



Control Valves, Fittings and Accessories



WS1EE TWIN ALTERNATING CONTROL VALVE

28 gpm



WS2H

125 gpm



WS3

250 gpm



**WS1.5PEE
WS1.5PSD/SP**

60 gpm



**WS1.5EE
WS1.5SD/SP**

70 gpm



**WS2EE
WS2SD/SP**

115 gpm



**WS2EE/QC*
WS2SP/QC***

125 gpm



**WS1.25*
WS1.25CS***

34 gpm



**WS1.25EE*
WS1.25SD/SP***

34 gpm



WS1.25TC*

34 gpm



**WS1*
WS1CS***

27 gpm



**WS1EE*
WS1SD/SP***

27 gpm



WS1TC*

27 gpm

*valves shown with optional accessories





1" & 1.25" WATER SPECIALIST VALVE SPECIFICATIONS



SPECIFICATIONS	WS1 WS1, CS, EE, SD, SP, TC	WS1TT EE, SD, SP	WS1.25 WS1, CS, EE, SD, SP, TC
Service @ 15 psi drop	27 gpm (includes meter and bypass)	28 gpm (includes meter and bypass)	34 gpm (includes meter, bypass, and 1.25" fitting kit)
Backwash @ 25 psi drop	27 gpm (includes bypass)	15 gpm (includes bypass)	32 gpm (includes bypass)
Tank Applications:			
Softener	6" - 21" diameter	6" - 21" diameter	6" - 21" diameter
Filter (1)	6" - 21" diameter	6" - 16" diameter	6" - 24" diameter
Inlet/Outlet	1" - 1.25" NPT	1" - 1.25" NPT	1" - 1.25" NPT
Fitting Connections (2)	3/4" - 1.5" Sweat	3/4" - 1.5" Sweat	3/4" - 1.5" Sweat
	3/4" - 1.5" Solvent	3/4" - 1.5" Solvent	3/4" - 1.5" Solvent
	3/4" - 1" SharkBite®	3/4" - 1" SharkBite®	3/4" - 1" SharkBite®
	3/4" - 1" John Guest®	3/4" - 1" John Guest®	3/4" - 1" John Guest®
Valve Material	Fiber Reinforced Composite	Fiber Reinforced Composite	Fiber Reinforced Composite
Cycles	Up to 6	Up to 6	Up to 6
Regeneration	Downflow/Upflow	Downflow/Upflow	Downflow/Upflow
Operating Pressures	20 - 125 psi	20 - 125 psi	20 - 125 psi
Operating Temperatures	40° - 110° F	40° - 110° F	40° - 110° F
Meter:			
Flow Rate Range	0.25 - 27 gpm	0.25 - 27 gpm	0.25 - 34 gpm
Distributor Pilot	1.050" O.D. Pipe	1.050" O.D. Pipe	1.32" O.D. Pipe
	3/4" NPS	3/4" NPS	1" NPS
Drain Line Connection	3/4" Male NPT Standard	3/4" Male NPT Standard	3/4" Male NPT Standard
	1" Male NPT Optional	1" Male NPT Optional	1" Male NPT Optional
Brine Line Connection	3/8" Brine QC Fitting	3/8" Brine QC Fitting	3/8" Brine QC Fitting
	1/2" O.D. Poly Tube	1/2" O.D. Poly Tube	1/2" O.D. Poly Tube
	Compression	Compression	Compression
Mounting Base Options	2 1/2" - 8 NPSM	2 1/2" - 8 NPSM	2 1/2" - 8 NPSM
Height From Top of Tank	7 3/8"	7 3/8"	7 3/8"
Shipping Weight	4.5 lbs.	16 lbs.	4.5 lbs.
Certifications and	NSF/ANSI 44	NSF/ANSI 44	NSF/ANSI 44
Optional Third-Party Testing	NSF/ANSI/CAN 61	NSF/ANSI/CAN 61	NSF/ANSI/CAN 61
	NSF/ANSI 372	NSF/ANSI 372	NSF/ANSI 372
	IP54	IP54	IP54
	IP55 with Weather Cover	IP55 with Weather Cover	IP55 with Weather Cover

1. Filter tank size calculated @ 10 gpm of backwash per square foot of bed area
 2. See pages 10 and 11 for all available fittings for WS1, WS1TT, and WS1.25
 Valves shown with optional bypass.

