

# Softening

Salts of calcium and magnesium have low solubility. In water they are collectively called “hardness” and cause a variety of problems in industrial water use, including:

- Scale in cooling towers, causing blockages
- Scale in low pressure steam boilers, reducing heat transfer efficiency
- Fouling in reverse osmosis systems, causing loss of performance
- Scale in hot water calorifiers (heaters), reducing heat transfer efficiency
- Scum in laundries, reducing efficiency of detergents
- Deposits in domestic hot and cold water services, contributing to Legionella problems
- Streaky deposits in glass and bottle washing

Ion exchange softening is the most widely used softening process. Water is passed through a bed of cation exchange resin where calcium and magnesium ions are removed from the water in exchange for sodium ions. When the sodium ions on the resin have been replaced by calcium or magnesium ions, the softening reaction stops and the resin need to be regenerated. Regeneration is achieved by passing a salt solution through the resin bed.



# Berkoion™ Softeners

## Compact Range



Berkoion™ compact softeners provide high quality softened water for industrial applications.

Flow rates from **0.5 to 3.0 m<sup>3</sup>/hr.**

### Features & Benefits

- Compact designs with integrated brine tanks; space saving, easy installation
- Simplex, duplex and quadruplex options; flexibility, continual flow of softened water
- Volume or time based automatic regeneration; minimal operator involvement
- Optimized hydraulic conditions; reduce salt usage, low cost per litre of treated water

### A-Series

- Automatically regenerated after 4 days without use; bacterial control, avoids resin problems
- Complete disinfection during regeneration; bacterial control
- Electronic display; simple monitoring and operation

### Applications

- Boiler feed
- Glass washing
- Cleaning and rinse waters
- RO feed water
- General manufacturing
- Domestic

### Related Services

Local after-sales service and support teams offer preventative and corrective maintenance programs to ensure the long-term, efficient operation of installed plant.

# Berkoion™ Softeners

## System Performance

Model	Flow Rates*	Capacity	Salt Usage Per Regen.	Connection	Working Pressures	Width	Height	Depth
	m <sup>3</sup> /hr	kg CaCO <sub>3</sub>	kg	inches	bar	mm	mm	mm
<b>Z Series</b>								
<b>Simplex, time controlled</b>								
<b>Z7 KV</b>	0.5 - 0.6	0.5	1.75	R 1	1.4 - 8.5	500	665	465
<b>Z15 KV</b>	1.0 - 1.2	1.1	3.75	R 1	1.4 - 8.5	570	1090	435
<b>A Series</b>								
<b>Simplex, volume controlled</b>								
<b>A4 KV</b>	1.9 - 2.1	0.18	0.36	Rp 1	1.4 - 8.0	500	665	320
<b>A13 KV</b>	2.0 - 2.3	0.64	1.17	Rp 1	1.4 - 8.0	590	1090	280
<b>Duplex and quadruplex, volume controlled</b>								
<b>A5 KV</b>	1.8	0.13	0.29	Rp 1	2.0 - 8.0	380	990	430
<b>A10 KV</b>	3.0	0.25	0.54	Rp 1	2.0 - 8.0	380	1050	494

\*A Series - With pressure loss of 0.8 bar and mixing from 20 to 8°dH (358 to 143 ppm CaCO<sub>3</sub>)

Z7 KV - With pressure loss of 0.17 bar at 0.6 m<sup>3</sup>/h

Z15 KV - With pressure loss of 0.32 bar at 1.2 m<sup>3</sup>/h

## Material Specifications

Resin Vessels	Glass Reinforced Plastic (GRP)
Brine Tanks	Polyethylene (PE)

## Feed Water Supply Quality

Potable water free from organic contamination and suspended matter. Maximum temperature 30°C (40°C for Z7 KV and Z15 KV).

## Electrical Supply

All models 230V 50Hz standard

**For higher flow rate applications consult your local Veolia Water Solutions & Technologies company, details below.**

In keeping with the progressive nature of the company, we reserve the right to amend details without notice.

