



SYSTEM COMPONENTS

Overview brochure





Building blocks for your success

Custom designed – we tailor the configuration of our systems to suit your individual requirements. The right options and system components are the ideal supplement for making the system a key element in your production line. The users determine which focus they require and then choose from the entire **BvL** set of modules: from optimised cycle

times and output, reduced costs and personnel involvement to increased system availability and reliability. Our experienced consultants work with the customers to develop suitable concepts for reliably carrying out cleaning tasks while going easy on the budget – as much as necessary, as little as possible.





Programming and control

Fields of application

System control and programming can be adapted and customised to meet specific customer requirements. This facilitates processes, links interfaces and systems and allows cleaning systems to be integrated into existing production and manufacturing lines.

Available features

- pre-selection of washing programs, freely selectable treatment parameters
- simplified washing program selection with a button
- interface programming
- integration of third party applications
- customer specific programming and compliance with programming languages
- communication with other systems and production data acquisition
- visualisation through touch panel, key panel or panel PCs

Objectives

- standardised controller for operators
- prevention of operating errors
- optimised cycle times
- linked upstream and downstream operative facilities

Handling and automation

Fields of application

Handling systems facilitate the movement of workpieces. They provide easier transport of the cleaned parts and shorten ancillary system times. Ergonomic factors such as ideal working height or weight transfer also play an important role. Automated transport systems are used for large batches, for production lines with pre-set cycle times or for production using one piece flow. These transport systems can also be designed as intelligent systems so that e.g. the correct washing program for each batch of parts can be selected directly through a barcode query.



Objectives

- reduction of time required for loading and unloading the system
- reduction of personnel time
- increased throughput

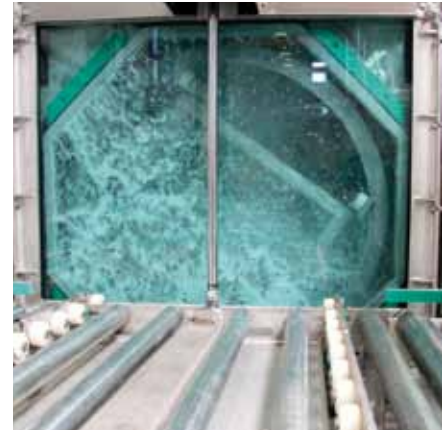
Available features

- integration of the workpiece carrier
- parts feeding carriage
- folding lifting table
- cross movement table
- bridge loader
- roller conveyor (with workpiece buffer, if required)
- conveyor systems, conveyor belts
- robot and manipulator systems
- positioning systems
- complex, fully automated transport systems with identification systems for workpiece tracking
- linking of several cleaning systems

Increased cleaning capacity

Fields of application

To comply with high cleaning requirements, the cleaning system is individually customised or adapted to the requirements. This increases the cleaning capacity and sustains the required quality of the bath for a long time. The required cleaning capacity can therefore be ensured even for complex components with difficult geometric shapes.



Available features

- selection of the correct cleaning chemicals
- adaptation of the nozzles or integration of additional nozzle systems
- flood washing
- vacuum flood washing
- ultrasound cleaning
- increased pump rating
- water softening system
- manual spray lance or high-pressure cleaning lance
- filter techniques such as nominal or absolute filters
- full stream filters (single and twin reversing filters)
- automatic return flow filters
- magnetic bar inserts
- micro filtration
- degaussing systems

Objectives

- permanently ensuring the cleaning capacity
- meeting high cleaning requirements



Efficient drying

Fields of application

Different drying methods are available to meet the different requirements for drying results, depending on the components to be cleaned. The integration of external dryers can be practical where the available cycle time is short.



Objectives

- achieving the required drying degree
- increased throughput

Available features

- circulating air drying
- hot air drying
- compressed air impulse blowing device
- medium pressure blowing devices, heated and unheated
- high pressure blowing devices with side channel compressors
- vacuum drying: integrated or external in different sizes
- heating systems and heating tunnels

Workpiece holders suitable for washing

Fields of application

The workpiece holder is the link between workpiece and cleaning system, influencing result, duration and cost of parts cleaning. An optimally selected workpiece holder holds the workpiece securely, allows best possible accessibility for the cleaning medium, accelerates drying and minimises spread. Loading and unloading have to be easy and, if required, the workpiece holder also has to be suitable for use as a transport container in production.



