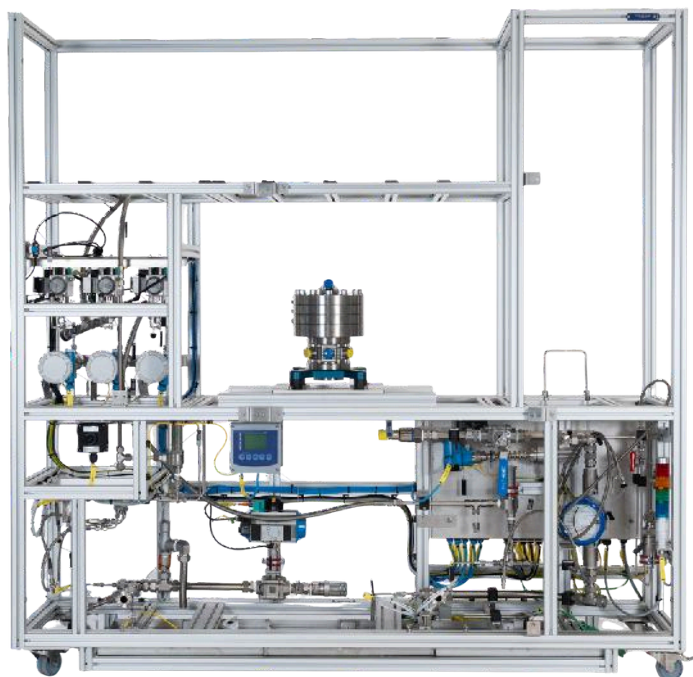


Technical Specifications

SpinPro Flow Reactor



Zeton has partnered with Flowid to integrate SpinPro Flow Reactor Technology into the ContiUnity® ecosystem, providing an efficient solution for intensified continuous processing and multiphase chemistry.

The ContiUnity® SpinPro reactor module is built around Flowid's proprietary dynamic flow reactor technology, where a rapidly rotating disc operates within a narrow housing, to create exceptionally high shear forces and intense turbulence. This unique design provides independent control over mixing intensity and production capacity, enabling rapid process optimization and scale-up.

Designed for applications requiring superior heat and mass transfer, the SpinPro reactor can reduce processing times from hours in batch to seconds in flow. Its compact, low-volume design offers a safe and scalable route from process development to commercial production.

Implement with ContiUnity® for:

- Intensified continuous flow processing
- Multiphase reaction and mixing applications
- Rapid process development and scale-up
- Safe operation through minimized reactor volumes
- Flexible integration with ContiUnity® modules

Key advantages of the Flowid SpinPro Dynamic Flow Reactor



Process Intensification Technology:

- Independent control of mixing intensity and production capacity
- Very high shear forces and intense turbulence
- Rapid conversion of mixing-limited processes

Enhanced Heat & Mass Transfer:

- Excellent mass transfer performance
- Efficient heat removal for temperature-critical reactions
- Supports safe operation of highly exothermic processes

Multiphase Processing Performance:

- Suitable for liquid/gas and liquid/liquid systems
- Excellent performance in precipitation processes
- Controlled generation of stable emulsions

Scalable & Flexible Design:

- Closed system with low reactor volume
- Configurable setups for different applications
- Scalable from laboratory development to multi-kilotonne-scale production



Technical data and product features

Module

Module Model number	SpinPro R3 Pharma
Module Options:	Process inlet 6 / Heat exchanger inlets / Heat exchanger outlet

Process

Reaction type	Multiphase, precipitation and energetic reactions. Up to six feed streams
Reactor model	SpinPro R3 Pharma
Temperature zones in reactor	1
Operating temperature	-50 ÷ 160 °C
Operating pressure	0 ÷ 10 bar(g)
Operating reactor volume	R1: 5 mL, R2: 15 mL, R3: 135 ÷ 270 mL, R4: 2200 mL
Operating temperature heat transfer fluid inlet	-50 ÷ 160 °C

Mechanical

Process Design pressure	0 ÷ 10 bar(g)
Process Design temperature	-50 ÷ 160 °C
Module process wetted material of construction	C276/C22 SS316L
Module surface roughness	Ra <0.5 µm
Reactor process wetted material of construction	C276/C22 SS316L
Reactor surface roughness	Ra <0.5 µm
Process wetted seals and gaskets	White FFKM / PTFE
Main process connectors	Staubli Quick couplings VCO
Frame material of construction	Aluminium ITEM® profiles SS316L box profile welded SS304 ITEM® profiles
Frame dimensions w x d x h	2010 x 600 x 2000 mm
Frame features	Castor wheels / drip tray
Frame options	Enclosure
Module weight	400 kg incl. heat exchanger outlet option

Electrical properties & interfaces

Control platform	ContiUnity® MTP Remote input/output
PLC	Beckhoff with TwinCAT 3 runtime
Power connector	Stahl miniCON
Control connector	Stahl miniCON
Communication protocol	OPC-UA
HMI	Emerson DeltaV / Web interface for stand-alone use e.g. maintenance / TwinCAT 3 HMI
Rated voltage	400 VAC
Rated current	6 A

Marking, approval & standard

Marking	CE
ATEX rating	II 3G Ex h IIB T3 Gc X
Material certification	3.1 material certification, FDA approved soft goods & lubricants, TSE declaration

Symbol legend: | = OR, / = and, ÷ = range

*Subject to change without notice

