fluitec
mixing + reaction solutions

Modular continuous processing systems

Flow reactors • Dosing systems • Lab & pilot equipment
Modular scalable assemblies

Neftenbach, Switzerland • www.fluitec.ch

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What we deliver

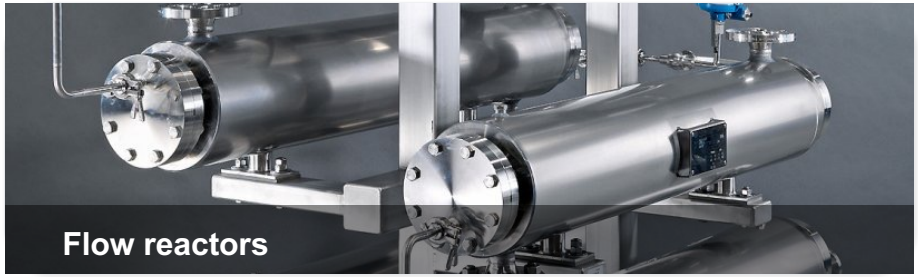
A modular platform for continuous mixing, reaction and scale-up

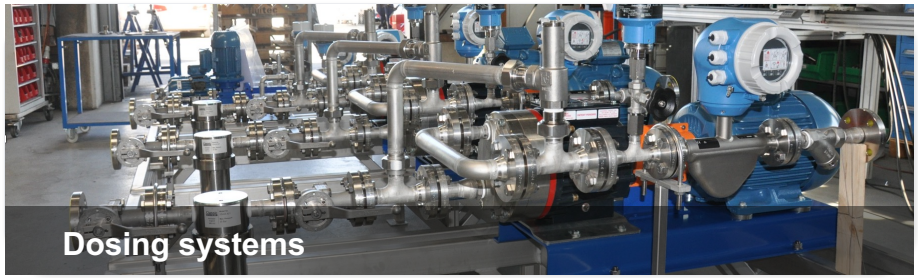
Solutions tailored for customers who need:

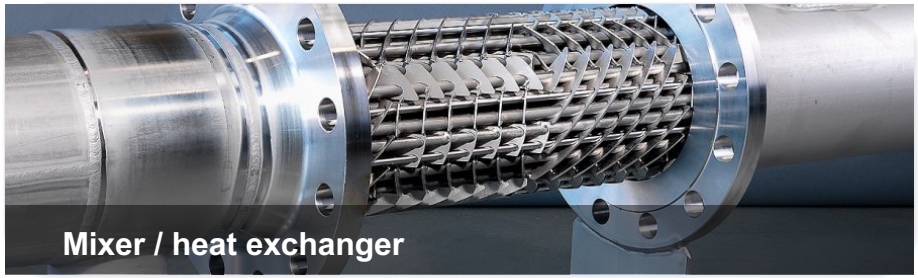
- Flow reactors for process development and production
- Direct scalability from the laboratory to production
- Accurate, cleanable dosing systems (incl. automation)
- Laboratory and pilot plants with data-rich instrumentation
- Modular plants and scalable assemblies / building blocks
- Engineering + fabrication for customer-specific systems

contiplant PHARMA
by fluitec

contiplant LAB
by fluitec







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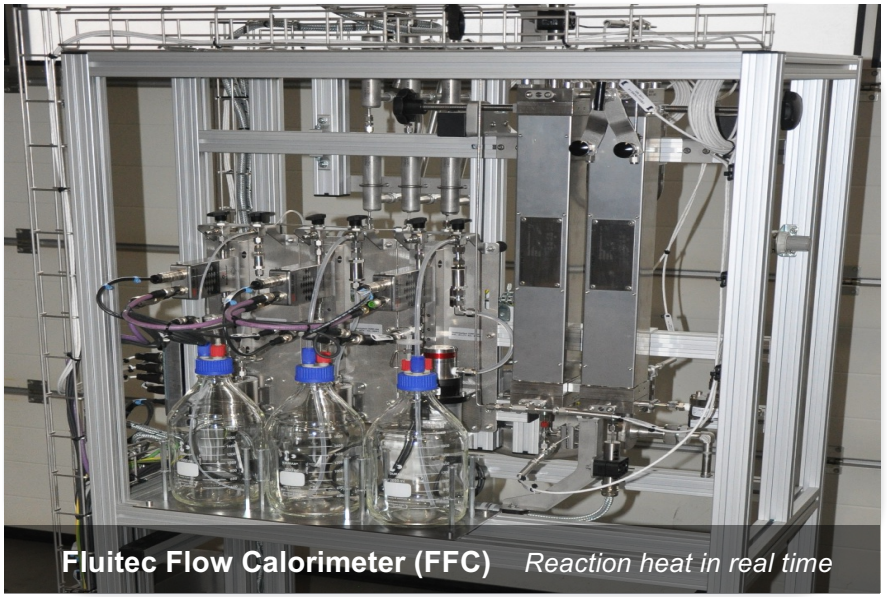
Why continuous flow?

