

## **COMBI PROCESS BLOCK**

### **COMBIMIX DPM**

Combination of "Deaerator" - "Pasteurizer" and "Mixer&Carbonator".

This compound unit is specially developed to improve product quality in bottling plants **where both fruit juices and carbonated beverages are filled on the same line.**

Since pasteurization of fruit juice is done at the last point; just before filling, the risk of bacteriological contamination is minimized.

Besides that, while filling carbonated drinks, water-syrup mixture can be pasteurized also before carbonation process prior to sending to the filler.

The block is composed of  
**WATER DEAERATOR**  
**BLENDER for WATER & SYRUP**  
**PASTEURIZER & JUICE DEAERATOR**  
**CARBONATOR**



Suitable for;

- Deaeration of water
- Proportionally mix and dilute "high brix drinks" with "deaerated water" to make final brix product
- Pasteurize fruit juices and still drinks
- Add CO<sub>2</sub> proportionally

for fully automatic production of carbonated beverages, energy drinks, flavoured drinks, fruit juices, malt beverages and carbonated water.

### **DEAERATION & BLENDING SECTION**

- Syrup+water mixing ratio : **1+1 to 1+5**
- Principal of operation : Water – Syrup proportioned **by electronic flow control valves**
- Proportioning accuracy :  $\pm 0,05$  Brix
- Infeed water pressure :  $2,5 \div 3$  bar
- Infeed syrup pressure :  $1 \div 1,5$  bar
- Operating range :  $50 \div 100\%$  of nominal capacity
- No. of electronic flowmeters : **2 Endress+Hauser / Germany** (for syrup, water/syrup mixture)
- No. of flow control valves : **2** Hygienic modulating valves with electronic positioner and membrane actuator **(Make: Guth/Germany)**
- Number of pumps : **4** (Vacuum, water circulation, water boost, syrup)
- Vacuum pump : **Busch / Siemens-Nash Elmo**
- Water pump : **Packo/Belgium**
- Water circulation pump : **Packo/Belgium**
- Syrup pump : **Packo/Belgium**

### **General Specifications of Mixing Section**

- PLC controlled automation
- Large **color touch screen** operating panel with diagnostic display of all defects, warnings and process flow
- Completely stainless steel construction
- **Double stage vacuum deaeration** of water for minimizing residual air in water to increase capability of absorbing gas
- Water cooled vacuum pump
- Vacuum indicator and electromechanical vacuum tracing system
- **Electronic flowmeters** at syrup and product lines
- Setting of mixing ratio easily by entering parameters on touch screen panel through electronic control valves
- **Absolutely precise water/syrup proportioning ratio** obtained by continuous electronic measuring and correction system controlled by PLC
- Best product quality and **almost constant brix**
- Continuous measurement of pressure and temperature by electronic instrumentation
- Suitable for combined CIP-system including syrup room, mixer and filler which guarantees the highest standards of bacteriological safety
- **Electrical control panel** made of stainless steel frame
- Full automation by **PLC**
- Common Touch screen operator panel
- Fault finding messages on display panel
- Display of set and current product temperatures on screen
- All components including vacuum and product tanks mounted on a common frame

### **PASTEURIZER SECTION:**

Suitable for pasteurizing fruit juices and other drinks of max. 12-15 brix with pulp but without solid particles.

The products that can be processed by the pasteuriser:

- Fruit juices with pulp (but without particles)
- Fruit juices without pulp
- Fruit flavoured drinks
- Nectars
- Sugar solution

Product inlet temperature : 18°C

Deaeration temperature : 55÷65°C

Pasteurization temperature : 90÷105°C

Holding time : 30 seconds

Outlet temperature (for cold filling) : 25°C

### **General Specifications of Pasteurizer Section**

- Product heating by plate heat exchanger, made of AISI 316 stainless steel **widestream** type for juices with pulp
- **Heat recovery system** reducing steam and energy consumption
- **Possibility of automatic adjustment of pasteurizer capacity** by an analog signal received from downstream equipment
- **Closed balance tank at product inlet**, equipped with agitator, CIP spraying ball, level probe and inverter controlled centrifugal pump
- Product return to balance tank after reducing temperature by your cooling tower
- **Deaerator with flavour recovery** system for reutilization of aroma, complete with vacuum tank, sight glass, CIP spraying ball, level control, vacuum pump, vacuum controller, vacuum indicator and inverter controlled centrifugal pump
- **Recorder for pasteurization temperature** for future tracing
- **Electromagnetic flowmeters** for measurement of product flowrate
- **Inverter driven** centrifugal pump
- Automatically controlled valves at product-water and water product routes
- **One (1) Main Heating + Two (2) Regeneration + One (1) Cooling** sections in the system
- Closed circuit hot water circulation for product heating
- **Proportional pneumatic valve controlled by PID system** at steam circuit
- **Automatic modulating valve** on cooling circuit for keeping the product outlet temperature at constant set value
- All components mounted on a compact stainless steel frame

### **CARBONATOR SECTION:**

- Carbonation temperature : upto 10°C (ideal max 4÷6°C)
- CO<sub>2</sub> content : max 10 g/lit at 4°C
- CO<sub>2</sub> pressure : 8÷10 bar
- Operating range : 50÷100% of nominal capacity
- No. of electronic flowmeters : **2 Endress+Hauser / Germany**  
(for CO<sub>2</sub> and water/syrup mixture)
- No. of flow control valves : **2** Hygienic modulating valves with electronic positioner and membrane actuator  
**(Make: Guth/Germany)**
- Number of pumps : **2** (Carbonation and transfer pumps)
- Carbonation (mixing) pump : **Packo/Belgium**
- Product transfer pump to filler : **Packo/Belgium**

### **General Specifications of Carbonator Section**

- Completely stainless steel construction
- **Full automatic proportioning of CO<sub>2</sub> amount** in the final product by means of one extra flowmeter and electronic flow control valves
- Lower cooling load due to **higher carbonation temperature** which reduces the size and energy consumption of cooling compressors
- **Electronic flowmeters** at CO<sub>2</sub> and product lines
- Setting of CO<sub>2</sub> dosing easily by entering parameters on touch screen panel through electronic control valves
- Very **special carbonation nozzle** which provides higher carbonation effect
- Continuous measurement of pressure and temperature by electronic instrumentation
- Product tank with CO<sub>2</sub> gas pressure
- Automatic pressure regulation system with electronic valves in the product tank
- Safety relief valve and CIP spraying ball in the product tank
- Suitable for combined CIP-system including syrup room, carbonator and filler which guarantees the highest standards of bacteriological safety
- **Electrical control panel** made of stainless steel frame
- Full automation by **PLC**
- Common Touch screen operator panel
- Fault finding messages on display panel
- Display of set and current product temperatures on screen
- All components including vacuum and product tanks mounted on a common frame