



## Elimination of **ACB** bacteria

### Technical data:

efficiency:	up to 8 t/h
filtration surface:	50 m <sup>2</sup>
control system:	Simatic S-7
steam consumption:	ca. 300 kg/h
steam pressure:	5 bar
material:	AISI 304 / optionally AISI 316L

### Advantages of the **MONA System**:

- The only effective way to eliminate ACB
- Device that provides low unit cost of filtration
- Stand-alone device enabling processing at any time
- Does not require long operator training and the control interface is intuitive
- Ensures that the product is safe and constantly monitored throughout the entire process
- Optimum use of filter plates thanks to particular algorithm
- Tool ensuring consistent high quality and documentation of data archiving
- Manufactured with using top-quality components from reputable manufacturers



### Application:

The MONA System is a patented, compact device for the hygienic filtration process during which Alicyclobacillus (ACB) spores are eliminated from the concentrate.

We can also pasteurize it and cool the concentrate before transport.

### Principles of operation:

The principle of operation of the **MONA System** is based on three processes:

#### 1 Preheating:

The concentrate stored in the magazine is of high viscosity, which prevents the filtration from being effective. In order to allow filtration, its viscosity shall be lowered - this effect is achieved by rising the temperature in the heat exchanger and the regeneration section of the exchanger to the temperature set by the user (temperature range within 60-90°C). Alternatively, it can be retained for 30 seconds as a minimum at the desired temperature in the retention section.

#### 2 Filtration:

Filtration of preheated concentrate takes place on a two-piece plate filter. In the first section, there is prefiltration which eliminates larger impurities. Meanwhile, in the second sterile filtration, product is ensured with the complete elimination of microorganisms, including ACB spores. The juice after filtration process is a completely sterile product.

#### 3 Cooling down:

The sterile juice goes to the regeneration section of the heat exchanger, where it partially gives back the heat absorbed and then it is cooled to the set temperature on the cooling section in the heat exchanger. It is also possible to cool the product to a lower temperature than at the temperature on entrance.

The design of the MONA provides positive pressure difference both on the regeneration section and the cooling section, which nowadays is a required standard for food safety.

# ASEPTIC FILTRATION SYSTEM MONA – THE MONA SYSTEM

## Control system and operation:

The control program is designed in a manner which ensures the process is carried out with maximum product safety guaranteed.

MONA System operation has been simplified to the maximum extent possible. It is divided into two stages: washing and production.

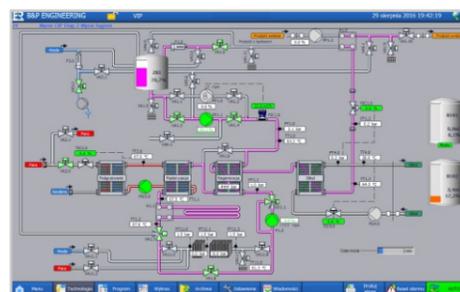
The operator selects the appropriate cleaning program, e.g. complete cleaning with acid and alkaline (or alkaline exclusively) according to the presetted cleaning formula. The MONA System can be connected to existing CIP installation in the factory or configured to perform a separate cleaning procedure. It is possible to extend the cleaning program by chemical disinfection.

After each cleaning step, a detailed report is available that can be saved to a pdf file or printed and used as a Quality Management System record.

The operator can start the production once the washing process has been completed. At that point, the operator selects the program and after pressing the "start" button the system fills with water and the thermal disinfection starts automatically.

Water in closed circuit is heated up to the setted temperature (usually about 125 °C) and after the specified time (e.g. 30 minutes), the device is sterile and ready for the product intake.

Parallel to thermal disinfection, the operator performs sterilization of the filtration section. After disinfection (central processing unit and filtration section), the system allows for further processing, i.e. product delivery and filtration.