1.5" & 2" WATER SPECIALIST VALVE SPECIFICATIONS

			
WS1.5P EE, SD, SP	WS1.5 EE, SD, SP	WS2 EE, SD, SP	WS2QC EE, SD, SP
60 gpm (includes meter) 43 gpm	70 gpm (includes meter) 52 gpm	115 gpm (includes meter) 80 gpm	125 gpm (includes meter) 85 gpm
12" - 24" diameter 12" - 24" diameter	12" - 24" diameter 12" - 30" diameter	12" - 48" diameter 12" - 36" diameter	12" - 48" diameter 12" - 36" diameter
QC to 1.5" NPT	1.5" Female NPT	2" Female NPT	2" Female NPT
Fiber Reinforced Composite Up to 6 Downflow/Upflow	Lead Free Brass Up to 6 Downflow/Upflow	Lead Free Brass Up to 6 Downflow/Upflow	Lead Free Brass Up to 6 Downflow/Upflow
20 - 125 psi 40° - 110° F	20 - 125 psi 40° - 110° F	20 - 125 psi 40° - 110° F	20 - 125 psi 40° - 110° F
0.5 - 75 gpm	0.5 - 75 gpm	1.5 - 150 gpm	1.5 - 150 gpm
1.90" O.D. Pipe 1.5" NPS	1.90" O.D. Pipe 1.5" NPS	1.90" O.D. Pipe 1.5" NPS	2.375" O.D. Pipe 2" NPS
QC to 1" NPT Elbow QC to 1.5" NPT Straight	1.25" Female NPT with ¾" Male NPT Standard 1" Male NPT Optional	1.5" Female NPT	1.5" Female NPT
¾" Female NPT ½" O.D. Poly Tube Compression	¾" Female NPT ½" O.D. Poly Tube Compression	1" Male NPT elbow ¾" x 1" Solvent elbow ½" O.D. Poly Tube Compression	1" Male NPT elbow ¾" x 1" Solvent elbow ½" O.D. Poly Tube Compression
4" - 8 UN	4" - 8 UN	4" - 8 UN	Quick Disconnect 4" - 8 UN 6" Flange Side Mount
10.7"	9.5"	7.5"	with 4" - 8 UN QC Base is 11.2" with 6" Flange QC Base is 11.3"
9 lbs.	21 lbs.	29 lbs.	29 lbs.
NSF/ANSI/CAN 61 NSF/ANSI 372 IP54 IP55 with Weather Cover	NSF/ANSI/CAN 61 NSF/ANSI 372 IP54 IP55 with Weather Cover	NSF/ANSI/CAN 61 NSF/ANSI 372 IP54 IP55 with Weather Cover	NSF/ANSI/CAN 61 NSF/ANSI 372 IP54 IP55 with Weather Cover

