"Designed, Tested, and Approved for Shipment by LWT Engineering Staff"

INDUSTRIAL WATER DEALKALIZERS

LWTD Series

50,000 TO 1,600,000 Grains Capacity (Chloride Cycle)

Boiler and Cooling Tower Feedwater
Process Water Treatment

Single, Twin, Triple, or Quadruple Demand Systems Available

Phone: 414.365.0787
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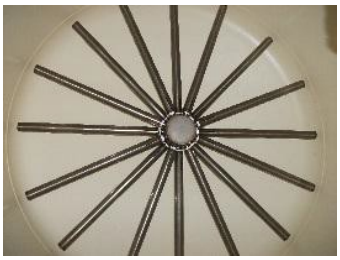
Lakeside Chloride Cycle Dealkalizers are designed to remove 90-95% alkalinity and reduce nitrate and sulfate levels. Lowering the alkalinity in the product water reduces boiler blow down expense, chemicals, and fuel costs. Injecting caustic soda into the brine line increases the system capacity and produces an alkaline product. Pretreatment softeners are usually required to prevent resin fouling.

Carbon Steel Pressure Vessels (NON-Code & ASME Code) - Standard working pressure is 100 PSI. Higher pressures are available with custom engineered systems. A standard epoxy lining is applied internally and safety blue finish coating is applied over the exterior of the vessel. The vessels are fabricated in NON-code for standard products, and ASME Code is optional. Alternative vessel material, such as stainless steel and fiberglass are available.

Anion High Capacity Resin provides high chemical and physical stability, lower pressure drops and greater resistance to bead breakage. **Optimal water quality can be obtained by injecting caustic soda into the brine line piping during the regeneration process.** This elevates the pH levels in the product water and prevents corrosion.



Underdrain - The radial hub underdrain construction uses high quality schedule 80 PVC pipe and fittings, delivering high performance standards. The .010" PVC slotted laterals provide high flow rates and reliable service. **Lakeside also features hide-out preventer(s) in some vessels to reduce leakage when dilute brine is not rinsed out of the bottom of the vessel during the regeneration process.** Boiler applications that have very critical water quality requirements often request this feature on custom products.

Brine Maker The non-toxic polyethylene molded brine tank provides the ultimate corrosion resistance and superior strength. Our standard grid /shelf and special brine valve maintain precise brine saturation for optimum ion exchange. **The brine valve is designed with four internal primary checks delivering proven and reliable industrial performance.**

Cast Iron diaphragm valve nest design allows each valve to be exactly designed and sized for the required functions, providing the most cost effective, efficient and serviceable system in the market. Numerous piping and valve configurations such as Copper, PVC, or Stainless steel are also available.

Brine Eductors are constructed of PVC and deliver the correct brine concentration to the resin. These hydraulic eductors are pressure compensating and produce dilute brine concentration to the resin bed for proper Ion exchange. A throttling valve is provided to lower concentration to 5% for dealkalizer regeneration.

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Flow Sensors are designed to interface with the controllers. The meter sends a pulse signal to the controller that converts into gallons. The correctly programmed K-Factor will ensure the correct batch count and continuous dealkalized water.

The Standard Lakeside 2001 Programmable Microprocessor automatically controls the regeneration cycles by utilizing a pilot valve to operate the diaphragm valves. These valves can be hydraulically or pneumatically operated for your operational requirements. **The 2001 microprocessor also features a pre-rinse cycle to prevent leakage at the beginning of the service run on twin alternating systems.** Boiler applications typically have very critical water quality requirements and often request this feature.

The Optional AQMatic Programmable Microprocessor provides single, twin, triple or quadruple system capabilities. The controller features twin alternating, progressive demand, or parallel application options. Multiple tank applications, progressive demand and the diagnostic capabilities are premiere features of this controller. **The progressive demand application allows one to four Dealkalizers to be online in proportion to the service demand.** One unit is always in service, and the other units automatically come online as the flow increases. As the flow rate decreases, units will be removed from service based on the pre-programmed GPM settings. This feature provides uninterrupted flow of dealkalized water during variable and peak flows *(One auxiliary output is provided to start a chemical feeder, pump or motor application).*

Optional Rockwell Allen-Bradley® PLC control packages come standard with a color screen HMI which has user friendly programming. **Lakeside PLC solenoid system features a hold, advance, resume, termination, or close of all valves function, for fast, easy, field service.** The main screen can be designed to display a variety of parameters such as current flow rates, online tank status and remaining gallons of each vessel. Custom programming available.

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LWTD Series Water Dealkalizer

Operating Parameters: Pressure 30-100 PSI. Temperature range 35°F-100°F Electrical: 120VAC/60Hz Electrical enclosures rated NEMA 12/4X Drain piping limits: Max. 10ft. vertical discharged to an atmospheric floor drain sized to handle the backwash rate of the system (Max. proven length is 25ft.).