VWS CATALOGUE/Berkoion™ Compact Range/AQF0013\_EN\_V1.2

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# Berkoion™ Softeners

Classic Simplex Range



Berkoion™ Classic Simplex softeners provide high quality softened water for industrial applications.

Flow rates from **1 to 17 m<sup>3</sup>/hr.**

## Features & Benefits

- Proven designs and materials; efficient operation, easy to maintain, reliable
- Volume or time controlled, automatic or semi-automatic regeneration; minimal operator involvement

## Specific models

- Bercore™ counter current regeneration; reduces salt usage and waste, improves treated water quality
- Advanced controller with LCD display; range of control options, easy to use, integrates with centralized control systems

## Applications

- Boiler feed
- Glass washing
- Cleaning and rinse waters
- RO feed water
- General manufacturing

## Related Services

Local after-sales service and support teams offer preventative and corrective maintenance programs to ensure the long-term, efficient operation of installed plant.

# Berkoion™ Softeners

## System Performance

Model	Flow Rates	Capacity	Salt Usage Per Regen.	Connection	Working Pressures	Width	Height	Depth
	m <sup>3</sup> /hr	kg CaCO <sub>3</sub>	kg	Rp (inches)/DN(mm)	bar	mm	mm	mm
<b>Time controlled, semi automatic</b>								
H20	1.0 - 1.3	1.4	5.0	Rp ¾	2.0 - 8.5	725	995	390
H30	1.5 - 2.0	2.1	7.5	Rp ¾	2.0 - 8.5	910	1001	530
H50	2.5 - 3.0	3.6	12.5	Rp ¾	2.0 - 8.5	910	1472	530
ZH25	1.4 - 2.0	1.8	6.25	Rp 1	1.4 - 8.5	750	1120	390
ZH50	2.5 - 3.0	3.6	12.5	Rp 1	1.4 - 8.5	935	1450	530
<b>Time controlled, automatic, CC</b>								
AZ25	1.4 - 2.0	1.3	2.3	Rp 1	1.8 - 8.5	768	1120	390
AZ45	2.3 - 3.2	2.3	4.1	Rp 1	2.0 - 8.5	935	1590	530
AZ70	2.8 - 3.5	3.5	6.3	Rp 1	2.0 - 8.5	976	1596	530
AZ90	4.0 - 5.0	4.5	8.1	Rp 1	2.5 - 8.5	1055	1867	600
AZ105	6.0 - 7.2	4.8	8.55	DN 40	2.0 - 8.5	1198	1918	600
AZ150	8.0 - 10.0	7.1	12.6	DN 40	2.5 - 8.5	1570	1928	930
AZ250	12.0 - 14.0	12.2	21.6	DN 50	2.5 - 8.5	1702	1895	930
AZ350	15.0 - 17.0	17.3	30.6	DN 50	2.5 - 8.5	1973	2228	1120
<b>Volume controlled, automatic, CC</b>								
AWA25	1.4 - 2.0	1.3	2.5	Rp 1	1.8 - 8.5	768	1141	390
AWA45	2.3 - 3.2	2.3	4.0	Rp 1	2.0 - 8.5	935	1620	530
AWA70	2.8 - 3.5	3.5	6.5	Rp 1	2.0 - 8.5	976	1611	530
AWA90	4.0 - 5.0	4.5	8.0	Rp 1	2.5 - 8.5	1080	1886	600
AW105	6.0 - 7.2	4.8	8.6	DN 40	2.0 - 8.5	1198	1918	600
AW150	8.0 - 10.0	7.1	12.6	DN 40	2.5 - 8.5	1570	1928	930
AW250	12.0 - 14.0	12.2	21.6	DN 50	2.5 - 8.5	1702	1895	930
AW350	15.0 - 17.0	17.3	30.6	DN 50	2.5 - 8.5	1973	2228	1120

CC = Bercore™ counter current regeneration

## Displays & Controllers

Electronic Controller	AZ Series
Microprocessor Controller with LED Display	AW25, AW45, AW70, AW90

### AW105, AW150, AW250, AW350

Advanced microprocessor controller with LCD display. Intuitive symbol based keypad; programmable with retentive memory; indication of current flow rate, capacity remaining before next regeneration; pulse input. May be connected to centralized control system.

