

Flexible for process optimization and piloting:  
ART® plate reactor 37



## Modular & versatile

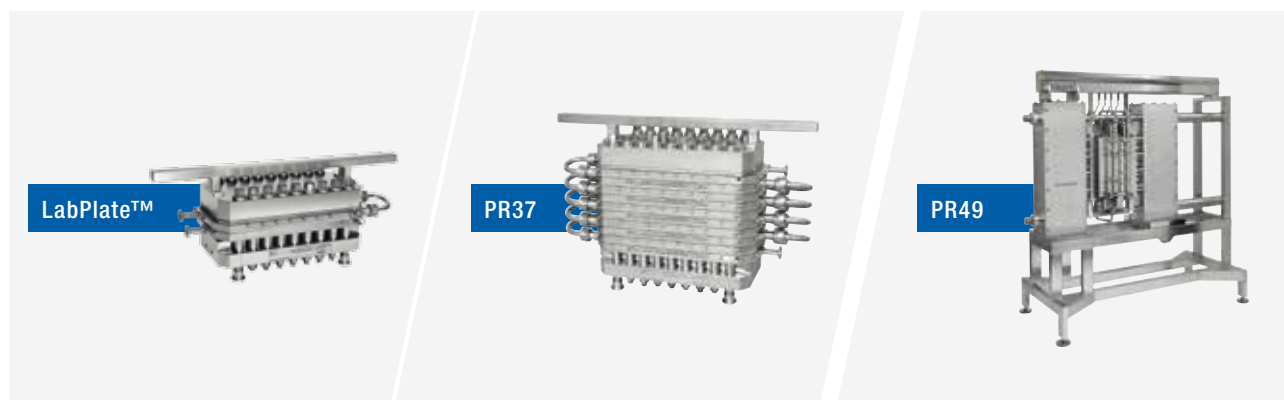
With ART® plate reactors from development to production.

Modular, versatile, flexible, scalable, robust, economical, safe – the ART® plate reactors boast a long list of beneficial product characteristics. And this is only just the beginning. This innovative technology can be your entry into the future of flow chemistry and the solution to the challenges of a broad range of chemical processes.

ART® reactors are milli-structured plate reactors, innovative and industrially proven, with excellent heat transfer, optimal residence time distribution and faster mixing than conventional

techniques. The result is a significantly intensified process in terms of yield, costs and safety. ART® reactors can be completely disassembled, which makes them easy to clean. Because of their robust industrial design and the metallic material, the compact equipment is ideally suited for a broad spectrum of reaction categories – from development to production applications. Moreover, they provide enhanced options for monitoring, since Process Analytical Technology (PAT) can also be very effectively integrated.

### Scale-up with ART® plate reactors



LabPlate™

PR37

PR49

#### LAB / PILOT

0.3 – 2 L/h and 0.3 – 40 L/h

#### PRODUCTION

20 – 1,000 L/h

## The ART® product line features:

- ART® LabPlate™ / ART® plate reactor 37 – for laboratory and pilot scale applications
- ART® plate reactor 49 – for production scale

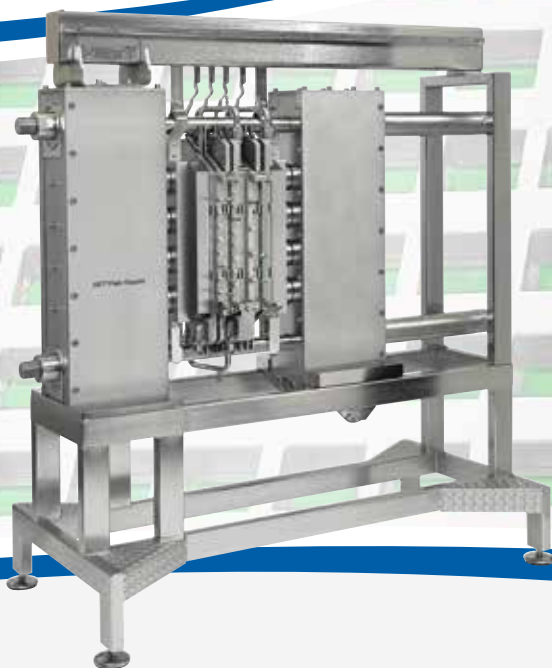
Regardless of the scale of your application, whether process development or production – you will benefit from an abundance of advantages:

- outstanding heat transfer characteristics, rapid mixing and narrow residence time distributions
- increased safety due to relatively small reaction volumes in continuous operation
- easy to clean as reactors can be completely disassembled
- reactors are made from metal and therefore robust (SS 316L / Hastelloy® C22)

- modular construction adapts to a broad range of reaction conditions, also suitable for suspensions
- different temperature zones within the same apparatus
- serial and parallel operation
- additional ports allow multiple injection, multi-step reactions, and sampling in mid-process
- efficient process control as process analytics (PAT) are easily integrated
- application in multi-purpose plants leads to flexible product change-over
- robust production technology

**Discover ART® technology for your process!**

Robust production technology:  
ART® plate reactor 49



## Technical Specifications:

Plate	Process volume
<b>ART® LabPlate™ / PR37</b>	
PL37\0.8	3.5 mL
PL37\3	13.6 mL
PL37\6	24.9 mL
PL37\12	47.7 mL
<b>ART® PR49</b>	
PL49\48	450 mL
PL49\180	810 mL
PL49\680	1,450 mL

	LabPlate™ / PR37	PR49
Temperature range	- 60 – 200 °C	- 40 – 200 °C
Max. pressure process medium (service medium)	20 bar (10 bar)	20 bar (10 bar)
Volume flows	0.3–40 L/h	20–1,000 L/h
Retention time	4–45 s/Plate	3–80 s/Plate
Dimension (l x w x h)	550 x 170 x 240/370 mm	1,930 x 800 x 1,830 mm
Weight	45 – 95 kg	> 1,000 kg
Min. channel cross section*	0.8 mm², 3 mm², 6 mm², 12 mm²	48 mm², 180 mm², –
Number of reactor plates	1–2/1–10	1–10

\*without sealing

Status June 2014. We reserve the right to changes and errors. Illustrations and drawings are only approximately determinant.

