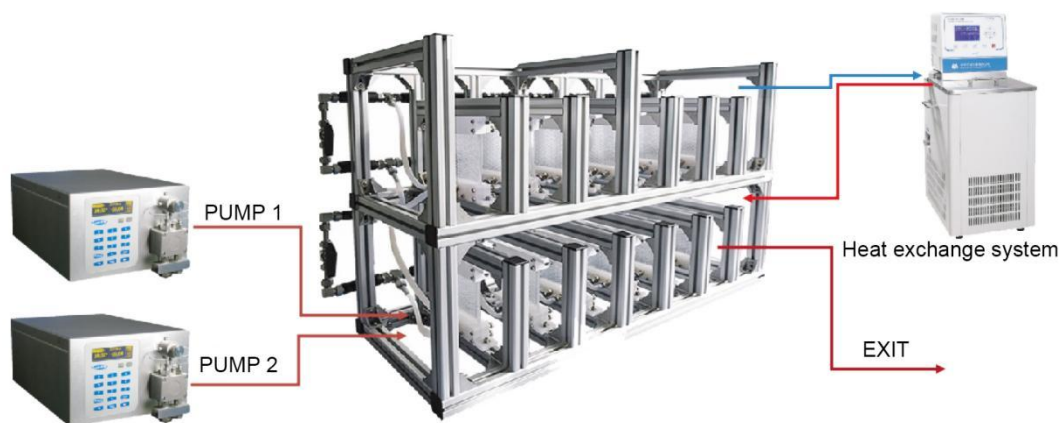


Microflu Microfluidics Technology (Changzhou) Co., Ltd.

Continuous Flow Systems



MF-V6 Kilo-scale glass flow reactors

MF-V6 is a glass Flow Reactor for process development & small-scale production. With integrated heat exchange, V6 is suitable for performing challenging chemistries & processing conditions. Fabricated from borosilicate glass, the Flow Reactor modules have integrated heat exchange layers that allows thermal regulation of feeds & mixing, enabling control of heat of reaction!

MF-V6 is a pilot flow reactor system (flow reactor used in combination with pumps, heat exchangers, temperature control and pressure regulation) that is designed to readily access extreme temperatures (-25 °C to 200 °C), reaction times and pressure conditions (up to 20 bar). KiloFlow enables previously 'forbidden' transformations to be executed within a conventional laboratory, and is ideal for up-scaling with no change in mixing efficiency.

The MF-V6 glass continuous flow reactors is a high-throughput glass microreactor processed from high borosilicate float glass. The four-layer structure design includes the heat exchanger in the reactor to

reduce the space occupancy rate. The design of the structure ensures the maximization of mixing efficiency, so that the reaction phase forms multiple vortex staggered states in the reaction phase, and ensures that the reaction phase is fully mixed and reacted in the flow channel.

The MF-V6 series glass microchannel reactor is compatible with all reagents except hot concentrated alkali, molten alkali metal, hot concentrated H₃PO₄, HF, and strong corrosive agents. It can operate stably for a long time. The excellent high light transmittance can achieve short wavelength Photocatalytic reaction. Compared with the traditional tubular catalysis, the microreactor can also increase the catalysis conditions and promote the formation of reactants through the application of the heat exchange layer.

MF-V6 (9ml) is the maximum liquid holding capacity of the monolithic continuous flow microreactor, thereby prolonging the reaction residence time of the microchannel reactor. Under the conditions of the same flow rate, the larger the liquid holding capacity of the micro-channel reactor, the longer the residence time of the reaction phase in the microreactor, and the more ideal the reaction effect can be achieved for some reactions that require reaction time. This product can also be customized for other models with different specifications of liquid holding capacity, 9ml is the maximum processing depth. The annual throughput can reach 70-80T/year, which can also meet the needs of small-scale experiments and production.

