FlexyCUBE
The Modular Tool Tailored to Suit any Laboratory Automation Needs

Parallel Process Development
- High reproducibility and productivity, ideally suited for DoE (Design of Experiments)
- Operation resembling production environment, as required for Scale-Up and Scale-Down
- User friendly operation due to intuitive user interface
- High modularity, offering competitive pricing and allowing for demand-oriented use

- Configurable in the type and number of dosages used
- High acceptance through the use of Plug & Play technology
- Sophisticated fault diagnosis enables fast and efficient support
- A maximum temperature range is achieved by using a refrigerated circulator
FlexyCUBE

Reactor opening, designed for a single-walled vessel. Behind the interface panel and status display.

FlexyCUBE operating with a single peristaltic pump, used for volumetric dosage.

FlexyCUBE operating with one each pump and balance, allowing gravimetric dosage.

Manual operation, for example temperature control.
at a Glance

Rear connector panel: PC networking (top), auxiliary devices, i.e. solenoid valves for cooling water and purge gas (middle), mains power and switch (bottom)

Reactor illumination and inspection opening, enabling an unobstructed view into the reactor

Convenient reactor handling; simply place the reactor assembly into the receptacle provided

Recipe controlled automation of experiments
FlexyCUBE - Key Advantages

The new Concept for Chemical Process Development

- 1 PC controls up to 6 reactor units
- Parallel (DoE) or individual operation
- Compact and space-saving design
- Intuitive operation through manual mode
- Includes all necessary tools and functions to enable the user to simulate complex processes
- Definition of SOPs (Standard Operation Procedures)
- Consistent and automatic journaling, compatible with MS-Word® or Excel® (csv format)
- Integrated calibration tools help safeguarding quality-relevant signals
- Alarm and event recording to assist service & support
- Remote support through internet

Functionality

- Reactor or jacket based temperature control
- Gravimetric dosage(s) through the use of balance, pump and/or solenoid valve
- Single-sided (standard) or double-sided* pH control, with or without mass detection
- Autom. distillation, based on detection of boiling point*
- Autom. pressure-vacuum-vent control*
- Automatically establish solubility properties through clarity or turbidity measurement*
- Isothermal heat flow calorimetry for thermal process optimisation*
- Pressure range from 10 mbar ... 100 bar*
* optional

FlexyCUBE - Product Specification

Reactor(s)

- Volume: 250 ml (70, 100 or 400 ml optional); 6 bar glass or 100 bar SS optional
- Material: Borosilicate glass, 6 bar or 100 bar SS/Hastelloy optional
- Reactor Lid Tapers: NS29 for stirrer, NS19 for each of the following items: temperature sensor, pH sensor, pressure sensor, reflux cooler and dosage adaptor with 4 GL14 connectors
- Temperature Range: -80°C to +280°C
- Heating: Electric heater 230 VAC, 500 W
- Cooling: By means of refrigerated circulator, shared among all reactors
- Stirrer: Speed controlled, 80 to 650 rpm/35 Ncm
- Equipment Venting: High-Torque version: 80 to 650 rpm/approx. 100 Ncm, or 200-2000 rpm/approx. 60 Ncm
- Equipment Cooling (Surfaces): Using dry air or nitrogen through connectors provided at the rear of the unit
- Cooling water, 20 l/h; incl. reflux coolers, all units daisy-chained

In-/Outputs

- Types (number): Pt-100 (2x), 4-20 mA (4x), 24 VDC (2x)
- Measurement: TR, TH, pH, pressure/vacuum ... with automatic recognition of sensor and units
- Actuators: Cooling water and purging gas solenoid valves
- Balances: Max. weight 2000 g, 0.1 g resolution

Dosages

- Number / type of dosage: Max. 2 per FlexyCUBE, alternatively with pump or valve, with balance or w/o (=volumetric)
- Dosage pump: Electronically controlled peristaltic pump, ranging from 0...100 %
- Dosage rate: Flow depending on tube dia., max. 250 ml/h
- Dosage tubes: Material: Silicon, Viton, Novoprene (standard), Chemsure (PTFE-like)

Control Unit

- Electronic: Built-in electronics, no additional interface hardware required
- Network: LAN interface, either directly from PC or through switch
- Expansion modules: Universal I/O-modules, RS-232 interface, Calorimetry, etc. can be connected at rear of FlexyCUBE

PC Software

- Operating system: Windows XP, Windows 7/8, MS-Office
- Application: FlexySys Rel. 2.x / Release 3.x, SysGraph

Techn. Specification

- Ambient temperature: 10°C...35°C
- Power input: 230 VAC, 5 A, 50/60 Hz, single phase
- Power input / unit: Single phase, 600 VA
- Dimensions and weight: 330 (height) x 200 (width) x 340 (depth) mm, approx. 20 kg.
  Depth with pump only: 395 mm, depth with pump and balance: 490 mm