

Valve Programs

Clack control valves are state of the art automatic valves that cover a broad range of global applications. they are designed for residential, commercial and industrial use with sizes up to 3" and flow rates up to 250 GPM (56.8 m³/hr).

As for backwash, the valves can service tanks up to 63" inch diameter. The cycles can be set for downflow or upflow regeneration, or simply service, backwash and rinse and are the easiest valves to service in the industry.

The valves come in different program versions and are controlled by solid state microprocessors with front panel settings and screen display. they are simple to configure for use in multiple tank systems.

The valves have a complete line of accessories including stainless steel flow meters, motorized alternating valves, no hard water bypass and system controllers.

Program Features (International)

TC valves Pre-programmed/Time Clock



- TC option on WS1 only
- 10 selectable pre-programmed backwash/regeneration cycles (time controlled)
- Economical and simple to operate
- 8 hr. battery back-up
- Two calendar options: 1-99 days or 7 days
- Double backwash feature available
- Treated water regenerant refill
- Stores system configuration and data in non-volatile memory
- Front panel display
- Microswitches available
- Downflow regeneration

EI valves Metered or Time Clock



- Four modes of operation: meter immediate, meter delayed, time clock, or pressure differential
- Adjustable 6-cycle controls (time clock or meter control)
- 8 hr. battery back-up
- Double backwash feature available
- Treated water regenerant refill
- Front panel display with totalizer
- Microswitches available
- Downflow regeneration
- Solar powered option
- Twin alternating option
- Mixing valve option

CI valves Fully Programmable



- Four modes of operation: meter immediate, meter delayed, time clock, or pressure differential
- Fully programmable backwash & regeneration cycles (up to 9 cycles)
- Program in PPM, French & German degrees, or cubic meter
- Low salt alarm
- 8 hr. battery back-up
- Treated water regenerant refill
- Stores system configuration and data in non-volatile memory
- Front panel display
- Microswitches available
- Downflow or Upflow regeneration (1" only)
- Twin alternating option
- Mixing valve option

Valve Specifications



**WS1 / WS1.25
TC**



**WS1 / WS1.25
CI**



**WS1 / WS1.25
EI**



**Solar panel
WS1-WS2**



WS1.5 CI



WS1.5 EI

WS1 VALVE SPECIFICATIONS

SERVICE FLOW @ 15 PSI DROP	BACKWASH FLOW @ 25 PSI DROP	PRESSURE/ TEMP (RANGE)	TANK SIZE APPLICATION (DIAMETER)	MOUNTING BASE	PILOT SIZE
27 GPM (6.1 m ³ /hr)	27 GPM (6.1 m ³ /hr)	20-125 PSI 1.4-8.6 bar & 40-110 °F 4.5-43 °C	8" - 21" Softener or 8" - 21" Filter	Top mount 2 ½" (8 NPSM)	1.05" OD pipe

- Valve body: High strength composite plastic
- WS1 is available with:
 - Solar power (SP)
 - Flow meters
 - Mixing valve
 - Microswitches
 - Motorized alternating valves
 - No hard water bypass
- AC power requirements:
 - US cord: 110V/12V
 - European, UK, Australian cord: 220-240V/12V
- Fittings: NPT or BSPT options

WS1.25 VALVE SPECIFICATIONS

SERVICE FLOW @ 15 PSI DROP	BACKWASH FLOW @ 25 PSI DROP	PRESSURE/ TEMP (RANGE)	TANK SIZE APPLICATION (DIAMETER)	MOUNTING BASE	PILOT SIZE
34 GPM (7.7 m ³ /hr)	32 GPM (7.3 m ³ /hr)	20-125 PSI 1.4-8.6 bar & 40-110 °F 4.5-43 °C	8" - 21" Softener or 8" - 21" Filter	Top mount 2 ½" (8 NPSM)	1.32" OD pipe or 32mm OD pipe