**B&P Engineering**    **Report procesu mycia pasteryzatora MONA**    numer: 0

Informacja procesu CIP

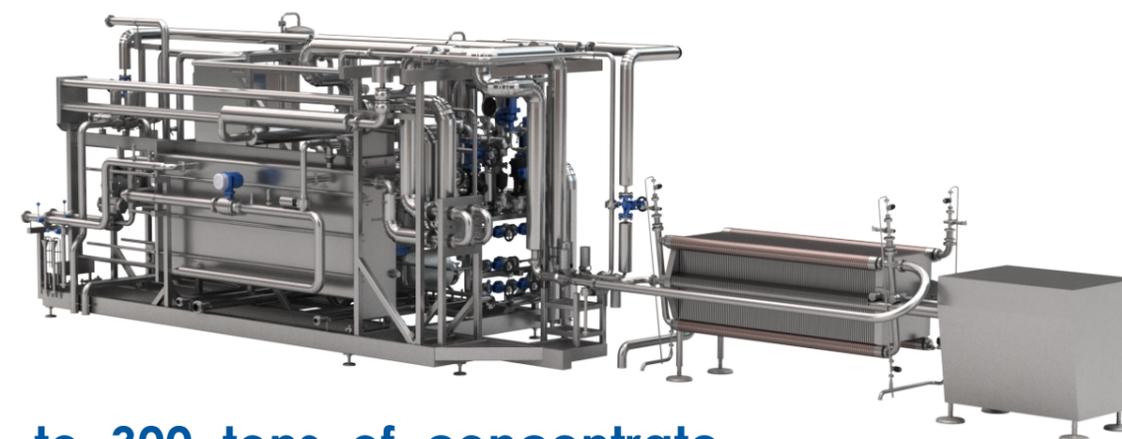
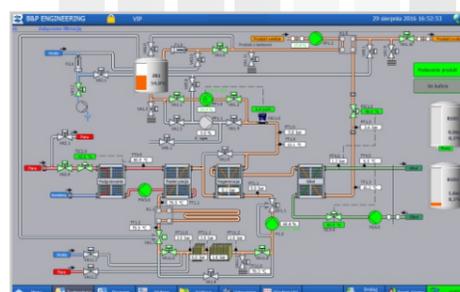
Nazwa:	Mona
Typ:	Soda - kwas
Start:	20 kwietnia 2017 12:00:00
Koniec:	20 kwietnia 2017 13:31:00
Case (min):	60
Tryb pracy:	Automatyczny

Informacja cykli mycia

Cykl	Start	Koniec	Czas (min)
1. Mycie "Soda"	20 kwietnia 2017 12:01:00	20 kwietnia 2017 12:31:00	30
2. Plukanie "Soda"	20 kwietnia 2017 12:32:00	20 kwietnia 2017 12:52:00	20
3. Mycie "Kwas"	20 kwietnia 2017 12:53:00	20 kwietnia 2017 13:13:00	20
4. Plukanie "Kwas"	20 kwietnia 2017 13:14:00	20 kwietnia 2017 13:30:00	15

Parametry zadane

Zadana wydajność:	25,0 m <sup>3</sup> /h
<b>Kwas</b>	
Czas mycia kwasem:	10 min
Stopień dla kwasu:	25 m <sup>3</sup> /cykl
Temp mycia kwasem:	65,0 °C
Czas płukania po kwasie:	10 min
<b>Woda</b>	
Czas mycia wodą:	10 min
Stopień dla wody:	1,5 m <sup>3</sup> /cykl
Czas dobowania dez.:	15 sec
Temp mycia dez.:	20,0 °C
Czas płukania po dez.:	5 min



Up to 300 tons of concentrate on one cover of filter plates

**B&P Engineering**    **Report procesu filtracji pasteryzatora MONA**    numer: 0

Informacja procesu filtracji

Nazwa:	Mona
Start:	20 kwietnia 2017 16:30:00
Koniec:	21 kwietnia 2017 16:30:00
Tryb pracy:	Automatyczny
Przebieganie:	TAK

Parametry zadane

Zadana wydajność:	5,0 m <sup>3</sup> /h
Zadany poziom ZB:	40 %
Temp pasteryzacji:	65,0 °C
Temp wyjściowa:	50,0 °C
Wartość wyzerowania BDK:	5,0 m <sup>3</sup> /h
Wartość wyzerowania grom:	1,00 g/cm <sup>3</sup>
Ilość wody do wyzerania:	200 l
Ilość wody do wyzerania:	500 l
Ciepłota zadana filtra:	5,00 bar
Ciepłota defaz 1:	2,00 bar
Ciepłota defaz 2:	1,50 bar



The operator launches filtration. The device is filled with the product, the water is removed from the system.

The MONA System automatically separates the mixed phase from the water.

During filtration, the system maintains the correct pressure difference on the sterile filtration section, ensuring the effectiveness of the process. Important process parameters are monitored and archived by the system. At the end of the production process, it is possible to generate a report, or any given time, display the parameters on the panel as a graph.