2" & 3" WATER SPECIALIST VALVE SPECIFICATIONS



SPECIFICATIONS	WS2H	WS3
Service @ 15 psi drop Backwash @ 25 psi drop	125 gpm (includes meter) 125 gpm	250 gpm (includes meter) 220 gpm
Tank Applications: Softener Filter (1)	18" - 63" diameter 18" - 48" diameter	18" - 96" diameter (1) 18" - 63" diameter
Inlet/Outlet Fitting Connections	2" Female NPT	3" Female NPT
Valve Material Cycles Regeneration	Lead Free Brass Up to 9 Downflow	Lead Free Brass Up to 9 Downflow
Operating Pressures Operating Temperatures	20 - 125 psi 40° - 110° F	20 - 125 psi 40° - 110° F
Meter: Flow Rate Range	1.5 - 125 gpm	3.5 - 350 gpm
Distributor Pilot	2.375" O.D. Pipe 2" NPS	3.5" O.D. Pipe 3" NPS
Drain Line Connection	2" Female NPT	3" Female NPT
Brine Line Connection	1" Male NPT elbow 3/4" x 1" Solvent elbow	1" Male NPT elbow 3/4" x 1" Solvent elbow
Mounting Base Options	Quick Disconnect 4" - 8 UN 6" Flange Side Mount	Quick Disconnect 6" Flange Side Mount
Height From Top of Tank	with 4" - 8 UN QC Base is 11.5" with 6" Flange QC Base is 11.6"	with 6" Flange QC Base is 12.5"
Shipping Weight with Meter	50 lbs.	57 lbs. (no meter)
Certifications and Optional Third-Party Testing	NSF/ANSI/CAN 61 NSF/ANSI 372 IP52	NSF/ANSI/CAN 61 NSF/ANSI 372 IP52

1. 18" - 63" diameter with standard injectors, to 96" with Brine Pump

SOLAR / BATTERY POWERED VALVES



WS1 SD/SP



WS1TT SD/SP



WS1.25 SD/SP



WS1.5 SD/SP



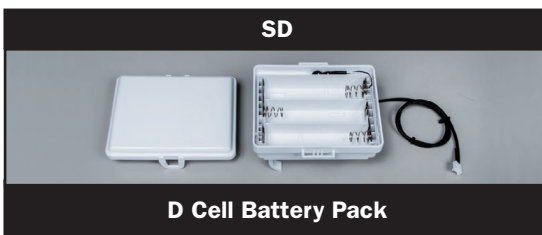
WS2 SD/SP



WS2QC SD/SP



AA Rechargeable Battery Pack

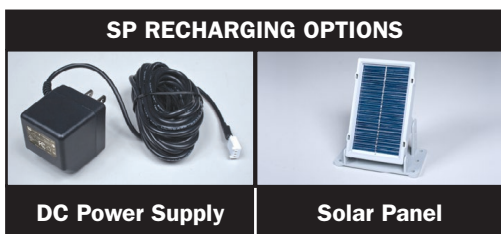


D Cell Battery Pack

**BATTERY SPECIFICATIONS
2 OPTIONS FOR OPERATION**

SP Model: 6 AA nickel metal hydride batteries rechargeable for SP model
SD Model: 6 "D" cell alkaline batteries (disposable when discharged) for SD model - "D" batteries not included

Note: When disposing of batteries follow local and state regulations.



DC Power Supply

Solar Panel

**SP CHARGING SPECIFICATIONS
2 OPTIONS FOR OPERATION**

- Amorphous silicon solar panels capable of three tilt angles
- DC power supply with 15VDC output 500mA

CLACK CONTROLLER SPECIFICATIONS



SPECIFICATIONS	WS1	CS	TC	EE
WS Valves Available	WS1, WS1.25	WS1, WS1.25	WS1, WS1.25	WS1, WS1.25, WS1.5P, WS1.5, WS2, WS2QC, WS1TT
Display Type	LCD	LCD	LCD	LCD
Volume Range (Gallons)	20 - 50,000	20 - 50,000	N/A	20 - 1,500,000
Diagnostics/History	Yes	Yes	No	Yes
Comm. Cable Port	No	No	No	1
Cycle Codes	Created Based on Programming	Yes P1 - P91	Yes P0 - P9	No
Cycle Times Adjustable	No	No	No	Yes
DP Input	No	No	Yes	Yes
Motor Drive Output	No	No	No	1
"Relay Driver or Relay Output"	No	No	No	1 - Relay Driver
Remote Communications	No	No	No	No
External Programming	Configurator	Configurator	Configurator	Configurator
Data Extraction	No	No	No	No
Electrical Supply Voltage	100 to 120VAC	100 to 120VAC	100 to 120VAC	100 to 120VAC
Supply Frequency	50/60Hz	50/60Hz	50/60Hz	50/60Hz
Voltage Output	15VDC	15VDC	15VDC	15VDC
Current Output	500 mA	500 mA	500 mA	500 mA
Systems Types				
Single	Yes	Yes	Yes	Yes
Alternate	No	No	No	2 Valves or SC
Random	No	No	No	2 Valves or SC
Series	No	No	No	2 Valves or SC
Progressive Flow	No	No	No	System Controller