- Valve body: High strength composite plastic
- WS1.25 is available with:
 - Solar power (SP)
 - Flow meters
 - Mixing valve
 - Microswitches
 - Motorized alternating valves
 - No hard water bypass
- AC power requirements:
 - US cord: 110V/12V
 - European, UK, Australian cord: 220-240V/12V
- Fittings: NPT or BSPT options

WS1.5 VALVE SPECIFICATIONS

SERVICE FLOW @ 15 PSI DROP	BACKWASH FLOW @ 25 PSI DROP	PRESSURE/ TEMP (RANGE)	TANK SIZE APPLICATION (DIAMETER)	MOUNTING BASE	PILOT SIZE
70 GPM (15.9 m ³ /hr)	52 GPM (11.8 m ³ /hr)	20-125 PSI 1.4-8.6 bar & 40-110 °F 4-43 °C	12" - 24" Softener or 12" - 30" Filter	Top mount 4" (8 UN)	1.5" NPS or 50mm OD pipe

- Valve body: Epoxy coated lead-free brass
- WS1.5 is available with:
 - Solar power (SP)
 - Flow meters
 - No hard water bypass
 - Microswitches
 - Motorized alternating valves
- AC power requirements:
 - US cord: 110V/12V
 - European, UK, Australian cord: 220-240V/12V
- In/Out connection: 1.5" NPT or BSPT



WS2 CI



WS2 EI

WS2 & WS2QC VALVE SPECIFICATIONS

SERVICE FLOW @ 15 PSI DROP	BACKWASH FLOW @ 25 PSI DROP	PRESSURE/TEMP (RANGE)	TANK SIZE APPLICATION (DIAMETER)	MOUNTING BASE	PILOT SIZE
WS2 115 GPM (26.1 m ³ /hr)	WS2 80 GPM (18.2 m ³ /hr)	20-125 PSI 1.4-8.6 bar & 40-110 °F 4-43 °C	18" - 48" Softener or 18" - 36" Filter	Top mount 4"-8 UN, 6" flange	1.5" NPS or 50mm OD pipe
WS2QC 115 GPM (26.1 m ³ /hr)	WS2QC 80 GPM (18.2 m ³ /hr)			6" flange or side mount	2" NPS or 63mm OD pipe

- Valve body: Epoxy coated lead-free brass
- WS2 is available with:
 - Solar power (SP)
 - Microswitches
 - Flow meters
 - Motorized alternating valves
 - No hard water bypass
- In/Out connection: 2" NPT, BSPT or Quick-Connect

WS2H VALVE SPECIFICATIONS



WS2H

SERVICE FLOW @ 15 PSI DROP	BACKWASH FLOW @ 25 PSI DROP	PRESSURE/TEMP (RANGE)	TANK SIZE APPLICATION (DIAMETER)	MOUNTING BASE	PILOT SIZE
125 GPM (28.4 m ³ /hr)	125 GPM (28.4 m ³ /hr)	20-125 PSI 1.4-8.6 bar & 40-110 °F 4.5-43 °C	24" - 63" Softener or 24" - 48" Filter	Top mount 4" or 6" Flange or Side mount	2" FNPT or 63mm OD pipe

- Valve body: Epoxy coated lead-free brass
- WS2H is available with:
 - Bypass Assembly
- In/Out connection: 2" NPT, BSPT or Victaulic

WS3 VALVE SPECIFICATIONS



WS3

SERVICE FLOW @ 15 PSI DROP	BACKWASH FLOW @ 25 PSI DROP	PRESSURE/TEMP (RANGE)	TANK SIZE APPLICATION (DIAMETER)	MOUNTING BASE	PILOT SIZE
250 GPM (56.8 m ³ /hr)	220 GPM (50 m ³ /hr)	20-125 PSI 1.4-8.6 bar & 40-110 °F 4.5-43 °C	24" - 63" Softener or 24" - 63" Filter	Top mount 6" Flange or Side mount	3" NPS or 90mm OD pipe

- Valve body: Epoxy coated lead-free brass
- WS3 is available with:
 - Motorized alternating valves
 - Flow meters
 - No hard water bypass
- In/Out connection: 3" NPT or BSPT

Optional Valve Accessories & Distributors



Typical WS1 MAV Assy.