Salient features of MF-V6 glass flow reactors

- Available in integrated multilayer glass construction for mixing, reaction & heat transfer
- Micro channel with modular system to connect multiple reactors in series or parallel
- Suitable for various liquid-liquid, gas-liquid homogeneous & multi phase reactions
- Useful in photochemical & UV induced reactions
- Specially designed micro reactors from Microflu™ microchannel reactors used in various photochemical and UV induced reactions.
- Compatible with all reagents except hot concentrated alkali, molten alkali metal, hot concentrated H₃PO₄, HF, and strong corrosive agent, it can run stably for a long time.

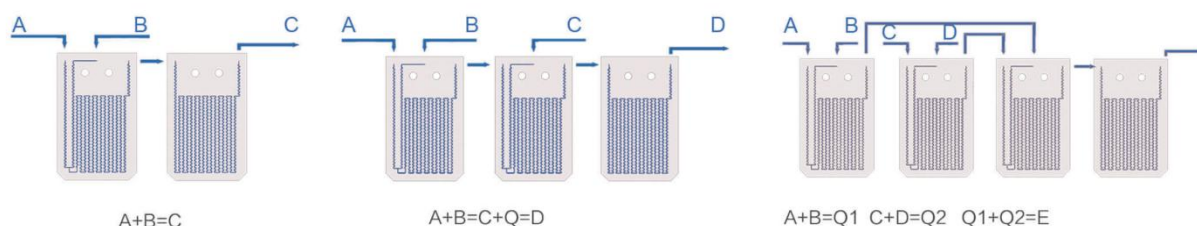
Reaction type(Technological Process)

The free combination modular system configuration can connect multiple reactors in series or in parallel to realize one-step and multi-step synthesis reactions. The highly flexible modular design ensures that it can adapt to the requirements of various processes.

Series: used to delay the residence time and ensure the reaction conversion rate meets the technical requirements.

Parallel connection: used to increase production capacity to ensure that the production demand is guaranteed while the conversion rate is reached.

A+B=C (one-step series connection) A+B=C+Q=D (multi-step series connection) A+B=Q1 C+D=Q2 Q1+Q2=D (multi-step series connection + series connection).



MF-V6 kilo-scale glass flow reactors specifications

Flow rate: 0.1-100ml/min (up to 6kg/h)

Flexible reactor volumes: 3ml or 6ml or 9ml

Wetted materials: Glass,PFA, PFA & FFKM Or 316L

Dimensions: 152.4x152.4x 11mm

MF-V6 kilo-scale glass flow reactors applications

- Assessment of process feasibility under flow conditions
- Exploration of novel reaction space
- Process parameter optimisation & validation
- Rapid kinetic profiling
- Evaluation of parameter influence on CQA's

Specifications of MF-V6 glass flow reactor

MF-V6 Series Kilo-scale glass flow reactors				
Model	MF-V6-M	MFV6-M(6)	MF-V6-M(9)	MF-V6S-M
Size	152.4x152.4x 11mm			
Material	Borosilicate Glass			
Channel Size	/			
Channel Length	1.8m			
Volume	3ml	6ml	9ml	9ml
Surface to volume ratio(u)	/	/	/	/
Design temperature (°C)	-25°C-200°C (Custom: -30°C-280°C) *The difference between the glass temperature and the outside temperature is controlled within 70°C			
Design pressure (bar)	≤20bar(Recommended pressure ≤ 1.7Mpa)			
Flow rate	0-100mL/min			
Features/Advantages	Available in integrated multilayer glass construction for mixing, reaction & heat transfer; Micro channel with modular system to connect multiple reactors in series or parallel; Suitable for various liquid-liquid, gas-liquid homogeneous & multi phase reactions; Useful in photochemical & UV induced reactions;			
Process Case	<ol style="list-style-type: none"> 1. Michael addition reaction 2. Friedel-Crafts alkylation reaction 3. Aldol condensation reaction (sodium ethoxide) 4. Sulfonation reaction and nitration reaction 5. Diazotization reaction, azide reaction 6. Solvent-free reaction, 30% liquid-liquid reaction (high probability) 			