CLACK CONTROLLER SPECIFICATIONS



SD	SP	WS2H & WS3			System Controller (SC)
		Pod	Main Board	Relay Expansion Board	
WS1, WS1.25, WS1.5, WS2, WS2QC, WS1TT	WS1, WS1.25, WS1.5, WS2, WS2QC, WS1TT	WS2H, WS3			WS1, WS1.25, WS1.5P, WS1.5, WS2, WS2QC
LCD	LCD	Monochrome Graphics	N/A	N/A	LCD Backlit
20 - 1,500,000	20 - 1,500,000	10 - 999,000			N/A
Yes	Yes	Yes			Yes
1	1	N/A	RJ45 Input & Output	1	6
No	No	No			N/A
Yes	Yes	Yes			N/A
Yes	Yes	N/A	Yes	No	Yes
1	1	N/A	1	1	No
1 - Relay Driver	1 - Relay Driver	N/A	Add Relay Expansion Board (Max - 2 Boards)	2 - Relays per board	2 - Relays
No	No	Modbus-TCP/IP			Modbus-TCP/IP
Configurator	Configurator	No			Flash Drive
No	No	Yes			Yes
6 "D" Batteries 50/60Hz 15VDC 500 mA	6 "AA" Rechargeable Nickel Metal Hydride Batteries 50/60Hz 15VDC 500 mA	100 to 120VAC 50/60Hz 24VDC 800 mA			120VAC 50/60Hz 15VDC 0.5A
Yes No 2 Valves 2 Valves No	Yes No 2 Valves 2 Valves No	N/A	Yes 2 - 16 Valves 2 - 16 Valves 2 - 16 Valves 2 - 16 Valves	N/A	Water Monitor 2 - 6 Valves 2 - 6 Valves 2 - 6 Valves 2 - 6 Valves

Inline Flow Meters

1.0" Plastic Meter



NSF

Order No. V3039 or V3039-15

1.5" Plastic Meter



NSF

Order No. V3045 or V3045-15

1.5" Plastic Meter QC



NSF

Order No. V3045QC or V3045QC-15

2.0" Plastic Meter



NSF

Order No. V3048 or V3048-15

2.0" Plastic Meter QC



NSF

Order No. V3048QC or V3048QC-15

1.5" Stainless Steel Meter



NSF

Order No. V3040 • 28" meter cable
Order No. V3040-15 • 15' meter cable

2.0" Stainless Steel Meter



NSF

Order No. V3094 • 28" meter cable
Order No. V3094-15 • 15' meter cable

3.0" Stainless Steel Meter



NSF

Order No. V3095 • 48" meter cable
Order No. V3095-15 • 15' meter cable

WS15/2/2H Meter Comm Asy 28"



Order No. V3003-02

WS3 Meter Asy 4'



Order No. V4039

WS Remote Meter Asy 15'



