

For the initial evaluation of continuous-flow synthesis Column type microreactor

SynpleFlow™

Model MCR-1000



The column type flow reactor is ideal for the evaluation of continuous-flow synthesis using immobilized catalysts. The hand-packed cartridge column (SUS/glass) and high-precision aluminum-block heating reactor enable the efficient development of new catalysts and the evaluation of flow chemistry conditions.

- It is a simple configuration with only a column heating reactor. The installation costs can be minimized by combining with existing equipment (liquid dispensing pump, etc.).
- The temperature of heating reactor can be controlled from 50°C to 200°C.
- Since it is a tabletop type, it can be installed in a space equivalent to that of a magnetic stirrer/oil bath. It can also be fixed to the frame in a fume hood.
- Options for system upgrades include a mass flow controller for gas introduction, a pressure control valve unit for back pressure and a double plunger pump.

Reducing column cost



Column material: SUS316, glass
Size (φ): 3, 5, 10x50, 100mm

The use of a column filter (made of Teflon®) has reduced the cost of columns to nearly 1/10 of that of conventional products (compared to our conventional products). In the case of disposable columns, the labor required for cleaning and catalyst refilling can be greatly reduced. Glass columns can be used for acidic solutions.

Compatible with both liquid-liquid and gas-liquid reactions

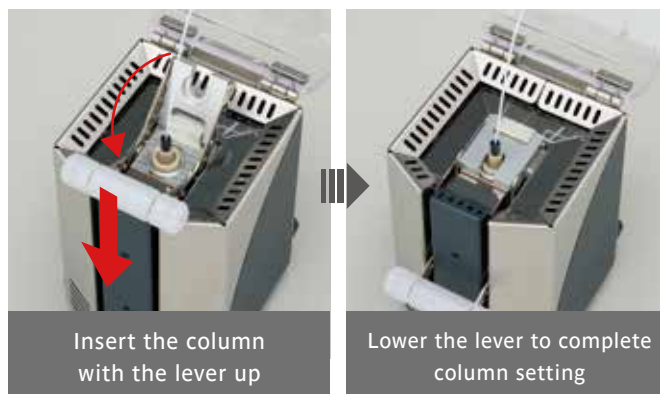
Two types of column connections are available: a simple one-liquid flow path and a gas-liquid dual-tube connection. Both liquid-liquid and gas-liquid reactions can be performed by replacing the one-liquid column end (included in the column set) with a gas-liquid column end (optional). The gas-liquid column end is ideal for gas-liquid catalytic reactions such as hydrogenation.



Simple column set by lever

A toggle clamp system is used to set the catalyst column. The column tube is clamped from above and below, and the column can be attached simply by lowering the lever (PAT.P). Because of this tool-free installation method, the column can be used for experimental studies such as catalyst screening in which multiple catalyst columns are frequently replaced. The length of the column can be changed by using the 50/100 mm aluminum sleeve included in the column set.

※Changing the inside diameter requires replacing the column end parts. Please purchase separately from the column set of your choice.



Insert the column with the lever up

Lower the lever to complete column setting

Specifications

Model	MCR-1000
Cat. No.	267950
Reaction method	Flow method (with liquid dispensing pump)
Reaction vessel	Stainless steel / glass column (optional)
Columns	Size: ID 3, 5, 10 x length 50, 100mm
Max. pressure	Less than 1MPa
Temp. control range	50 to 200°C (Aluminum block temp.)
Control accuracy	+1.0°C or less (aluminum block temp.)
Temp. control	Aluminum block jacket control, heating P.I.D. control
Temp. setting/display	Key input / Digital display
Sample inlet	One-liquid flow path/Gas-liquid dual tube connection (option)
Safety functions	Temp. controller self-diagnostic function (variable upper temp. limit/sensor error), Independent overheat protector (thermal fuse), Earth leakage/Overcurrent breaker
Wetted part material	Tube channel: PTFE, PEEK, Perfluoro® Column: SUS316 and glass
Connection tube/ Thread standards	Outer diameter 1/16" tube / No.10-32UNF
Ambient operating temp.	5 to 35°C
External dimensions (mm), Weight	Heating reactor: 124W×163D×214H, 2.9kg Control unit: 80W×220D×151H, 1.8kg
Power input/voltage	2.0A, 200VA / 100VAC 50/60Hz

※Columns are not included. An optional column set is required.