Typical drivers behind flow reactors, modular plants and scalable building blocks

When batch reaches its limits, flow can unlock:

- Safer handling of exothermic and rapid reactions (lower hold-up)
- Improved heat and mass transfer (high surface-to-volume ratio)
- More consistent product quality thanks to defined residence times
- Easy scaling thanks to constant surface-to-volume ratio
- Compact footprint and easier process intensification



Fluitec Flow Calorimeter (FFC) *Reaction heat in real time*

Fast check: Is your process a good fit?

- ✓ Exothermic / fast kinetics
- ✓ Multiphase (gas/liquid, liquid/liquid, slurries)
- ✓ Viscous and/or fouling media
- ✓ Tight quality specifications
- ✓ Need a scalable lab direct production route

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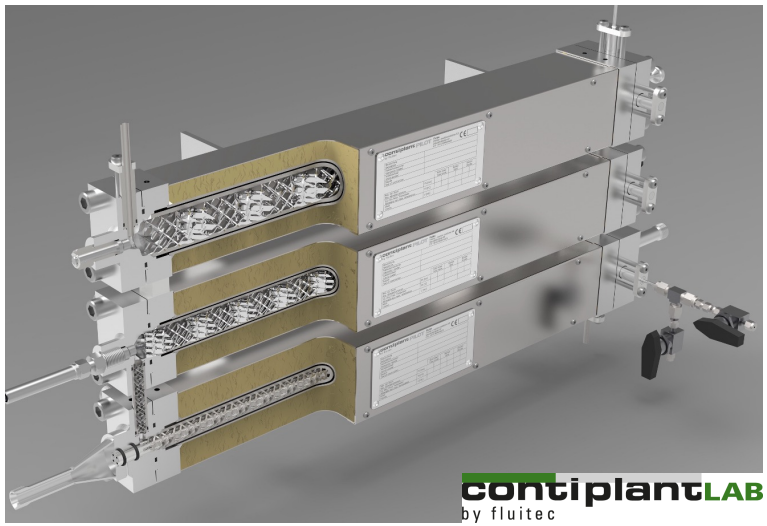
The Fluitec platform approach

Build the optimal configuration from compatible modules

Contiplant is designed as modular building blocks:

Reactor modules of different diameters and internals can be combined; dosing systems and PLC with process visualisation round off the system.

Dosing & control → **Pre-mix / conditioning** → **Reactor modules** → **Heat exchange** → **Sampling & analytics**



Scale the way you want

Start in the lab, validate on the same system, then scale to modular production reactors — while keeping the same modular logic and instrumentation

Designed for repeatability

Defined mixing behaviour and temperature control support a reproducible process window and faster iteration during development.

Faster time to market.

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Flow reactor modules

Pick the right reactor concept for your chemistry

Flow Calorimeter (FFC)