Order No. V3221

Drain Line Flow Controls

WS1 3/4" DRN ELB&RETAIN WO/SIL ASY



Order No. V3962
0.7 to 10.0 GPM
1 - 3/4" Flow Washer

WS1 3/4" DRN ELBOW&RETAIN W/SIL ASY



Order No. V4057
0.7 to 10.0 GPM
1 - 3/4" Flow Washer

WS1 1" DRN ELB&RETAIN



Order No. V4429
0.7 to 10.0 GPM
1 - 3/4" Flow Washer

WS1 FTG DRAIN 1 STRT WO/SIL



Order No. V3008-04
9.0 to 25.0 GPM
1 - 1" Flow Washer

WS1 FTG DRAIN 1 STRAIGHT W/SIL



Order No. V3008-02
9.0 to 25.0 GPM
1 - 1" Flow Washer

WS2 DRN ELB 3/4 MALENPT NO SIL



Order No. V3158-04
0.7 to 10.0 GPM
1 - 3/4" Flow Washer

WS2 DRN FTG 1 MALE NPT WO/SIL



Order No. V3008-05
9.0 to 25.0 GPM
1 - 1" Flow Washer

1.25" DLFC



Order No. V3079
9.0 to 85.0 GPM
Up to 6 - 3/4" & 1 - 1" Flow Washers

1.5" DLFC



Order No. V3080
9.0 to 85 GPM
Up to 6 - 3/4" & 1 - 1" Flow Washers

2" DLFC



Order No. V3051
7.0 to 150 GPM
Up to 5 - 3/4" & 4 - 1" Flow Washers

3" DLFC



Order No. V3764
9.0 to 225 GPM
Up to 9 - 1" Flow Washers

3/4" Flow Washers

- V3162-007 WS1 DLFC 0.7 gpm
- V3162-010 WS1 DLFC 1.0 gpm
- V3162-013 WS1 DLFC 1.3 gpm
- V3162-017 WS1 DLFC 1.7 gpm
- V3162-022 WS1 DLFC 2.2 gpm
- V3162-027 WS1 DLFC 2.7 gpm
- V3162-032 WS1 DLFC 3.2 gpm
- V3162-042 WS1 DLFC 4.2 gpm
- V3162-053 WS1 DLFC 5.3 gpm
- V3162-065 WS1 DLFC 6.5 gpm
- V3162-075 WS1 DLFC 7.5 gpm
- V3162-090 WS1 DLFC 9.0 gpm
- V3162-100 WS1 DLFC 10.0 gpm

1" Flow Washers

- V3190-090 WS1 DLFC 09.0 gpm
- V3190-100 WS1 DLFC 10.0 gpm
- V3190-110 WS1 DLFC 11.0 gpm
- V3190-130 WS1 DLFC 13.0 gpm
- V3190-150 WS1 DLFC 15.0 gpm
- V3190-170 WS1 DLFC 17.0 gpm
- V3190-200 WS1 DLFC 20.0 gpm
- V3190-250 WS1 DLFC 25.0 gpm

1" & 1.25" Control Valve Fittings and Accessories

1" PVC Male NPT Elbow Assembly



NSF

Order No. V3007

3/4" x 1" PVC Solvent Elbow Assembly



NSF

Order No. V3007-01

1" Brass Sweat Assembly LF



NSF

Order No. V3007-02LF

3/4" Brass Sweat Assembly LF



NSF

Order No. V3007-03LF

1" Plastic Male NPT Assembly



NSF

Order No. V3007-04

1.25" Plastic Male NPT Assembly



NSF

Order No. V3007-05

1" Plastic Male BSPT Assembly



NSF

Order No. V3007-06

1.25" & 1.5" PVC Solvent Assembly



NSF

Order No. V3007-07

1.25" Plastic Male BSPT Assembly



NSF

Order No. V3007-08

1.25" & 1.5" Brass Sweat Assembly LF



NSF

Order No. V3007-09LF

3/4" SharkBite® Assembly



NSF

Order No. V3007-12LF

1" SharkBite® Assembly



NSF

Order No. V3007-13LF

1" & 1.25" Control Valve Fittings and Accessories



Control Valve Accessories

WS1.5P QC x 1.5"



NSF

Order No. V4430-01 • NPT

WS1.5P QC x QC



NSF

Order No. V4430-03

WS1.5P Elbow QC x 1.5"



NSF

Order No. V4430-07 • NPT

WS1.5P Elbow QC x QC



NSF

Order No. V4430-09

WS2P QC x 2"