Example of system configuration

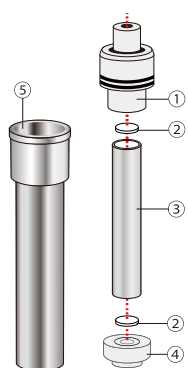


Continuous-flow reaction system (Liquid phase reaction)

Product	Model	Cat. No.
SynpleFlow	MCR-1000	267950
φ5 Column set	---	268790
Liquid dispensing pump	EUI-22-110P	278550
Dedicated pedestal	STT-1010	276310
1-2 way valve for analysis	V204	226590
Bracket for valve	VFB-10	165560

Options

Column set



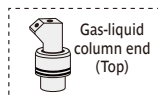
Column parts

Product	Standard	Cat. No.
Column set	φ3	268780
	φ5	268790
	φ10	278800
Gas-liquid column end (Top)	φ3	268200
	φ5	268210
	φ10	278810

Consumable parts

Product	QTY	Cat. No.
SUS tube φ5x50mm	10	268030
SUS tube φ5x100mm	10	268000
Glass tube φ5x50mm	10	268090
Glass tube φ5x100mm	10	268060
Column filter φ5	100	268120

※Please inquire for φ3 and φ10 sizes.



- ①Column end (Top) ④Column end (Bottom)
②Column filter ⑤Aluminum sleeve (50/100mm)
③SUS column tube (50/100mm) Filter and O-ring mounting jig

Tube reactor

Model MCR-PFR

This tube reactor is designed for liquid phase reactions such as homogeneous catalysts. Up to approximately 3m of OD 1/16" PTFE tube (sold separately) can be wound around the tube reactor and attach to MCR-1000 to use.

Cat. No. 276140

PTFE tube 10m (Tube inner diameter: 0.5, 0.8, 1.0mm x 1/16")

Cat. No. 276150 / 276160 / 276170

Dedicated pedestal

Model STT-1010

Equipped with 4 service outlets for convenient power management (power capacity: 8A). A drawer is equipped on the front of the pedestal. Column parts and other small parts can be stored.

Cat. No. 276310



SynpleFlow gas addition unit Model MFC-11GU

This is a gas addition unit for hydrogenation reaction. Hydrogen gas can be supplied at any flow rate. A backflow/trap mechanism to prevent liquid contamination is included. MFC-1100-H2 is the model without this mechanism.

Fluid used: Hydrogen

Flow control range: 2 to 100mL/min

Maximum working pressure: less than 1MPa

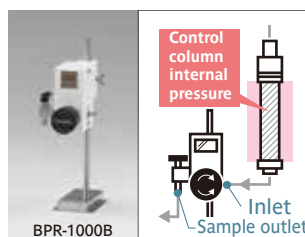
Oxygen and carbon dioxide are also available (special order)

Model MFC-11GU

Cat. No. 276320

Model MFC-1100-H2

Cat. No. 276360



Pressure regulating valve unit (with external output function)

The column internal pressure can be controlled at any value by the valve operation. The valve body can be removed from the pedestal and installed at any desired location, such as an angle or a trestle pole. Equipped with an external signal output terminal to record measured values.
※External signal output cord is sold separately.

Model	Pressure range	Pressure display	Inlet	Cat. No.
BPR-1000A	0 to 1.5MPa	0 to 3.5MPa (Digital)	Left side	274450
BPR-1000B			Right side	274460

Medium and high pressure liquid dispensing pump Model EUI-22-110

This linear drive double plunger pump is resistant to air bubbles and provides stable pumping with minimal pulsation. Pump head materials are PEEK and SUS.

Model	Flow range (mL/min)	Discharge pressure	Wetted material	Cat. No.
EUI-22-110P	0.001 to 9.999	20MPa	PEEK	278550
EUI-22-110S		35MPa	SUS	278560

Automatic pressure regulator dedicated to liquid phase reactions Model BP-11S/11D

This regulator follows the discharge pressure of the double plunger pumps EUI-22-110S and 110P in real time and automatically adjusts the valve opening. Even if the pressure in the column fluctuates during reaction, constant pressure and constant volume of liquid can be delivered all the time.

Model	Pressure adjustable range	Wetted material	Cat. No.
BP-11S	0.5 to 5.0MPa	SUS, PFA	278750
BP-11D	0.5 to 5.0MPa	PCTFE, PFA	278760

※The pressure setting range is the range for the product alone.

TOKYO RIKAKIKAI CO., LTD.

EYELA

<https://eyelaworld.com>

TN Koishikawa Bldg.
1-15-17 Koishikawa
Bunkyo-ku, Tokyo
112-0002 Japan

Tel: +81-3-6757-3378
Fax: +81-3-3868-6571
E-mail: contact@eyelaworld.com

※The appearance and specifications of the products are subject to change without notice.