging facility.
- V. Instrument should have provision for Fluorination reaction with Teflon reaction vessel.
- VI. Wide synthetic scale from 0.5 to 60 mL.
- VII. Wide temperature control range -20 °C (effective -10°C) to 160°C, each lanes of aluminum lock temperature can be set independently.
- VIII. Variety of reaction vessels expands organic synthesis possibility.

- IX. By attaching cooling water manifold and dimroth condenser, effective reflux experiment is feasible.
- X. Cooling cartridge can be inserted from either side of main unit.
- XI. Rising or falling gradient temperature control realizing moderate temperature rising until reaction starts.
- XII. Reaction under inert gas is possible by using branched reaction vessel and 3way cock injection port (Schlenk tube).
- XIII. Teflon shutter prevents dew condensation on aluminum block.
- XIV. By using sealed tubes, Schlenk tubes, pressure resistive vessels and Dean-Stark Traps, degassing, deoxidization or synthesis under high pressure provide new experimental conditions.
- XV. Optional Independent pressure reaction vessel and controlled valve should be provided.

(Note: It is mandatory for the bidders to provide the compliance statement in tabular column format along with catalogue page number (comply/not comply) for the Above points with document proof as required. Failing which bidders will be technically disqualified)

Specification of Existing Equipment (Buy Back)

Month/Year of Purchase – May/ 2012)

SPECIFICATIONS OF EXISTING PERSONAL ORGANIC SYNTHESIZER MODEL PPS-2511

A. EYELA Personal Organic Synthesizer Process Station Model PPS-2511.

Test tube : 1-5pcs

Synthesis scale : 10-30ml (Variable scale)

Stirring system : Ferromagnetic stirrer

Temp. Control range : From -20 to 160 (5x independent control) (50-60ml: 130)

Individual Temp. Control : Temp. difference between to heating block Is up to 130

Accuracy of Temp. control : ± 0.5

Rotation speed range : 100-1300rpm(30ml of water)

Setting temp. display : Sheet key input, digital display

Setting stirring display : Volume setting, digital display(100-1300rpm)

Gas flushing : Vacuuming + Infusing Inactive gas

Reflux : Not applicable/Reflux adaptor/cool water manifold

Adding sample : Pipetting, Syringe, dripping funnel (with interchangeable joint).

Observing reaction : Through the glass on aluminum block

Safety features : Double chamber, fuse, tray, variable overheat Protector (x5), low liquid level thermo protector.

Material of liquid contact part: Glass (Teflon)

End connection to cool water : External diameter: 12mm (hose port)

Dimensions (mm) : 465Wx 335Dx 440H

Net weight : 27kg

Input power : 650VA

Voltage : 220V

Teflon cap : Septum(x5), 3-way cock(x2), piping set(1set)

Aluminium block : Test tube(x10), Stirring bar(x5)

Temp. cont. & stirrer : Fuse(x1), Ground adaptor(x1), CE adaptor(x1)

EYELA LOW TEMPERATURE CIRCULATOR Model CA-1112

Circulation method : Closed loop

Temp. control range : -20°C to Ambient(30oC)

Cooling capacity : 1200W (1030kcal/h) at liquid temp. 10 °C,

950W (820kcal/h) at liquid temp. 0°C, 650W (560kcal/h)

at liquid temp. -10°C

Temp. setting & display : Sheet key input digital display, LED digital setting

Safety features : Leak/over current breaker; Refrigerator high pressure switch, Overload relay, Refrigerator protection timer,

Fuse for service outlet, Temp. control self-diagnosis function, Pump thermal protector

Refrigerator coolant : Air cooling, 650W, R407C

Bath capacity : 14L

Power : 220VAC 1no.