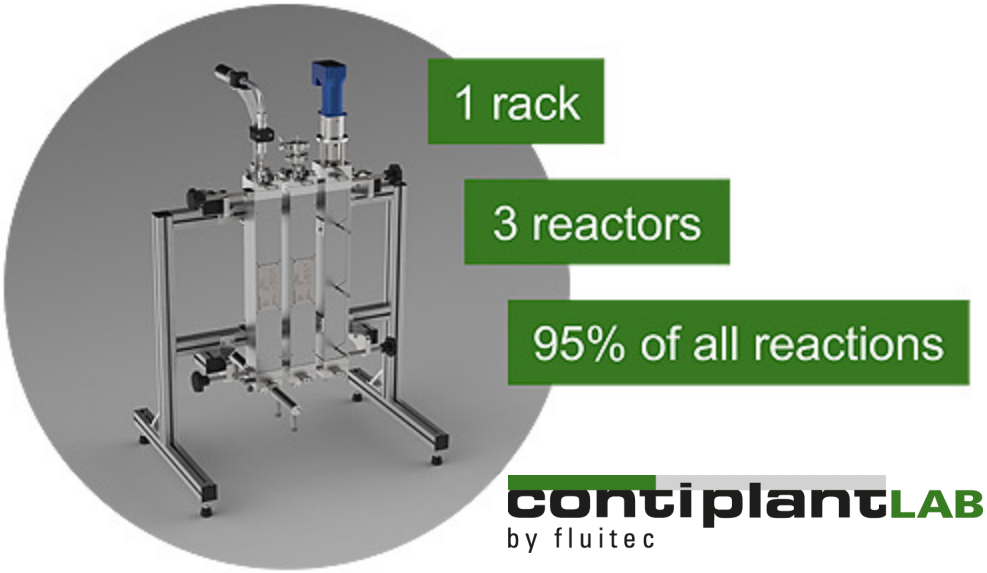
Measure heat release and axial temperature profile to support safe scale-up of tubular flow processes.

Tubular reactor with static mixer / fixed bed

Reproducible multiphase processing (l/l, g/l, l/s, g/l/s) and catalytic development with defined mixing behaviour.

Dynamic Cascade Reactor (DCR)

Actively mixed CSTR cascade designed for challenging media (e.g., solids and suspensions) where static mixer limits are reached.



- Flow calorimeter: fast / exothermic reactions
- Static mixer / fixed bed reactor: multiphase systems, catalytic processes
- Dynamic cascade reactor (DCR): reaction media with solids content

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Lab to direct Production

A practical route to scale-up with consistent building blocks

Typical scale-up path

1 Lab feasibility

Prove chemistry & control exotherms; capture data for modelling.

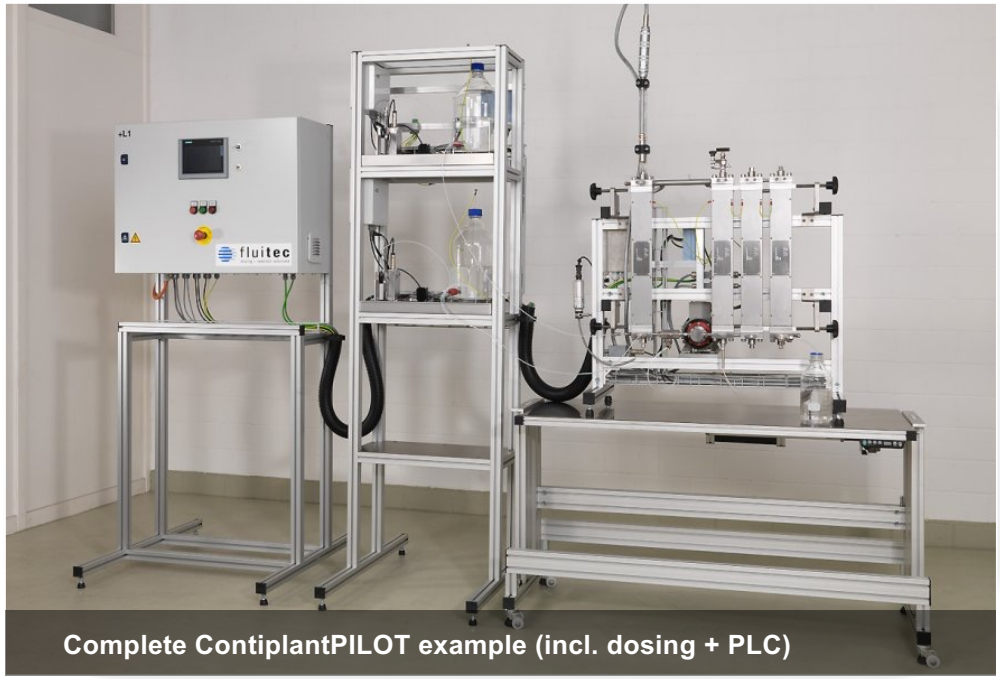
2 Validation in Contiplant equipment

Demonstrate steady-state performance and operability with robust dosing.