## Material Specifications

Resin Vessels	Glass Reinforced Plastic (GRP)
Brine Tanks	Polyethylene (PE)

## Feed Water Supply Quality

Potable water free from organic contamination and suspended matter. Maximum temperature 30°C (65°C for ZH25 and ZH50).

## Electrical Supply

230V 50Hz standard (no supply necessary for H20, H30 and H50)

**For higher flow rate applications consult your local Veolia Water Solutions & Technologies company, details below.**

In keeping with the progressive nature of the company, we reserve the right to amend details without notice.

VWS CATALOGUE/Berkoion™ Classic Simplex Range/AQF0014\_EN\_V2.1

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# Berkoion™ Softeners

Classic Duplex Range



Berkoion™ Classic Duplex softeners provide high quality softened water for industrial applications.

Flow rates from **1.4 to 17 m<sup>3</sup>/hr.**

## Features & Benefits

- Proven designs and materials; efficient operation, easy to maintain, reliable
- Volume or sensor controlled automatic regeneration; minimal operator involvement, efficient operation
- Bercore™ counter current regeneration; reduces salt usage and waste, lowers cost per litre of treated water, improves treated water quality
- Duplex design; continual flow of treated water

## Specific models

- Advanced controller with LCD display; range of control options, easy to use, integrates with centralized control systems

## Applications

- Boiler feed
- Glass washing
- Cleaning and rinse waters
- RO feed water
- General manufacturing

## Related Services

Local after-sales service and support teams offer preventative and corrective maintenance programs to ensure the long-term, efficient operation of installed plant.

# Berkoion™ Softeners

## System Performance

Model	Flow Rates	Capacity	Salt Usage Per Regen.	Connection	Working Pressures	Width	Height	Depth
	m <sup>3</sup> /hr	kg CaCO <sub>3</sub>	kg	Rp (inches)/DN(mm)	bar	mm	mm	mm
<b>Volume controlled</b>								
AWA 2-25	1.4 - 2.0	1.3	2.5	Rp 1	1.8 - 8.5	1110	1087	390
AWA 2-45	2.3 - 3.2	2.3	4.0	Rp 1	2.0 - 8.5	1310	1577	530
AWA 2-70	2.8 - 3.5	3.5	6.5	Rp 1	2.0 - 8.5	1447	1556	530
AWA 2-90	4.0 - 5.0	4.5	8.0	Rp 1	2.0 - 8.5	1579	1832	600
AW 2-105	6.0 - 7.2	4.8	8.6	DN 40	2.0 - 8.5	1748	1918	650
AW 2-150	8.0 - 10.0	7.1	12.6	DN 40	2.5 - 8.5	2190	1928	980
AW 2-250	12.0 - 14.0	12.2	21.6	DN 50	2.5 - 8.5	2482	1895	995
AW 2-350	15.0 - 17.0	17.3	30.6	DN 50	2.5 - 8.5	2853	2228	1185
<b>Sensor controlled</b>								
AWS 2-105	6.0 - 7.2	4.8	8.6	DN 40	2.0 - 8.5	1748	1918	650
AWS 2-150	8.0 - 10.0	7.1	12.6	DN 40	2.5 - 8.5	2190	1928	980
AWS 2-250	12.0 - 14.0	12.2	21.6	DN 50	2.5 - 8.5	2482	1895	995
AWS 2-350	15.0 - 17.0	17.3	30.6	DN 50	2.5 - 8.5	2650	2228	1185

## Displays & Controllers

**AW 2-25, AW 2-45, AW 2-70, AW 2-90**

Microprocessor controller with LED display.

**AW(S)105, AW(S)150, AW(S)250, AW(S)350**

Advanced microprocessor controller with LCD display. Intuitive symbol based keypad; programmable with retentive memory; indication of current flow rate, capacity remaining before next regeneration; pulse input. May be connected to centralized control system.