WS1 NHW Bypass



WS1 MAV



Weather Covers



Typical WS1.5 - WS2 MAV Assy.



WS1.5 - WS3 NHW Bypass



WS1.5 - WS3 MAV



Inline Flow Meters



Solar Panel



1" Bypass



Microswitch



Side Mount Base



WS1 Bottom Basket



WS1 Top Basket



Top Stack D1225



Top Stack D1199



Bottom Hub & Lateral
DKSH-High Flow



Bottom Hub & Lateral
D71-Series



Bottom Hub & Lateral
DKSHL

Clack Mineral Tanks



Colors: Blue, Natural, Black, Almond & Grey

MADE IN USA

Clack Mineral Tanks are made to ensure reliable performance for many years. The fiberglass filament winding covers a high performance composite high density polyethylene (HDPE) liner. The design provides a continuous seamless inner liner with a glass filled polypropylene inlet for higher strength and pressure capabilities. Tanks are available from 8" to 24" diameter, 2.5" and 4" - 8 NPSM top opening.

FEATURES:

- For water softener/filtration applications
- 5 year warranty for 8"-24" vessels

MATERIAL OF CONSTRUCTION:

- Inner liner high density polyethylene
- Threaded inlet glass filled polypropylene

OPERATING PARAMETERS:

- Maximum operating pressure: 150 psi (10.34 bars)
- Maximum operating temperature: 120°F (48.8°C)



Certified to NSF/ANSI 61

CLACK DESIGN PARAMETERS:

- Safety factor: 4:1
- Minimum burst at 600 psi (41.36 bars)
- Tested to 100,000 cycles / 0-150 psi without leakage

NSF DESIGN PARAMETERS:

- Safety factor: 4:1
- Minimum burst at 600 psi (41.36 bars)
- Tested to 100,000 cycles / 0-150 psi without leakage

Tank Size (Inches)	Top Opening (Inches)	Qty per Bulk Pack
8 x 35*	2.5	18
8 x 40	2.5	18
8 x 44	2.5	18
9 x 35*	2.5	16
9 x 40	2.5	16
9 x 48	2.5	16
10 x 35*	2.5	16
10 x 40	2.5	16
10 x 44	2.5	16
10 x 47	2.5	16
10 x 54	2.5	16
12 x 48	2.5	9
12 x 52	2.5	9
13 x 54	2.5	9
14 x 65**	4	1
16 x 65**	4	1
18 x 65**	4	1
21 x 62**	4	1
24 x 72**	4	1

*Available with or without base

**Please check for availability

Distributors

Distributors For WS1 & WS1.25

Control Valves	Distributor Pipe OD	Upper Distributor	Bottom Distributor	Bottom Distributor	Bottom Distributor	Bottom Distributor
WS1	1.05" OD	D1203 basket or D1225-05 Stack	D1236 Basket (For 2 1/2" top Tanks)	D1212-04 Stack (For 2 1/2" top Tanks)	D7178-04 Hub & Lateral (14"-16" Tanks, 4" top)	D7179-04 Hub & Lateral (For 18"-24" Tanks, 4" top)
WS1.25 Option 1	32mm OD	D1203-03 Basket or D1225-12 Stack	D1238 Basket (For 2 1/2" top Tanks)	D1212-23 Stack (For 2 1/2" top Tanks)	D7178-03 Hub & Lateral, (14"-16" Tanks, 4" top)	D7179-03 Hub & Lateral (For 18"-24" Tanks, 4" top)
WS1.25 Option 2	1.32" OD	D1203-02 Basket or D1225-08 Stack	D1237 Basket (For 2 1/2" top Tanks)	D1212-21 Stack (For 2 1/2" top Tanks)	D7178-02 Hub & Lateral, (14"-16" Tanks, 4" top)	D7179-02 Hub & Lateral (For 18"-24" Tanks, 4" top)

