

CATALYST MICRO BURNER REACTOR

CMBR



Catalyst Micro Burner Reactor

Principle

The Catalyst Micro Burner Reactor is a testing reactor composed of a housing which can take in a stack of up to 16 microstructured plates. The plates are easily exchangeable and the assembly of the reactor is simple.

On demand, the reactor plates can be coated with various carrier/catalyst systems. The CMBR was designed for testing the catalysed burning of fuels

with different catalysts, however, it may be as well applied as a testing reactor for all kind of heterogeneous gas phase reactions at flow-rates exceeding the range of small-scale laboratory devices.

Heating of the reactor is realised by heating cartridges with temperature determination feasible at two positions inside the reactor.

The Catalyst Micro Burner Reactor is designed for a power generation in the range of several hundreds of Watts by burning various fuels. Full conversion of 32 g/h methanol was achieved with a conventional Pt-catalyst at 130°C reaction temperature. No other products than carbon dioxide and water were found above the detection limit. Thus absence of bypass effects could be proven.



Single parts of the Catalyst Micro Burner Reactor

Technical Data

Name	Catalyst Micro Burner Reactor
Order number	CMBR
Size (L x B x H)	160 x 120 x 50
Connectors (Inlet/Outlet)	1/4"
Standard material	1.4571
Number of catalyst plates	1 – 16
Size of catalyst plate (mm)	50 x 50
Channel geometry of the catalyst plates (μm)	600 x 400
Micro channel surface area per platelet (mm^2)	588
Options	Other materials on request

Operating Conditions

Temperature ($^{\circ}\text{C}$)	550
Pressure stability (bar)	5
Flowrate (l/h)	10 – 150
Residence time (ms)	0.10 – 1
Leakage Class	< $L_{0.1}$