

DEPARTMENT OF CHEMICAL ENGINEERING
INDIAN INSTITUTE OF TECHNOLOGY - DELHI
HAUZ KHAS, NEW DELHI - 110016

Dated: 21/08/2012

NOTICE INVITING QUOTATIONS

Sub: Continuous flow high accuracy syringe pump

Sealed quotations in separate envelopes of technical and commercial bid kept in a one sealed outer envelope are invited for purchase of a **Continuous flow high accuracy syringe pump** as per specifications given below. Your sealed quotation should reach latest by 5 PM on 21 August, 2012 to **Prof. S. Basu, Department of Chemical Engineering, Indian Institute of Technology – Delhi (IIT Delhi), Hauz Khas, New Delhi - 110016**. Your quotation should be superscribed "**Quotation for Continuous flow high accuracy syringe pump due on 5 September 2012**".

Minimum Specifications: Continuous flow high accuracy syringe pump

Pulsation free and high precise dosage of fluid streams in the range of nanolitres per second

Very good reproducibility of test results (**high precision** syringe pump)

Universal syringe holder - syringes of different type and size can be used (outer diameter 6 to 30 mm)

Quick release syringe holder for **fast and easy syringe exchange**

3-2-way valve for automatically generated refill

Syringe pump supports continuous flow

Withdrawal and infusion mode

Modular extensible syringe pump system

Simple plugging of syringe pump units

Extensible at every time

Space saving

Ease of use (graphical syringe pump software, with a lot of useful features)

Configurable devices according to required precision

Comprehensive software package

Base Module:

Power Supply Voltage: 90 – 264 V AC

Power Supply Frequency: 47 – 63 Hz

Power Output: 120 W

Operating Temperature: 0 to 50 °C

Storage Temperature: -20 to 75 °C

Operating Humidity: 20% to 80% non condens.

Storage Humidity: 20% to 80% non condens.

Variety of **interfaces:**

USB:	1.1 and 2.0
CAN	max. 1 Mbit/s
RS-232	max. 115200 bit/s
Ethernet	

Power and USB cables
Documentation in English

Dosing modules:

Maximum **number of flows**: 4

Maximum number of **simultaneous continuous flows**: 2

Flow Rates:

For 100 µL syringe: 2.8 nL/min to 0.6 mL/min

For 10 mL syringe: 175 nL/min to 60 mL/min

For 25 mL syringe: 0.7 µL/min to 150 mL/min

Power Supply Voltage: 24 V DC

Dosing unit current typical at 24 V DC: 0.3 A

Dosing unit current peak at 24 V DC: 0.6 A

Operating Temperature: 0 to 45 °C

Storage Temperature: -40 to 75 °C

Operating Humidity: 20% to 80% non condens.

Storage Humidity: 20% to 80% non condens.

Variety of **interfaces**:

CAN	max. 1 Mbit/s
RS-232	max. 115200 bit/s
Ethernet	

Valve:

Body material: PEEK

Seal material: FFPM (EPDM, FPM)

Temperature media: 10 to +40°C

Viscosity: max. 20 mm²/s

Internal Volume < 13 µl

Orifice: DN 0.6 mm or 1,35 mm

Port connection: Flange, UNF 1/4"-28

Documentation in English

High precision glass syringes 60 mm length, Tubing Connector 1/4-28 UNF:

100 µL:	4 pieces
10 mL:	4 pieces
25 mL:	2 pieces

Connection Kit for iLS-syringes with Tubing Connector contains 4 nuts with 1/4-28UNF-thread, washers and tubes ID 0,8mm, OD 1,6mm: 4 pieces

User Interface PC Software:

Automatic detection of connected dosing units

Synchronous start of all dosing units

Supports Windows XP, 2000 and Windows Vista

Flow profile operating mode:

Generation and editing of complex flow profiles

Generation of dynamic flow profiles based on mathematical functions

Graphical display and configuration of all parameters:

Visualisation of syringe sizes, syringe levels and valve states

Configurable SI units for volumes and flow rates

Support of High Pressure modules:

Measurement and display of pressure

Configurable over-pressure actions (i.e. automatic stop on over pressure)

Continuous flow operating mode:

Generation of continuous flows over a virtually unlimited period of time

Continuous Flow Wizard for **easy configuration and setup of continuous flow**

Easy and cost saving integration into all Windows development environments that support the use of DLLs - for example:

Codegear RAD Studio 2008, Borland Delphi and C++ Builder, Microsoft Visual C, Microsoft Visual Studio .NET, Microsoft Visual Basic, Mathlab, Agilent VEE

Terms & Conditions:

1. The quotations must have validity of at least three months.
2. Quotation must include insurance and air-freight charges, delivery period of the items addresses to The Indian Institute of Technology, Delhi, India (CIF, New Delhi).
3. The products will be used for educational purposes. Any applicable academic institution discounts should be offered and stated.
4. Detailed Brochures should accompany the offer.
5. If the bidder is an authorized dealer then the authorized Indian dealership certificate from the principles should be enclosed.
6. 2 years warranty desirable.
7. Payment will be through irrevocable letter of Credit.
8. In case the items are proprietary products of the company, a proprietary item certificate stating the same must be provided.
9. Training should be provided free of cost.
10. List of End user should be provided.
11. Institute reserves the right to accept or reject any or all the quotations without assigning reasons thereof.

Chairman, PFC