Brine Headers: On standard systems Dilute Brine/Caustic enters the vessel through the inlet distributor. A separate Brine Header is recommended on vessels larger than 72" diameter, to distribute the Dilute Brine/Caustic evenly over the surface of the resin bed.

Caustic Feed Systems: A metering pump with support stand is supplied to feed liquid 50% sodium hydroxide downstream of the brine eductor, to mix with the dilute brine solution. An electric receptacle is suppled to power the pump, energized only in the brine injection step. The pump with stand is designed to be located adjacent to a chemical drum/carboy (not supplied), with the pump suction tubing inserted through the top opening of the chemical drum/carboy.

Dealkalizer Capacity: Without feeding caustic, the optimum capacity for a chloride cycle anion dealkalizer is 7,500 grains per cubic foot, and the throughput gallons can vary. In order to achieve this capacity, the per cent alkalinity must be at least 75% of the total anions, and the TDS should be at least 500 ppm. The resin is usually regenerated at 5.0# of 100% sodium chloride per cu. ft. of anion resin at about 5% by weight introduction strength. The chloride cycle anion resin will also remove any sulfates, nitrates and other anions present other than chloride (Total Exchangeable Anions, or T.E.A.). The T.E.A. must be used when calculating throughput. When caustic is used in conjunction with the salt, a small amount silica may be removed. In addition, the caustic will increase the capacity to a 10% leakage by about 25% to 10,000 grains per cubic foot as an optimum value, and the throughput gallons will be consistent. It also adds a few PPM of caustic to the treated water, so the effluent pH is elevated to about 9.0. The resin is usually regenerated at 0.25# of 100% NaOH per cu. ft. of anion resin, simultaneously with the dilute brine.

OPTIONS AVAILABLE:

- Skid mounted, pre-piped, pre-wired for faster and cost-effective installations
- ASME code vessels are available. Pressure ratings above 100 PSI available.
- Low flow recirculation systems to prevent channeling during low service flow periods
- Untreated water by-pass (single units)
- Brine Reclamation systems can save up to 25% on salt usage
- Pumped brine and dilution stations are available for brine pit or brine silo applications
- Pre-engineered systems and custom engineered systems are available

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LWTD Series Water Dealkalizer Specifications

Model LWTD	Grains Capacity	Resin Qty. Cu. Ft.	Flow Cont. GPM	PSID	Flow Peak GPM	PSID	Mineral Tank Size DxOAH (Inches)	Service Pipe Size	BW Flow Rate GPM	Fast Rinse Flow Rate GPM	Brine Maker Size D x H (Inches)	Salt Storage Cap. (Lbs.)	Salt Usage 5# Dosage (Lbs.)	NaOH Usage 0.25# Dosage (Gals.)
2060-1	50,000	5	10	5	20	15	20 x 60	1"	6	12	18 x 40	275	25	0.2
2060-1.5	50,000	5	10	2	20	4	20 x 60	1 1/2"	6	12	18 x 40	275	25	0.2
2460-1.5	80,000	8	16	3	32	7	24 x 60	1 1/2"	9	15	24 x 40	480	40	0.3
2460-2	80,000	8	16	2	32	4	24 x 60	2"	9	15	24 x 40	480	40	0.3
3072-1.5	150,000	15	30	6	55	16	30 x 72	1 1/2"	15	30	24 x 54	600	75	0.6
3072-2	150,000	15	30	3	60	8	30 x 72	2"	15	30	24 x 54	600	75	0.6
3672-2	200,000	20	40	4	80	11	36 x 72	2"	20	40	24 x 54	500	100	0.8
3672-3	200,000	20	40	2	80	4	36 x 72	3"	20	40	24 x 54	500	100	0.8
4272-2	300,000	30	60	7	90	13	42 x 72	2"	25	60	30 x 60	900	150	1.2
4272-3	300,000	30	60	3	120	6	42 x 72	3"	25	60	30 x 60	900	150	1.2
4872-2.5	400,000	40	80	6	160	17	48 x 72	2 1/2"	35	70	39 x 60	1,800	200	1.6
4872-3	400,000	40	80	3	160	9	48 x 72	3"	35	70	39 x 60	1,800	200	1.6
5472-2.5	500,000	50	100	7	160	16	54 x 72	2 1/2"	45	90	39 x 60	1,750	250	2.0
5472-3	500,000	50	100	4	200	11	54 x 72	3"	45	90	39 x 60	1,750	250	2.0
6072-2.5	630,000	63	125	10	160	16	60 x 72	2 1/2"	55	110	39 x 60	1,575	315	2.5
6072-3	630,000	63	125	5	250	15	60 x 72	3"	55	110	39 x 60	1,575	315	2.5
6672-3	750,000	75	150	6	250	15	66 x 72	3"	70	140	42 x 60	1,500	375	3.0
6672-4	750,000	75	150	3	300	6	66 x 72	4"	70	140	42 x 60	1,500	375	3.0
7272-3	900,000	90	180	8	250	14	72 x 72	3"	80	160	50 x 60	2,700	450	3.5
7272-4	900,000	90	180	3	360	7	72 x 72	4"	80	160	50 x 60	2,700	450	3.5
7272-6	900,000	90	180	2	360	4	72 x 72	6"	80	160	50 x 60	2,700	450	3.5
8472-4	1,200,000	120	240	10	420	26	84 x 72	4"	110	210	60 x 64	4,800	600	4.7
8472-6	1,200,000	120	240	2	480	5	84 x 72	6"	110	210	60 x 64	4,800	600	4.7
9672-4	1,600,000	160	320	5	420	7	96 x 72	4"	140	280	60 x 64	4,000	800	6.3
9672-6	1,600,000	160	320	3	640	5	96 x 72	6"	140	280	60 x 64	4,000	800	6.3

