



FlexyPlant

Specific customer solutions for the automation of kilo lab and pilot plants with reactor volumes up to 250 l

General information

- FlexySys is an automation concept specially developed for chemical process research
- The FlexySys process control system combines the flexibility of manual operation with the reliability and reproducibility of a recipe-controlled system
- The system is also suitable for special problems encountered in chemical process engineering (e.g. polymerization, hydrogenation and thermal separation)



Your advantages

- A universal control concept from laboratory to pilot plant
- Interchangeability of recipes
- Automatic data acquisition and logging
- cGMP-compliant qualification
- Compliance with CFR 21 Part 11

FlexyPlant is a logical progression of process development – via FlexyLab and FlexyALR

FlexyPlant General information

Where is FlexyPlant utilised?

FlexyPlant is our answer to the special automation requirements of kilo laboratory and pilot plants.

On the one hand, the material quantities used require production-related process control and a serviceable safety concept. On the other hand, the operating team must be capable of reacting quickly and flexibly to deviations from the expected procedure.

SYSTAG supplies solutions for the kilo lab / pilot

Over 30 years of experience in the automation of synthesis plants in chemical process development enable SYSTAG to supply optimised solutions for automated process control in plants in which prototype campaigns are realised.

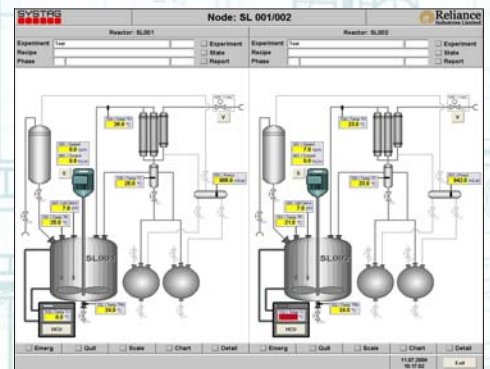
The FlexySys process control system enables the automation of routine operations without losing the flexibility of manual operations.



Project planning

Specification development

Plant specifications are developed in close co-operation with the user. The customer can contact specialists at SYSTAG who, due to their professional experience, understand the working practices and requirements of process development. Close co-operation through meetings and discussions results in a clear and detailed specification.



Requirement specification

On the basis of the specification, SYSTAG produces a specific customer automation solution or a turnkey production plant with partners with which we have an established relationship and have co-operated with for many years. The requirement specification encompasses:

- functional specifications for control software
- a practical user interface
- the selection of control hardware (e.g. Siemens S7, Beckhoff, PC-Combilab)
- I/O lists
- switch cabinet planning and cable diagrams

Insofar as a turnkey system is required:

- P&I diagrams
- peripheral devices such as pumps, scales, sensors, valves and fittings
- reactors, structural reactor components, templates, Nutsch-type filters – supplied by our established Swiss partner

Realisation

Realisation

The required control circuits and locking devices are configured and user interfaces created on the basis of our FlexySys process control system. Our established comprehensive function library enables us to realise even complex problems quickly and cost-effectively.

Acceptance test

The software created is subjected to comprehensive test procedures prior to delivery. The interaction between the devices employed and the plant control system is also tested wherever possible.

The acceptance test is conducted at the reactor manufacturer's premises in the case of plants which are to be delivered as turnkey solutions. This ensures subsequent rapid and problem-free commissioning at the customer's facility.

On-site installation

The field service personnel of our partners and those from SYSTAG assemble, commission and test each plant again at the customer's premises.

Our personnel's broad knowledge of products also enables us to support you during integration of devices from third-party providers.



Qualification and training

Qualification

SYSTAG offers qualification conforming to cGMP and in compliance with GAMP for the pharmaceutical industry. In addition to qualification of the automation solution, we also undertake the installation and functional qualification of the entire plant if requested.

Our automation solution can be delivered if desired with user administration and data acquisition conforming to CFR21 Part 11.

