



C3 PROZESS- UND
ANALYSENTECHNIK

PRODUKTINFORMATION

Büchi Parallelreaktorsystem PPR

Sicher, Flexibel und Effizient

PPR – Parallel Pressure Reactor

New and innovative solution for hydrogenations and catalyst screening

speed up
R&D

- High reproducibility
- Safety
- High reliability

also used for:

- Carbonylation by CO / Carboxylation by CO₂
- Decarboxylation
- Friedel-Crafts-Acylation
- Ethoxylations (optional)
- General gas reactions by constant flow (CO, CO₂, Ethylen, O₂, NO)
- Design of Experiments (DoE)
- Quality by Design (QbD)

Facts and figures

- 1 to 6 Reactors
- 50 to 300 ml, -20°C...300°C
- 100 bar
- parallel (catalyst screening) / individual operation mode
- gas / liquid dosing
- automated sampling system
- Batch- /semi-Batch operation



BÜCHI – THE WAY TO GET RESULTS!

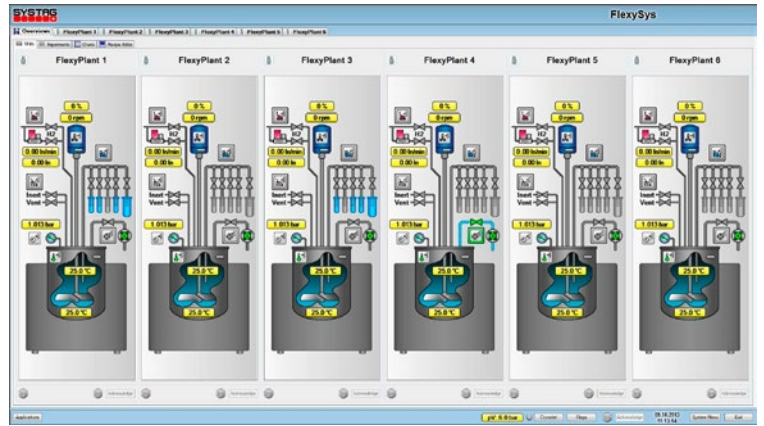
SYSTAG
automatically better

büchiglasuster
Pilot Plant and Reactor Systems
switzerland

PPR – Parallel Pressure Reactor

Control of 1 to 6 Reactors

- Parallel Reactor system – with individual reactor settings
- Parallel or individual operation mode
- Configurable recipes by editing existing procedures or by defining new process steps
- High reproducibility by automation
- Cost effective



Joined expertise for best results



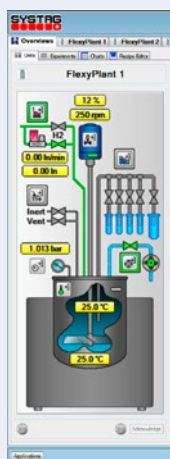
Reliable Büchi Reactor Technology

- high pressure reactor
- stirrer drive, magnetic coupling (75 Ncm torque)
- 50 – 300 ml reactor
- 100 bar
- individual temp. control -20°C .. 300°C
- stainless steel, Hastelloy, Tantalum, PTFE inliner



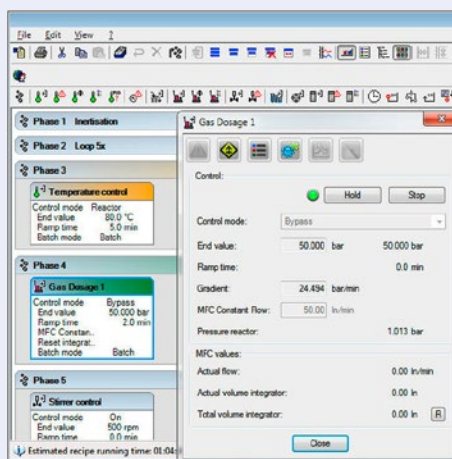
Userfriendly and compact

- Fast action closure
- Lifting / lowering of heating block



SYSTAG – Automation Expertise

- Visual control of single process step
- Easy-to-use interface
- Flexible application
- GxP compliant software
- Electronic Lab-Journal



Setting up recipes by defining individual steps

- Drag&Drop Recipe Editor
- Recipe modification “on-the-fly”
- Events for If..then...else logics, Loop, Jump back to phase...



Functionality

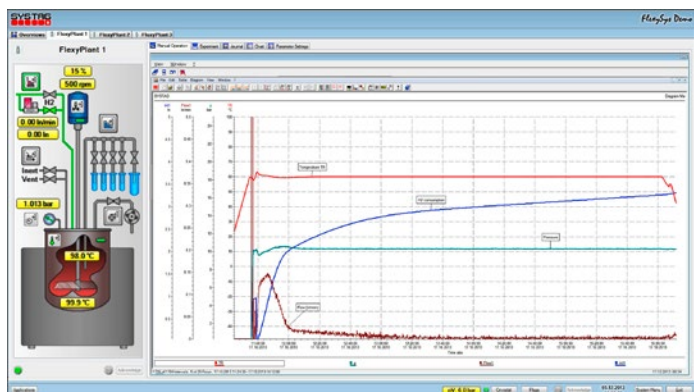
Control Parameters

- Pressure control
- Flow control
- Gas consumption
- Temperature
- Liquid dosing, up to 275 bar pressure via balance
- Stirrer speed
- Safety Limits

Automation – procedures defined for complete processes or single process steps like:

- inertisation
- leakage control
- nitrogen / active gas purging
- constant-flow mode
- constant-pressure mode
- many more

Data evaluation and online trending of all important parameters



Individual chart for each reactor

Actual Gas-Flow (nL/min)

Gas-consumption

Temperature, pressure, rpm, feed, ...

Export to Excel, ASCII-format

End criteria, stop hydrogenation by:

- Total gas consumption
- Minimal gas flow
- Time or event controlled

Options

Automated Sampling

- sampling systems – contamination free
- up to 4 samples of each reactor
- automated (recipe) or manually controlled



Liquid dosing

- SS316 or PEEK corrosion resistant metering pump, flow rates 0.003 to 40mL/min

Reactor Options

- Gas-stirrer for homogeneous gas dispersion
- Catalyst baskets
- Burettes

Others

- IQ/OQ on request
- Customised Software



**C3 PROZESS- UND
ANALYSENTECHNIK**

C3 Prozess- und
Analystechnik GmbH
Peter-Henlein-Straße 20
D-85540 Haar b. München
Telefon (089) 45 60 06 70
Telefax (089) 45 60 06 80
info@c3-analysentechnik.de