In many cases, a pilot plant is no longer needed.

3 Modular production

Transfer the validated module set-up to a skid / plant with defined instrumentation.



Complete ContiplantPILOT example (incl. dosing + PLC)

To size the right set-up, we typically ask for:

- Chemistry & heat release
- Phases / solids content
- Viscosity range
- Temperature & pressure window
- Materials (SS, alloys) + GMP/ATEX needs
- Target throughput & residence time

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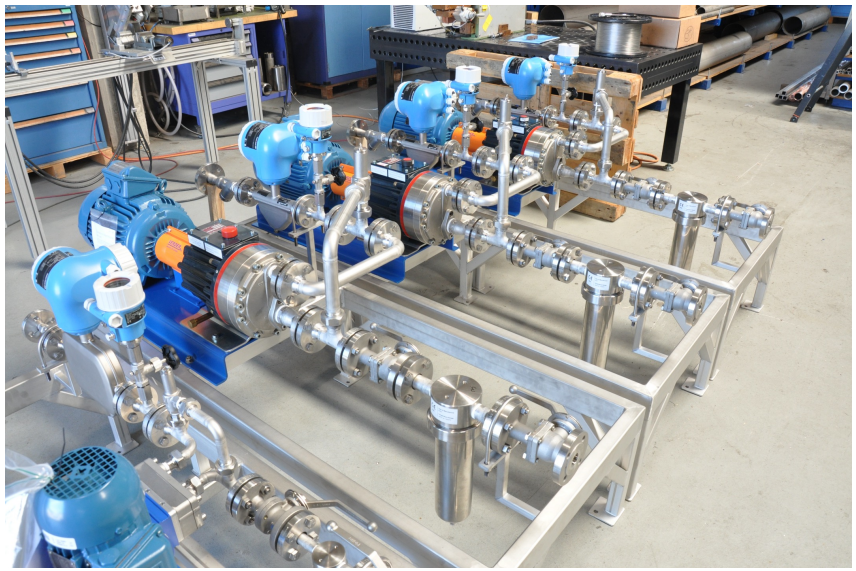
Dosing systems & automation

Accurate, robust feeding is a prerequisite for repeatable flow chemistry



Example dosing station

Key characteristics

- Dosing systems developed in-house, integrated into the Contiplant platform
- PLC with process visualisation for monitoring and control
- Designed for steady, controlled dosing required by static-mixer based reactors
- Instrumentation-ready: pressure/temperature measurement points, sampling, safety devices
- Cleanability-oriented designs (e.g., CIP/SIP concepts) for high requirements

Where it matters most

Low flow rates, expensive reagents, hazardous zones, or demanding QA/QC in GMP environments.

Typical add-ons

Filters, flow meters, valves, preheaters, sampling, pressure relief and “no dead spot” instrumentation.

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Modular plants & scalable assemblies

Standardized modules that can be flexibly combined

Modular skids

Combine reactors, dosing, temperature control and analytics on a skid for rapid deployment.

Scalable assemblies

Standardized interfaces make it easy to expand (add stages, add residence time, upgrade internals).

Materials & compliance

From stainless steel to high-performance alloys; sterile / GMP-oriented designs available.

