

# BEV Systems

## Membrane Systems for Ingredient Water 23–195<sup>(1)</sup> m<sup>3</sup>/hr



### Features

- BEV Systems are configurable and integrate with pre-and post treatment options into a full GE Ingredient Water System.
- Two-pass and two-train designs ensure capability to meet product water requirements
- Stainless Steel construction for durability and suitability in a wet environment
- BEV Full-fit/Cage Wrap membrane elements for a more sanitary construction and permeate output
- Skid-mounted systems reduce onsite installation time and costs

### Configurable Options <sup>(2)</sup>

- Stainless steel housings <sup>(2)</sup>
- VFD for high pressure pump to optimize energy usage <sup>(2)</sup>
- Concentrate recovery: Additional In/off skid membrane area to improve water yield <sup>(2)</sup>
- Bank-by-bank cleaning <sup>(2)</sup>
- Pretreatment: Carbon, Multimedia Filters.
- In-line UV sterilizer
- Inlet chlorine monitor <sup>(2)</sup>
- Interbank pressure transmitters <sup>(2)</sup>
- Remote monitoring with data trending
- Stainless Steel Air Tubing <sup>(2)</sup>
- Leveling Feet <sup>(2)</sup>

### Documentation Included

- Operation and maintenance manual
- Drawings: process flow, piping and instrumentation, electrical and general arrangement
- CE Declaration of Conformity

### Operating Parameters

Recovery.....75% to 90%  
 Design temp..... 16°C  
 Operating range.....4-38°C  
 Minimum inlet pressure .....2 bar  
 Average membrane flux..... 27l/mh

### Materials of Construction

High-pressure piping..... 1.4404 SS, Mill Finish  
 Low-pressure piping..... 1.4404 SS, Mill Finish Frame  
 .....Stainless steel  
 Enclosures .....IP55 Stainless Steel

### NSF Certified Membrane Options

BEV RO	Standard Brackish RO
BEV ULE	Ultra-low energy RO
BEV RO CA	Chlorine tolerant RO
BEV NF CA	Chlorine tolerant NF for higher recovery.

### Cartridge Filtration

Housing material..... 1.4404 SS  
 Cartridge filter.....1-micron nominal, ROSave\*

**Table 1: Standard Instrumentation**

Flow*	Feed and concentrate
Conductivity	Feed, permeate
pH	Feed
Pressure	Pre-Filter, Post-Filter, Primary, Final, Permeate, Concentrate, Pump discharge, Inter-bank
Pressure Switch	Permeate, concentrate
Pressure Transmitter	Primary, final

\*Display of calculated permeate flow.

**Table 2: Major Component Manufacturers**

Equipment	Manufacturer
Cartridge Filter	AIS
Membrane Element	AIS
High Pressure Pump	Grundfos* or equivalent
Cartridge filter housing	AIS or equivalent
Membrane Housing	Wave Cyber (FRP) Puro (SS) or equivalents
Flow Measurement	Endress + Hauser or equivalent Endress
Conductivity, pH	+ Hauser or equivalent Siemens
HMI Components	TP-1500 Siemens
PLC Components	Simatic S7 Ghidini,
Valves	Inoxpa, or equivalents

## BEV Models

MODEL	BEV 24	BEV 36 (DP)	BEV 60 (DP)	BEV 72	BEV 72X2	BEV 108
Permeate rate <sup>(3)</sup> (m <sup>3</sup> /h):	23-33	34-49	57-81	68-98	136-195 68-98 per train	102-147
Permeate rate <sup>(3)</sup> with ICR (m <sup>3</sup> /h):	25-36	38-54	62-91	75-109	150-219 75 per train	112-164
Concentrate Rate (m <sup>3</sup> /h):	5-8	9-12	14-20	17-25	34-49 17-25 per train	25-37
Concentrate Rate with ICR (m <sup>3</sup> /h):	3-5	5-7	9-11	10-13	20-25 10-13 per train	15-19
Feed Rate (m <sup>3</sup> /h):	28-41	43-61	71-102	85-122	170-244 85 per train	127-183
<b>Pumps and Motors<sup>(4)</sup></b>						
Manufacturer:	Tonkaflo	Tonkaflo	Tonkaflo	Tonkaflo	Tonkaflo	Tonkaflo
Model:	AS22512	AS22512	AS40409	AS40409	AS40412	AS40409
Quantity:	1	1 / 2 (two-pass)	1 / 2 (two-pass)	1	2	2
Motor HP	50 HP	50 HP	75 HP	75 HP	75 HP	75 HP
<b>Membrane Elements and Housings</b>						
Membranes quantity:	24 (30 w ICR)	36 (42 w ICR)	60 (72w ICR)	72 (84 w ICR)	144 (168w ICR) (72 / 84 per train)	108 (120 w ICR)
Banking Arrangement:	3→2→1 (→1 w ICR)	3→2→1 (→1 w ICR)	5→3→2 (→2 w ICR)	6→4→2 (→2 w ICR)	6→4→2 (→2 w ICR) (per train)	9→6→3 (→2 w ICR)
--- 2P- two-pass configuration		84 (90 w ICR) 4→2→2 (→1 w ICR) 4→2	120 (132 w ICR) 6→4→2 (→2 w ICR) 4→2→2			
<b>Cartridge Filtration</b>						
Cartridge Filter:	ROZs01-40XK	ROZs01-40XK	ROZs01-40XK	ROZs01-40XK	ROZs01-40XK	ROZs01-40XK
Filter Quantity:	7	14	21	21	42 (21 per train)	28

Installation and Utility Requirements						
Inlet: Permeate: Concentrate: Inlet Water Pressure: Air Pressure: Drain to be Sized for:  (Connections DN Flanges)	TBD	TBD	TBD	DN100 DN100  DN50 2 bar min. 7bar, oil-free 85m3/h	2×DN100 2×DN100 2×DN50 2 bar min. 7bar, oil-free 170m3/h	TBD
Power: Control Circuit:	680 VAC, 3-phase 50Hz 220 VAC, 1- phase, 50Hz					
Skid						
Height (cm): Width (cm): Length (cm): Shipping Weight (kg):	TBD	TBD	TBD	TBD	310 243 715 9200	TBD

- (1) Mechanical details of system may vary based on capacity, membrane element and operating conditions. Please contact for guidance on product selection based on specific project requirements.
- (2) List of common options that can be configured to the BEV RO Unit or Complete BEV Systems. For specifics on features or other options please contact.
- (3) Actual permeate flow will vary based on feed water quality and the desired operating conditions.
- (4) Motor and Pump standards for lower range of model permeate range.