NSF

Order No. V4460-01 • NPT

WS2P QC x QC



NSF

Order No. V4460-03

WS2P Elbow QC x NPT



NSF

Order No. V4460-04

WS2P Elbow QC x QC



NSF

Order No. V4460-06

WS2H/2QC 2" Side Mount Base Assembly



NSF

Order No. V3260-02 • NPT

WS3 Side Mount Base Assembly



NSF

Order No. V3674-02 • NPT

WS3 Flange Base Assembly



NSF

Order No. V3090

WS2H/WS2QC Flange Base Assembly



NSF

Order No. V3055

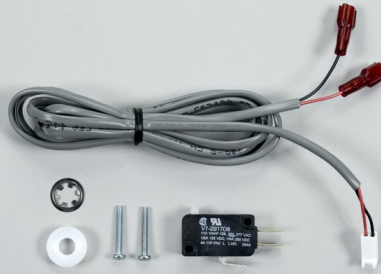
Control Valve Accessories

Auxiliary Microswitch Kit



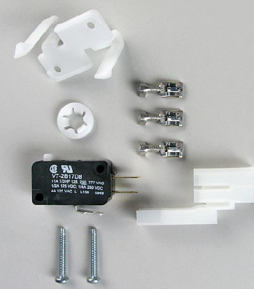
Order No. V3009

WS1 Series Microswitch Assembly



Order No. V3014

WS2 Auxiliary Switch Kit



Order No. V3017

Cat 5e Cable



Order No. V4470-15

8' DP Wire Harness



Order No. V3473

16' DP Wire Harness



Order No. V3473-01

8' Alternator/Communication Cable



Order No. V3474

12' Communication Cable



Order No. V3475-12

24' Communication Cable



Order No. V3475-24

36' Communication Cable



Order No. V3475-36

15' Power Cord



Order No. V4276-15

36' Power Cord



Order No. V4276-36

Control Valve Accessories

WS1 Service Spanner Wrench



Order No. V3193-02

WS1 Stack Puller



Order No. V3022

WS1.25/WS1.5 Stack Puller



Order No. V3022-15

WS1 - WS1.25 - WS1.5P - Weather Covers



Order No. V3175WC-W • White
Order No. V3175WC-A • Almond

WS1.5 Weather Covers



Order No. V3974WC-W • White
Order No. V3974WC-A • Almond

WS2 / WS2QC Weather Covers



Order No. V3783WC-W • White
Order No. V3783WC-A • Almond

WS2H / WS3 Weather Covers



Order No. V4051WC

1" & 1.25"

Control Valve Accessories

1" & 1.25"
Motorized Alternating Valve



Order No. V3069FF-01 • F x F

1" & 1.25"
No Hard Water Bypass Valve



Order No. V3070FF • F x F

1" & 1.25"
Motorized Alternating Valve



Order No. V3069MM-01 • M x M

1" & 1.25"
No Hard Water Bypass Valve



Order No. V3070FM • F x M

1.5"

Control Valve Accessories

1.5" Plastic
Motorized Alternating Valve



NSF

Order No. V3034

1.5" Plastic
No Hard Water Bypass Valve



NSF

Order No. V3035

1.5"
Motorized Alternating Valve



NSF

Order No. V3071 • NPT

1.5"
No Hard Water Bypass Valve



NSF

Order No. V3097 • NPT

2" Control Valve Accessories

2" Plastic
Motorized Alternating Valve



NSF

Order No. V3036

2" Plastic
No Hard Water Bypass Valve



NSF

Order No. V3037

2"
Motorized Alternating Valve



NSF

Order No. V3076 • NPT

2"
No Hard Water Bypass Valve



NSF

Order No. V3098 • NPT

3" Control Valve Accessories

3"
Motorized Alternating Valve



NSF

Order No. V3083 • NPT

3"
No Hard Water Bypass Valve



NSF

Order No. V3099 • NPT