## Material Specifications

Resin Vessels	Glass Reinforced Plastic (GRP)
Brine Tanks	Polyethylene (PE)

## Feed Water Supply Quality

Potable water free from organic contamination and suspended matter. Maximum temperature 40°C.

## Electrical Supply

All models 230V 50Hz standard

**For higher flow rate applications consult your local Veolia Water Solutions & Technologies company, details below.**

In keeping with the progressive nature of the company, we reserve the right to amend details without notice.

VWS CATALOGUE/Berkoion™ Classic Duplex Range/AQF0040\_EN\_V2.1

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# Berkoion™ Softeners

High Flow Duplex Range



Berkoion™ High Flow Duplex softeners provide high quality softened water for industrial applications.

Flow rates from **2.7 to 68 m<sup>3</sup>/hr.**

## Features & Benefits

- Proven designs and materials; efficient operation, easy to maintain, reliable
- Volume or sensor controlled automatic regeneration; minimal operator involvement, efficient operation
- Bercore™ counter current regeneration; reduces salt usage and waste, lowers cost per litre of treated water, improves treated water quality
- Duplex design; continual flow of treated water
- Multiple individual valves; reduce pressure loss by almost 50% compared to single valve systems
- Advanced controller with LCD display; range of control options, intuitive operation, integrates with centralized control systems

## Applications

- Boiler feed
- Glass washing
- Cleaning and rinse waters
- RO feed water
- General manufacturing

## Related Services

Local after-sales service and support teams offer preventative and corrective maintenance programs to ensure the long-term, efficient operation of installed plant.

# Berkoion™ Softeners

## System Performance

Model	Flow Rates	Capacity	Salt Usage Per Regen.	Connection	Working Pressures	Width	Height	Depth
	m <sup>3</sup> /hr	kg CaCO <sub>3</sub>	kg	mm	bar	mm	mm	mm
<b>Volume controlled</b>								
AW 2-550	2.7 - 27.0	28.0	49.5	DN 80/80	3.0 - 8.5	3195	2650	1390
AW 2-800	3.9 - 39.0	40.7	72.0	DN 100/80	3.0 - 8.5	3945	2735	1695
AW 2-1050	5.1 - 51.0	53.4	94.5	DN 100/80	3.0 - 8.5	4490	2815	1770
AW 2-1400	6.8 - 68.0	71.2	126.0	DN 100/100	3.0 - 8.5	4665	2910	1925
<b>Sensor controlled</b>								
AWS 2-550	2.7 - 27.0	28.0	49.5	DN 80/80	3.0 - 8.5	3195	2650	1390
AWS 2-800	3.9 - 39.0	40.7	72.0	DN 100/80	3.0 - 8.5	3945	2735	1695
AWS 2-1050	5.1 - 51.0	53.4	94.5	DN 100/80	3.0 - 8.5	4490	2815	1770
AWS 2-1400	6.8 - 68.0	71.2	126.0	DN 100/100	3.0 - 8.5	4665	2910	1925

\*All models require a source of compressed air

## Displays & Controllers

### AW Series

Advanced microprocessor controller with LCD display. Intuitive symbol based keypad; programmable with retentive memory; indication of current flow rate, capacity remaining before next regeneration; pulse input. May be connected to centralized control system.

### AWS Series

Same as AW Series plus RS232 interface, data retrieval at distance via modem, 14 day storage of operational data, device specific visuals.

## Material Specifications

Resin Vessels	Glass Reinforced Plastic (GRP)
Brine Tanks	Polyethylene (PE)
Pipework	Polyvinyl Chloride (PVC)

## Feed Water Supply Quality

Potable water free from organic contamination and suspended matter. Maximum temperature 40°C.

## Electrical Supply

All models 230V 50Hz standard

**For higher flow rate applications consult your local Veolia Water Solutions & Technologies company, details below.**

In keeping with the progressive nature of the company, we reserve the right to amend details without notice.

VWS CATALOGUE/Berkoion™ High Flow Duplex Range/AQF0043\_EN\_V1.2

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