A breakthrough technology for flow chemistry

KHIMOD
ALCEN

KEY COMPETITIVE ADVANTAGES OF OUR REACTORS

Safe handling
of hazardous liquids and gas

Temperature
from -80 °C up to 800 °C

Pressure
up to 200 Bar

Ability to use
fixed bed catalysts

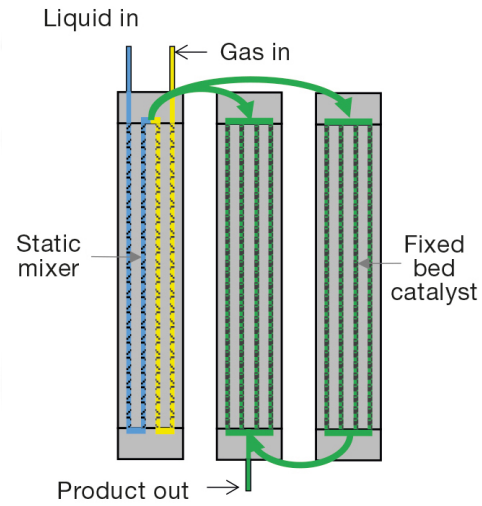
High modularity

Competitive cost
at high scale

MAIN FEATURES OF KHIMOD FLOW REACTORS

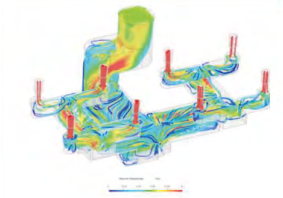
- Monobloc metal reactors (stainless steel, Hastelloy...)
- Double network of reactive and thermic regulation channels
- Outstanding heat exchange capacity
- Reactive channels: cylindrical, diameter: 6mm
- Thermic regulation channels: 2 x 3mm
- Line of 5 reactors, with an identical design, from lab to industrial scale
- Production capacities from 0.3 kg/hour to 250 kg/hour
- Easy to open and to clean, no clogging even with precipitates

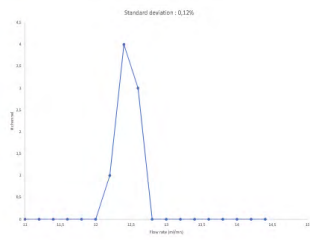
WITH KHIMOD, UNLOCK YOUR CHEMICAL POTENTIAL



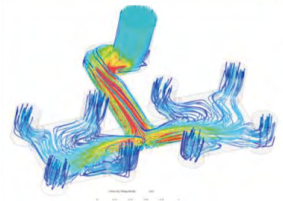
Liquid gas reaction - 8 channels

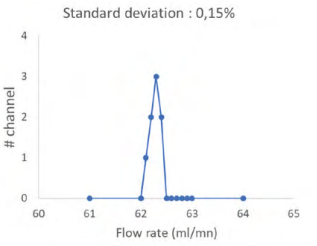
Liquid flow





Gas flow





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VERSATILE CONFIGURATION, EASILY MODIFIED BY CHANGING END CAPS

- Numbering-up, a popular strategy in flow chemistry
- Tuning the flow for each channel is a critical step
- Proprietary designed manifold in the end-cap
- Well balanced flow rates - CFD simulations:
  - Liquid flow rate balanced at +- 2,7% (3σ)
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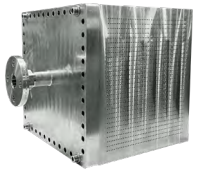
SPECIFIC SET-UP TO USE FIXED BED CATALYSTS

- Catalyst particle size: 200 – 600 µm
  - Catalyst maintained by a screen & frames
  - Other option: use catalytic static mixer
- Collaboration with many catalysts suppliers

SIZE AND CAPACITIES

	K1	K2	K3	K4	K5
Application	Kilolab scale	Pilot scale	Industrial scale	Industrial scale	Industrial scale
Capacity / HER *	0,3 to 4 kg/hour	18 kg/hour	44 kg/hour	78 kg/hour	240 kg/hour
Inner volume / HER	0,008 to 0,1 l	0,5 l	1,2 l	2,2 l	7 l
Capacity / HER *	0,3 to 3,6 m	0,3 to 18 m	0,3 to 36 m	0,3 to 75 m	0,3 to 235 m
Number of channels	12	64	144	250	784

