

# efficient processing on manufacturing scale

## manufacturing concepts for microreactors & flow

turning process performance into money

### technologies:

- continuous flow processing
- microreactors, micromixer, microheatexchangers
- other process intensification technologies like ultrasound, membranes, etc.

### benefits:

- significant higher yields
- much better process control (less fluctuations)
- energy savings
- safety increase

### application area examples:

- complex & difficult chemical reactions
- safety relevant chemical reactions
- exothermic & cryogenic reactions
- new process windows (e.g. high pressure, high temperature)
- mixing sensitive reactions

### comparison of manufacturing concepts for microreactor and flow chemistry

	Plant Redesign- Concept	Unit Operation- Concept	Modular Multipurpose- Concept
<b>description</b>	modification of existing plant	new plant for one reaction step	series of reaction steps
<b>type of plant</b>	dedicated	dedicated or limited multipurpose	multipurpose
<b>flexibility</b>	limited	medium	very good
<b>status</b>	existing plant	new for one process step	new for a series of process steps