Objectives

- meeting the requirements for cleaning and drying
- safety of the component during the cleaning process
- efficient process guiding through small amount of set-up work

Available features

- parts baskets with standardised accommodation systems
- development of adapted workpiece holders – for sensitive parts or complicated geometric shapes

Increased bath life

Fields of application

In the production process, bath changes are non-productive times when no cleaning can take place. Costs for manpower, cleaning agents, disposal and reheating of the bath also arise. The cleaning capacity of the bath can be extended by removing dirt from the bath during the process already and immediately compensating for loss of water and cleaning agents.



Objectives

- increased system availability
- minimisation of costs

Available features

- tank rinsing – to prevent deposits
- cascade guiding
- re-dosing of cleaning agents
- centrifuge
- plate phase separator
- band and return flow filters
- water softening and reverse osmosis systems
- evaporator
- mechanical discharge systems
- Libelle – bath monitoring to avoid spread

Saving energy

Fields of application

Due to the great consumption of thermal energy, cleaning is one of the energy intensive processes in manufacturing. The energy consumption of a cleaning system has an immediate effect on the manufacturing costs of parts. The **BvL** energy saving packages use two adjusting screws to reduce energy: they reduce the energy required for cleaning as well as energy losses of the system.

Objectives

- lower operating costs

**SIMPLY
SAVE
ENERGY!**

Available features

- determining the optimum bath temperature
- determining the optimum cleaning period
- steam condensers and mist eliminators
- flow optimised drying (for continuous processing systems)
- exhaust management
- insulation
- use of motors with high energy efficiency
- heat recovery
- bath heating systems: electric, gas, tube nest heat exchangers, heating coil, integration of technical heat or external heat



Decentralised supply for cleaning systems and central tanks

Fields of application

A concept with centralised supply can be practical if several cleaning systems with similar performance are required in the production process. The systems are supplied from central tanks. In some cases, the individual cleaning system is additionally equipped with a buffer tank. The systems become lean and space saving as bath maintenance devices and filter technology are only required on the central tank.



Objectives

- reduced acquisition costs if several cleaning systems are required
- expansion options
- central maintenance and service points
- minimisation of the required footprint

Available features

- central supply with tank, pump system and bath treatment
- decentralised supply for cleaning systems

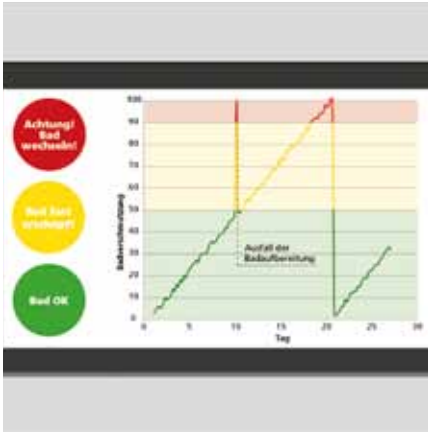
Process monitoring and quality control

Fields of application

In many areas, specific component cleanliness is a required characteristic of the workpiece – because the end customer demands an explicit level of cleanliness or because the cleanliness is required for the subsequent process. Bath condition and many other parameters can be monitored to ensure bath quality, cleaning results and therefore prevention of rejects. This makes the process controllable at all times.

Objectives

- inspection and ensuring of cleaning results
- minimisation of reject parts
- documentation of the cleaning process
- optimised bath life



Available features

- conductance measuring device
- monitoring of pump pressure and temperature
- Libelle Fluid Control – monitors bath contamination
- Libelle Oil Control – measures oil content in the medium
- Libelle Oil Control Solo – measures film contamination on the component surface
- Libelle Cleaner Control – measures cleaning agent concentration
- Libelle Data Control – documents process parameters

Emergency strategies and fail-safe operation

Fields of application

In many production facilities, the cleaning system is the “bottleneck” through which the components of several processing centres have to pass before they can be used in the further process. It is therefore important to have a system availability of virtually 100 %. A safety concept and the selection of suitable components minimise the probability of failure. The emergency strategy covers options for at least partially maintaining the cleaning operation despite possible malfunctions, e.g. through the use of modular, individually controllable systems or through components working in parallel or redundantly to at least partially compensate for the failure of individual components.

Objectives

- increased system availability
- ensuring cleaning capacity

Available features

- risk assessment
- remote diagnosis
- regular service and maintenance
- development of an emergency strategy
- creation of redundancies





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