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Engineering & custom builds

From a module to a complete system

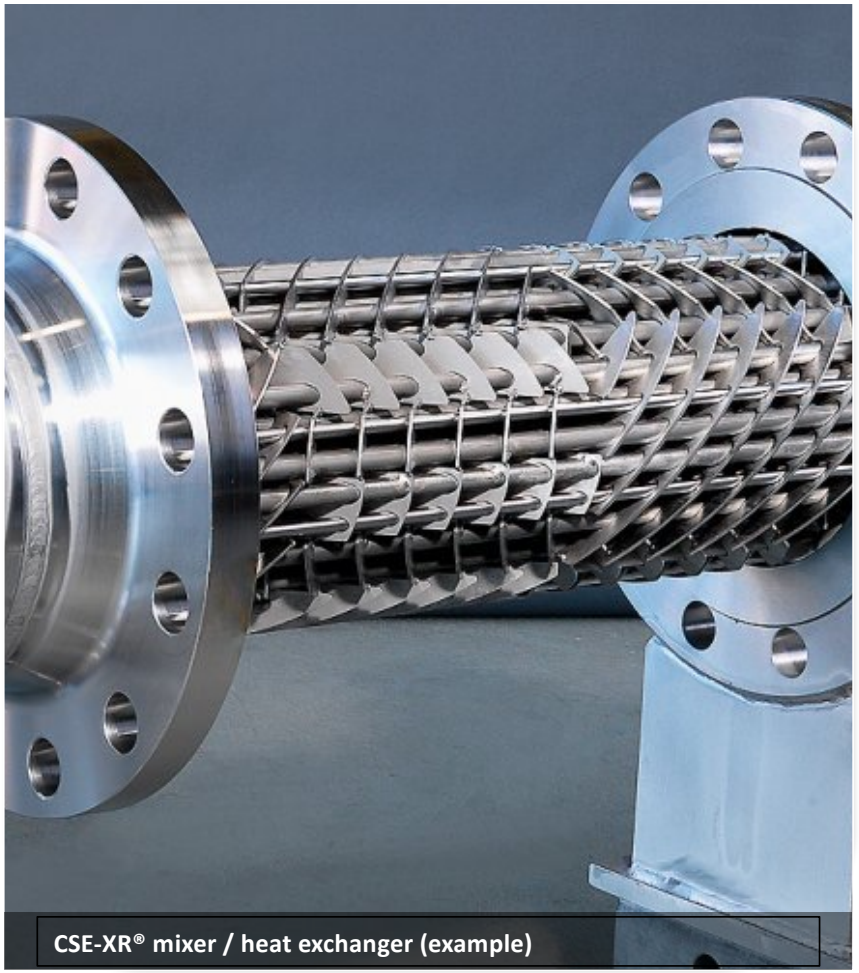
Beyond the standard modules, Fluitec designs and builds customer-specific solutions for:

- Mixing & static mixing
- Mixing / heat transfer (mixer-heat exchangers)
- In-line reaction systems and continuous processing
- Devolatilisation and dosing as part of integrated plants
- Instrumentation, safety concepts, and automation integration

In-house manufacturing + partner network

Fluitec builds apparatus in-house (up to 3.5 tons); larger systems are manufactured under supervision with local partners.

In-house production offers many advantages, including faster delivery times, better quality control and lower costs.



CSE-XR® mixer / heat exchanger (example)

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Typical applications

Where customers use Fluitec flow reactors and modular systems

Fast / exothermic syntheses

Flow calorimetry + strong heat removal
Safety analyses

Multiphase reactions

gas/liquid, liquid/liquid, slurry handling with defined mixing

Catalytic processes

Packed bed / fixed bed sections

Viscous polymerisations

Mixer / heat exchanger concepts for laminar flow

Sterile / GMP environments

Surface quality, CIP/SIP design Practices. High traceability. High documentation quality.

Scale-up programs

Lab → Modular production skids

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How we work

A typical engagement from first call to validated equipment

01

Scope & process window

Define chemistry, safety, constraints and success criteria.

02

Concept selection

Choose reactor modules, dosing strategy, sensors and materials.

03

Lab / pilot testing

Generate data (heat release, RTD, operability) and iterate quickly.

04

Design & build

Engineer and fabricate the skid/plant; FAT documentation.

05

Commissioning

Start-up support, tuning, training and handover.

Next step: share your process targets → we propose a first module concept and testing route