** Capacity based on a 20s residence time, a 20% weight concentration and OEE at 90 %*



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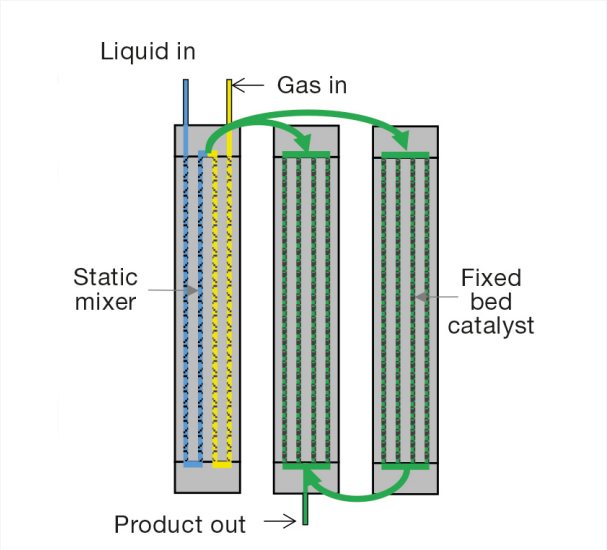

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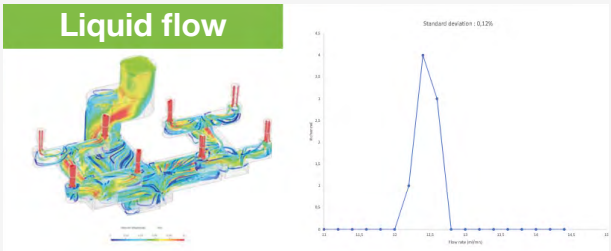

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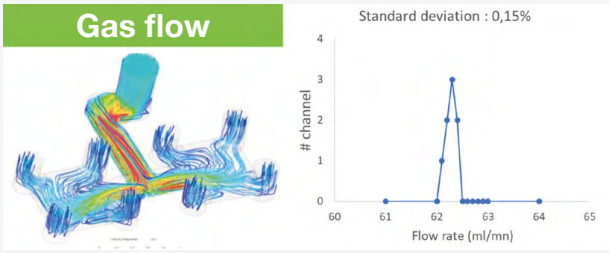

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			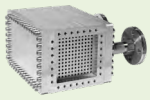		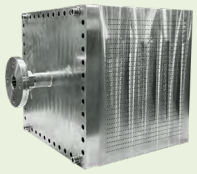
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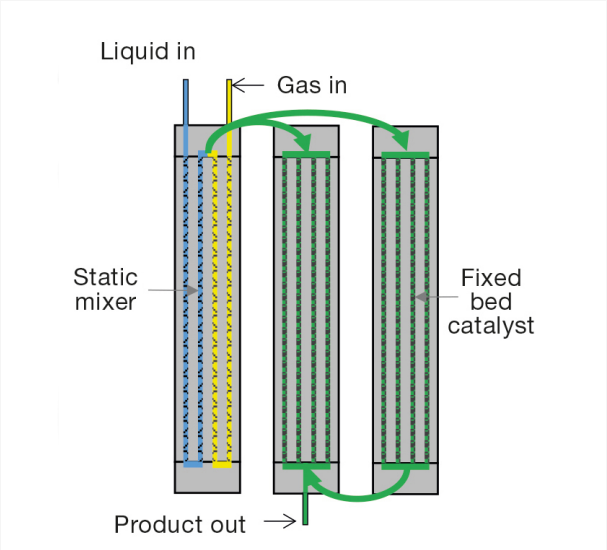

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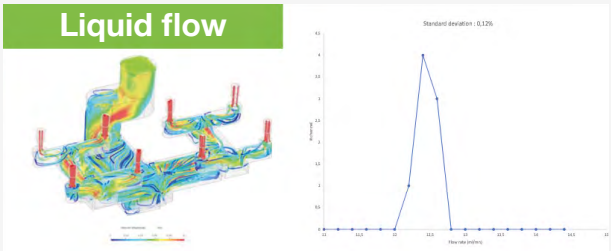

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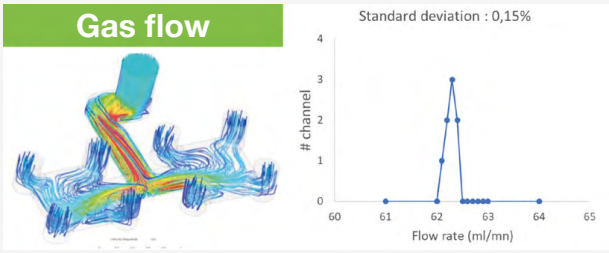

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			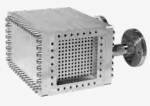		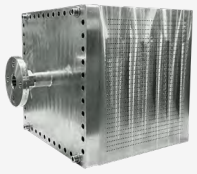

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