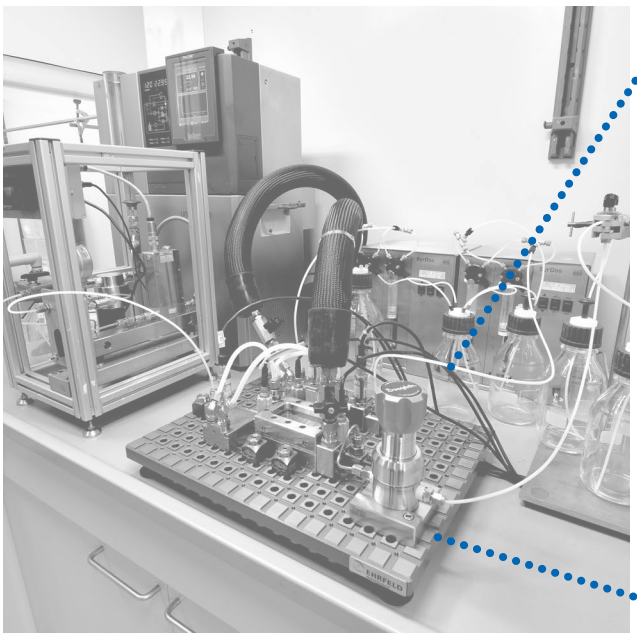
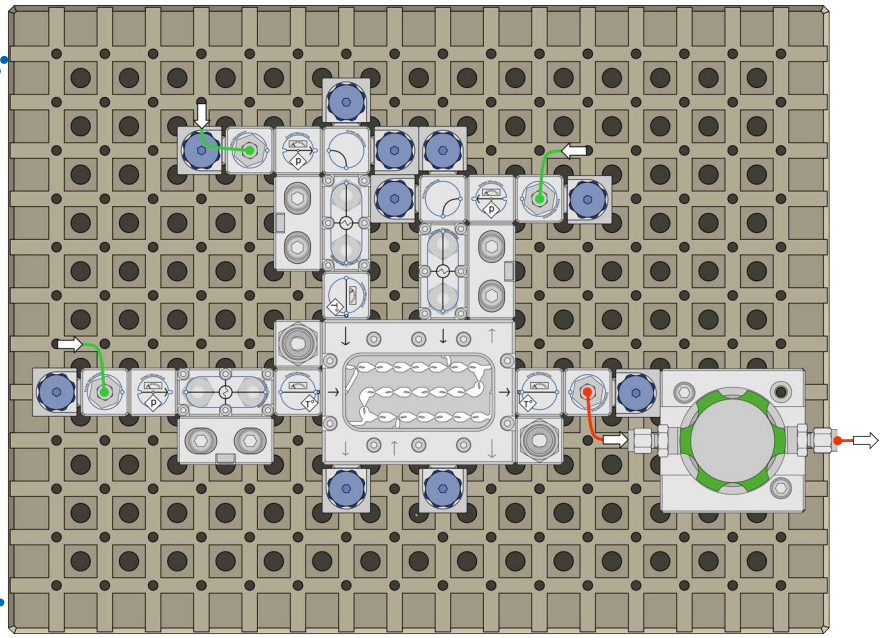
System Solution: FlowPlate® Lab

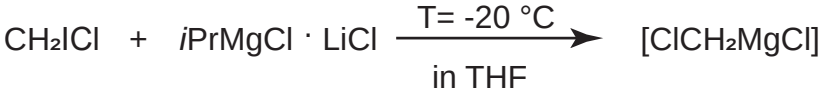
Typical reactions : organometallic reactions (e.g. Grignard reaction, lithiation)

Based on our experiences with a large number of different customer projects over many years we have come up with several reactor set-ups combining specific reactors from our portfolio with suitable pumps and other peripherals. These equipment combinations have already proven their usefulness in the field for certain types of reactions and are optimized for customer benefit. For organometallic reaction applications the challenges lie in very high reaction enthalpies, mass transport limitations and multi-step processes.



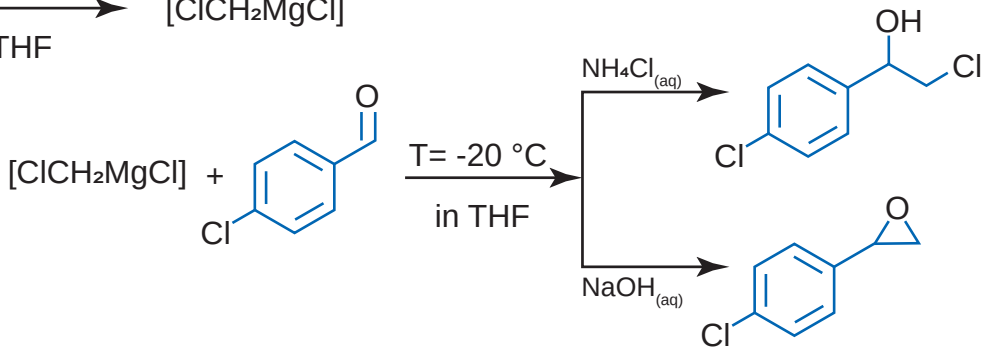


Example: Organomagnesium based flash chemistry



Operating conditions:

- ✓ Throughput: 20 … 40 mL/min
- ✓ Residence time: 1,5 … 3 s
- ✓ Temperature: -20 … 0 °C



Reference:

T. von Keutz, D. Cantillo, C. Kappe
Organic Letters 2020 22 (19), 7537-41
DOI: 10.1021/acs.orglett.0c02725

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Our Process Development Team say:

The FlowPlate reactor allows for fast scale-up. Ideal for pharma applications.

Classic low temperature reactions (-78 °C) can be handled at significantly higher temperatures.

Multi-step reactions are easy and flexible in this reactor.

Safe process control allows expansion of process windows even above 0 °C.

Extremely efficient mixing in phase-specific mixing structures.

Technical Specifications	
Typical reactions	organometallic reactions (e.g. Grignard reaction, lithiation)
Temperature range	-20 ... 200 °C
Pressure limit	35 bar
Reactor volume	1 ... 1.5 mL
Volume flow	10 ... 50 mL/min
Residence time	1.5 s ... 10 s
Media-wetted materials	Hastelloy® C22/C276, Stainless Steel 316, FFKM, Sapphire (viewing window)

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