Distributors For WS1.5

Control Valves	Distributor Pipe OD	Upper Distributor	Upper Diffuser	Upper Diffuser supplied w/valve	Bottom Distributor	Bottom Distributor	Bottom Distributor	Bottom Distributor
WS1.5 BSPT	50mm OD	D1199-04 Stack (for 4" top tanks)	D1200-02 Stack (Flanged tanks)	D1300	D1197-09 Stack (For 4" top tanks)	D7178-09 Hub & Lateral, (14"-16" Tanks, 4" top)	D7179-09 Hub & Lateral, (18"-24" Tanks, 4" top)	D7180-09 Hub & Lateral, (For 30" Tanks, 4" top)
WS1.5 NPT	1.9" OD (1.5" NPS)	D1199 Stack (for 4" top tanks)	D1200-01 Stack (Flanged tanks)	D1300	D1197-07 Stack (For 4" top tanks)	D7178-07 Hub & Lateral, (14"-16" Tanks, 4" top)	D7179-07 Hub & Lateral, (18"-24" Tanks, 4" top)	D7180-07 Hub & Lateral, (For 30" Tanks, 4" top)

Distributors For WS2

Control Valves	Distributor Pipe OD	Upper Distributor	Upper Diffuser	Upper Diffuser supplied w/valve	Bottom Distributor	Bottom Distributor	Bottom Distributor	Bottom Distributor	Bottom Distributor
WS2 BSPT	50mm OD	D1199-04 Stack (for 4" top tanks)	D1200-02 Stack (Flanged tanks)	D1300	D7179-09 Hub & Lateral, (For 18"-24" Tanks, 4" top)	D7180-09 Hub & Lateral, (30" Tanks, 4" top)	*DKSHL36TM- 63MMS Hub & Lateral, (36" Tanks, 6" flange top)	*DKSHL42TM- 63MMS Hub & Lateral, (42" Tanks, 6" flange top)	*DKSHL48TM- 63MMS Hub & Lateral, (48" Tanks, 6" flange top)
WS2 NPT	1.9" OD (1.5" NPS)	D1199 Stack (for 4" top tanks)	D1200-01 Stack (Flanged tanks)	D1300	D7179-07 Hub & Lateral, (For 18"-24" Tanks, 4" top)	D7180-07 Hub & Lateral, (30" Tanks, 4" top)	**DKSHL36TM2S Hub & Lateral, (36" Tanks, 6" flange top)	**DKSHL42TM2S Hub & Lateral, (42" Tanks, 6" flange top)	**DKSHL48TM2S Hub & Lateral, (48" Tanks, 6" flange top)

Selection by customer may vary depending on flow, pressure drop and media used.

* Requires a 63 x 50 mm DKS6350MM Bushing

**Requires a PVC 2" x 1.5 Bushing

Distributors For WS2QC

Control Valves	Distributor Pipe OD	Upper Distributor	Upper Diffuser	Upper Diffuser supplied w/Valve	Bottom Distributor	Bottom Distributor	Bottom Distributor	Bottom Distributor	Bottom Distributor
WS2QC BSPT	63mm OD	D1199-05 Stack (For 4" top adaptor)	D1200-04 Stack (Flanged tanks)	D1300-01	DKSHL24TM-63MMS Hub & Lateral, (24" Tanks, 6" flange top)	DKSHL30TM-63MMS Hub & Lateral, (30" Tanks, 6" flange top)	DKSHL36TM2S Hub & Lateral, (36" Tanks, 6" flange top)	DKSHL42TM-63MMS Hub & Lateral, (42" Tanks, 6" flange top)	DKSHL48TM-63MMS Hub & Lateral, (48" Tanks, 6" flange top)
WS2QC NPT	2.375" (2" NPS)	D1199-02 Stack (For 4" top adaptor)	D1200-03 Stack (Flanged tanks)	D1300-01	DKSHL24TM2T Hub & Lateral, (24" Tanks, 6" flange top)	DKSHL30TM2S Hub & Lateral, (30" Tanks, 6" flange top)	DKSHL36TM-63MMS Hub & Lateral, (36" Tanks, 6" flange top)	DKSHL42TM2S Hub & Lateral, (42" Tanks, 6" flange top)	DKSHL48TMLS Hub & Lateral, (48" Tanks, 6" flange top)