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Why Fluitec

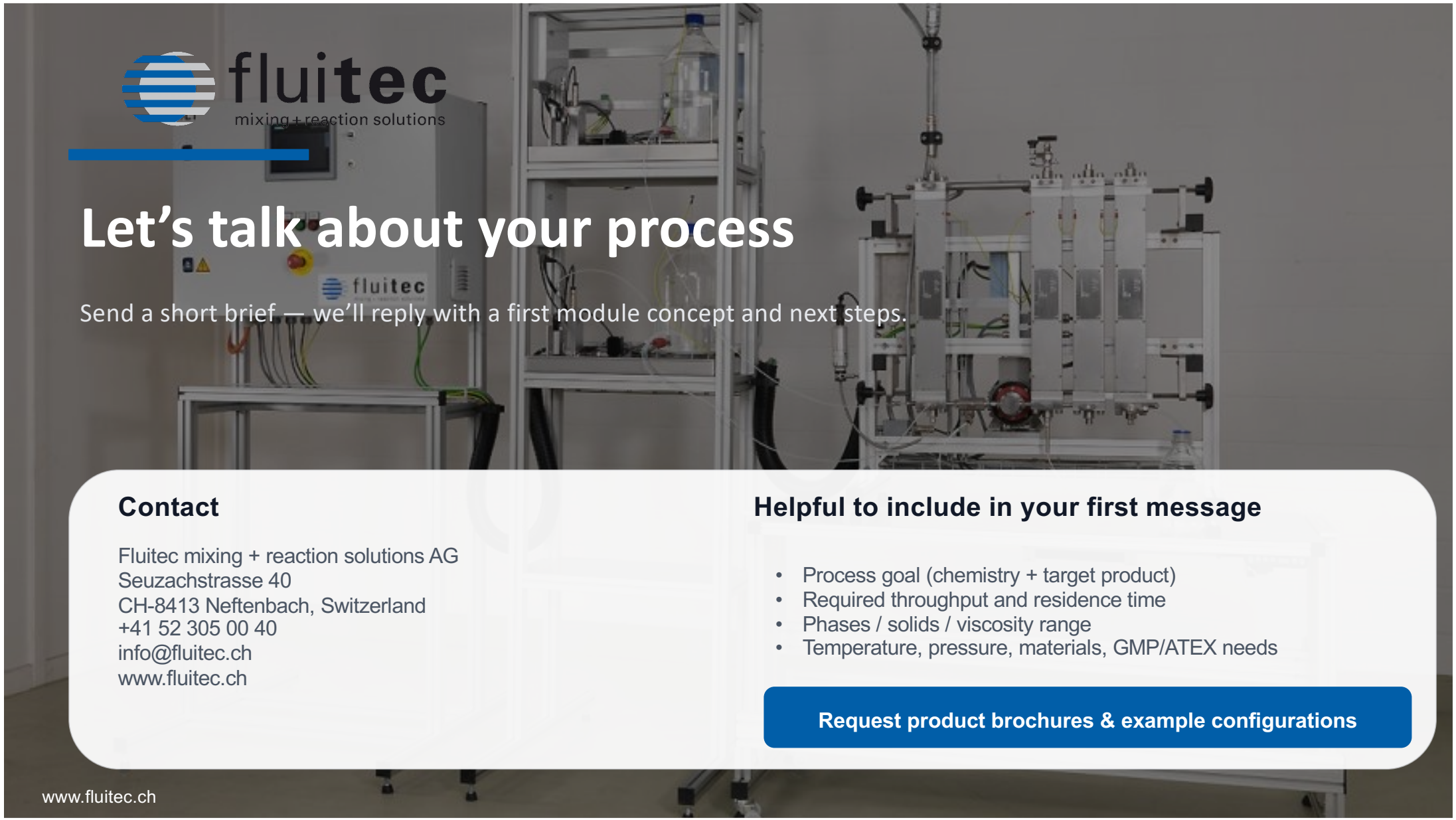
A partner for mixing, heat transfer and in-line reaction technology

What customers value

- Established expertise since 1993 in static mixing, heat transfer and reaction systems
- Modular Contiplant platform for fast development and safe scale-up
- Integrated dosing and PLC process visualisation for repeatable operation
- Options for sterile / GMP-oriented designs and demanding process requirements
- Swiss engineering with in-house manufacturing capabilities

Bring your toughest mixing or reaction task — we'll propose a module set-up and a pragmatic testing plan.

Measure – Consult - Treat



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Let’s talk about your process

Send a short brief — we’ll reply with a first module concept and next steps.

Contact

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Helpful to include in your first message

- Process goal (chemistry + target product)
- Required throughput and residence time
- Phases / solids / viscosity range
- Temperature, pressure, materials, GMP/ATEX needs

Request product brochures & example configurations