Training

Thorough training tailored to meet user requirements is the key to success when utilising the new plant. SYSTAG can also provide training for your personnel over several days, depending on plant complexity and the options installed. This can be deepened after a few weeks where necessary through internet-supported training.

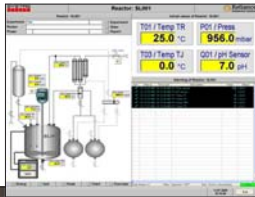
Support

In addition to our telephone hotline and e-mail support, we also provide our customers with direct remote support for maintenance and troubleshooting. The remote access software used functions via any internet connection. Use of strict encryption enables us to ensure the integrity and security of data transmission.



FlexyPlant at a glance

- Specific customer solutions for complete automation of kilo lab plants with reactor capacities up to 250 l
- Complete turnkey solutions (plant, sensors and fittings) realised in co-operation with tried and trusted partners
- Universal look and feel of control system – from FlexyLab (multigram) to laboratory scale-up (FlexyALR) and multi-kilogram plants
- Automation of special equipment such as rectification systems, hydrogenation autoclaves, polymerization unit, etc.
- Recipe-controlled process management with automated logging and data acquisition
- cGMP-compliant qualification



Co-operation partners

Büchi - Systag co-operation

The same high quality principles, geographic and cultural proximity and a mutual knowledge of products enable the planning of a plant optimally suited to your requirements in the shortest time possible.

Project planning

Choosing Büchi - SYSTAG, a well-practised team with a long history of co-operation, means that you enjoy the services of an experienced system provider and a qualified automation specialist. We take care of project management for you, thus relieving you of the task of communicating your requirements to two different organisations and coordinating the project schedule.

Realisation

Geographic proximity means that software and hardware can be subjected to testing together under realistic operating conditions prior to delivery, thus shortening the commissioning duration and avoiding the need for subsequent expensive improvements.

Excerpt from a qualification report

| N° de plan / Drawing number | NA | Code de construction / Rules of construction | ESTRELLA | Kunde |
|--|------------------------------|--|-----------------|--------------|
| Z.A.P. (R1) | Emballerie | 2000 Weiss | | |
| S.N.D. - B.E.T. | | | | |
| Beschreibung der Kontrolle / Description of controls | | | | |
| Schweißnahtvorbereitung / Preparation des bords & souder. Welding edges preparation | Vorgabe / Conds. Book | Ergebnisse / Results | ESTRELLA | Kunde |
| Innenmantel Längsnaht | | AD | 6.7.06 | |
| Innenmantel Rundnaht | | AD | 23.7.06 | |
| Stützenrundnähte | | AD | 14.7.06 | |
| Doppelmantel Längsnaht | DIN EN 9882-1 | AD | 19.7.06 | |
| Doppelmantel Rundnaht | | AD | 19.7.06 | |
| Doppelmantel Stützenrundnähte | | AD | 19.7.06 | |
| Rundher / Contrôle: Out of roundness | | AD | 20.7.06 | |
| Stützen / Pylons - Acrotis | | AD | 20.7.06 | |
| Füge-Prozess / Assembling process | | AD | 20.7.06 | |
| Stempelung / Markierung-Markine | | AD | 20.7.06 | |
| Material Umstempelung | AD 2000 | AD | 20.7.06 | |
| Schweißer Stempelung | AD 2000 | AD | 20.7.06 | |
| Kontrolle vor dem Einfließen / Contrôle avant amallage. Controls before glass filling | | AD | 20.7.06 | |
| ZIP Schweißnähte | AD 2000 - AD HPS3 | AD | 20.7.06 | |
| Innenichtprobe | AD 2000 - AM116 | AD | 20.7.06 | |
| Druckprobe innen | AD 2000 - AM116 | AD | 20.7.06 | |

Customer training



Büchi - Systag, co-operation that serves the customer!

BÜCHI - THE WAY TO GET RESULTS !



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