Distributors For WS2H

Control Valves	Distributor Pipe OD	Upper Distributor	Upper Diffuser	Upper Diffuser supplied w/Valve	Bottom Distributor	Bottom Distributor	Bottom Distributor	Bottom Distributor	Bottom Distributor
WS2H BSPT	63 mm OD	D1199-05 Stack (for 4" top adaptor)	D1200-04 Stack (Flanged tanks)	D1300-01	DKSHL24TM-63MMS Hub & Lateral, (24" Tanks, 6" flange top)	DKSHL30TM-63MMS Hub & Lateral, (30" Tanks, 6" flange top)	DKSHL36TM-63MMS Hub & Lateral, (36" Tanks, 6" flange top)	DKSHL42TM-63MMS Hub & Lateral, (42" Tanks, 6" flange top)	DKSHL48TM-63MMS Hub & Lateral, (48" Tanks, 6" flange top)
WS2H NPT	2.375" (2" NPS)	D1199-02 Stack (4" top adaptor)	D1200-03 Stack (Flanged tanks)	D1300-01	DKSHL24TM2T Hub & Lateral, (24" Tanks, 6" flange top)	DKSHL30TM2S Hub & Lateral, (30" Tanks, 6" flange top)	DKSHL36TM2S Hub & Lateral, (36" Tanks, 6" flange top)	DKSHL42TM2S Hub & Lateral, (42" Tanks, 6" flange top)	DKSHL48TMLS Hub & Lateral, (48" Tanks, 6" flange top)

Distributors For WS3

Control Valves	Distributor Pipe OD	Upper Diffuser supplied w/Valve	Bottom Distributor	Bottom Distributor	Bottom Distributor	Bottom Distributor	Bottom Distributor
WS3 BSBT	90mm OD	V3672	DKSHL30TM90MMS Hub & Lateral, (30" Tanks, 6" flange top)	DKSHL36TM90MMS Hub & Lateral, (36" Tanks, 6" flange top)	DKSHL42TM90MMS Hub & Lateral, (42" Tanks, 6" flange top)	DKSHL48TM90MMS Hub & Lateral, (48" Tanks, 6" flange top)	DKSHL63TM90MMSHF Hub & Lateral, (63" Tanks, 6" flange top)
WS3 NPT	3.5" (3" NPS)	V3672	DKSHL30TM3S Hub & Lateral, (30" Tanks, 6" flange top)	DKSHL36TM3S Hub & Lateral, (36" Tanks, 6" flange top)	DKSHL42TM3S Hub & Lateral, (42" Tanks, 6" flange top)	DKSHL48TM3S Hub & Lateral, (48" Tanks, 6" flange top)	DKSHL63TM3SHF Hub & Lateral, (63" Tanks, 6" flange top)

Brine Tank Packages

The following chart may help choose the appropriate brine tank packages based on the softeners resin load.

Softener Tank Size	Resin Volume		Brine Tank Size (Inches)	Brine Tank P/N	Brine well & Safety kit P/N	Tubing & Overflow (Kit)	Brine Tank Grid	Brine Tank Assy. (Min. order)
	Cu.ft./Liter							
10 x 47 10 x 54	1.5	40.5	18 x 36	G21836CB1C00 3/ctn	H4700-32	H7018	H1085-01	J7552, 3/ctn, (min: 36)
12 x 48 12 x 52	2.0	54	18 x 36	G21836CB1C00 3/ctn	H4700-32	H7018	H1085-01	J7552, 3/ctn, (min: 36)
13 x 54	2.5	67.5	18 x 36	G21836CB1C00 3/ctn	H4700-32	H7018	H1085-01	J7552, 3/ctn, (min: 36)
14 x 65	3	81	18 x 36	G21836CB1C00 3/ctn	H4700-32	H7018	H1085-01	J7552, 3/ctn, (min: 36)
16 x 65	4	108	18 x 40	G21840CB1C00 1/ctn	H4700-36	H7018	H1072-01	J7522-06, 1/ctn, (min: 36)
18 x 65	5	135	18 x 40	G21840CB1C00 1/ctn	H4700-36	H7018	H1072-01	J7522-06, 1/ctn, (min: 36)
21 x 62	6	162	24 x 41	G22441CBC00 1/ctn	H4700-36	—	H1080 Legs: H1089	J72441C-474-01, 1/ctn, (min: 6)
24 x 72	8	216	24 x 50	G22450CB1C00 1/ctn	H4700-36	—	H1080 Legs: H1089	J72450C-474-01, 1/ctn, (min: 6)
30 x 72	15	405	30 x 50	G23050CB1CDL 1/ctn	H4900-48BTKIT	—	H1032 Legs: H1087	J73050C-494-01, 1/ctn, (min: 4)

- 1) 18 x 36 tank Assy.: Includes tank, Brine well, Air check, 474 Safety Brine valve & tubing. Grids ordered separately.
- 2) 18 x 40 tank Assy.: Includes tank, Brine well, 474 Safety Brine valve & tubing. Grids ordered separately.
- 3) 24 x 41 and 24 x 50 tank Assy: Includes tank, Brine well, 474 Safety brine valve. Grids ordered separately.
- 4) 30 x 50 tank Assy: Includes tank, 494 Safety Brine valve and well.

Above data is provided for guidance only.

Sizes may vary depending on design flow rate, resin capacity and application.

Brine Tank Component Selection

The following chart may help choose the appropriate brine tank and brine tank components based on the softeners resin load.

Resin Load Cu.ft. / Liter		Brine Tank Size	Brine Tank Assembly P/N*	Brine Tank Only P/N	Tubing & Overflow Kit P/N	Brine Well & Safety Kit P/N	Optional Salt Grid P/N	Grid Legs
1.5	40.5	18 x 36	J7552*	G21836CB1C00	H7018	H4700-32	H1085-01	—
2	54	18 x 36	J7552*	G21836CB1C00	H7018	H4700-32	H1085-01	—
2.5	67.5	18 x 36	J7552*	G21836CB1C00	H7018	H4700-32	H1085-01	—
3	81	18 x 36	J7552*	G21836CB1C00	H7018	H4700-32	H1085-01	—
4	108	18 x 40	J7522-06	G21840CB1C00	H7018	H4700-36	H1072-01	—
5	135	18 x 40	J7522-06	G21840CB1C00	H7018	H4700-36	H1072-01	—
6	162	24 x 50	J72450C-474-01	G22450CB1C00	—	H4700-48BTKIT	H1080	H1089
7	189	24 x 50	J72450C-474-01	G22450CB1C00	—	H4700-48BTKIT	H1080	H1089
8	216	24 x 50	J72450C-474-01	G22450CB1C00	—	H4700-48BTKIT	H1080	H1089
9	243	24 x 50	J72450C-494-01	G22450CB1C00	—	H4700-48BTKIT	H1080	H1089
10	270	24 x 50	J72450C-494-01	G22450CB1C00	—	H4700-48BTKIT	H1080	H1089
15	405	30 x 50	J73050C-494-01	G23050CB1CDL	—	H4700-48BTKIT	H1032	H1087
20	540	39 x 48	—	G23948CB1P00	—	H4700-48BTKIT	N/A	N/A
25	675	39 x 48	—	G23948CB1P00	—	H4700-48BTKIT	N/A	N/A
40	1080	50 x 60	—	G25060CB1P00	—	H4900-60BV	N/A	N/A

* Brine Tank assemblies are complete with the brine tank pre-drilled, brine well, air check, safety brine valve, brine tubing & inserts. Order in quantities of three. Minimum order: 36 pieces. Available in different colors.

Above table is for guidance only.