2020-07 *PSID slightly higher for Sch. 80 PVC piping.

NaOH Usage is gallons of 50% Sodium Hydroxide, Rayon or Mercury Cell grade.

Lower Capacity by 25% if NaOH is not used.

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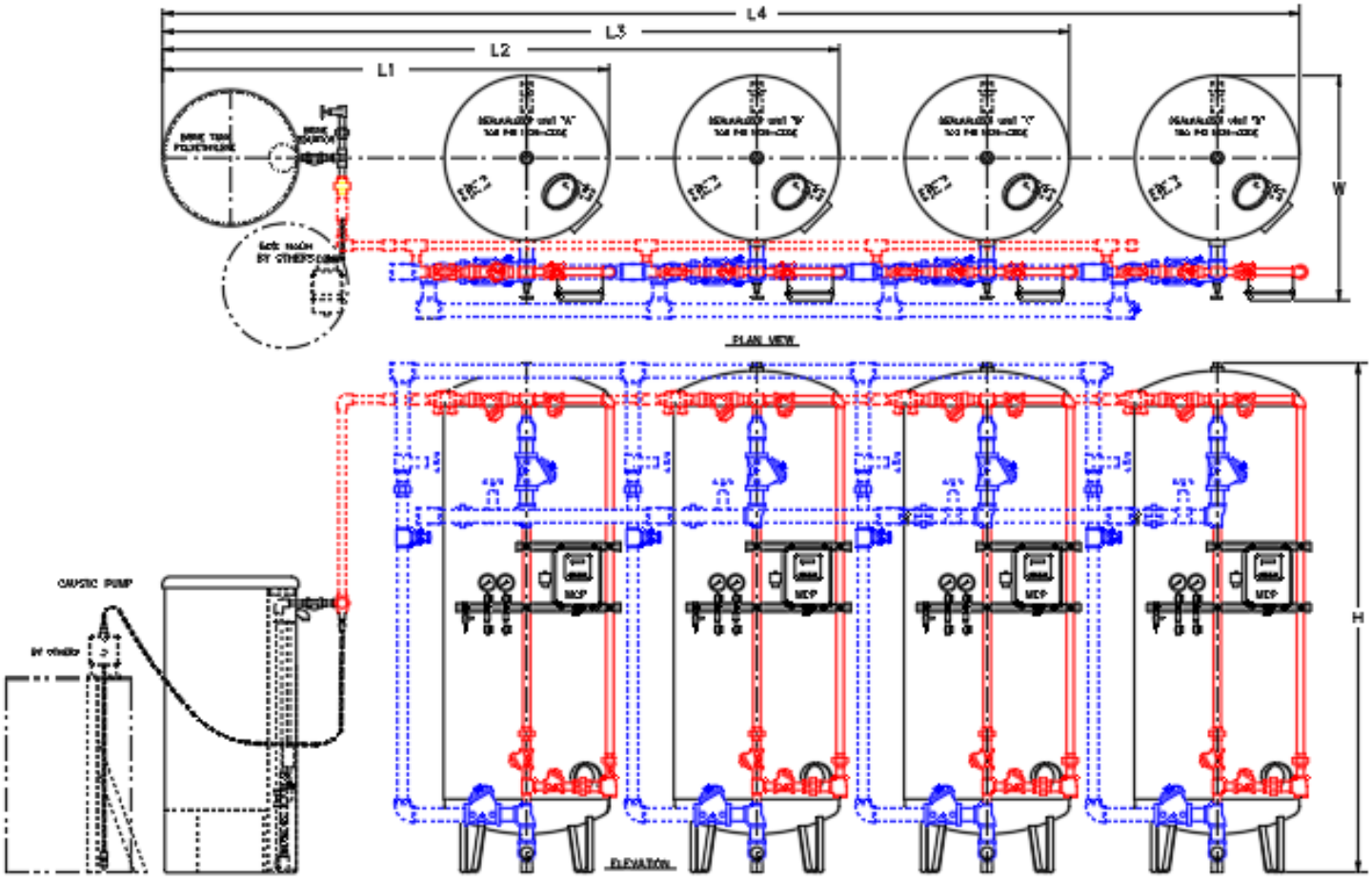
LWTD Series Water Dealkalizer Dimensions

MODEL NO.	RESIN TANK	BRINE TANK	OAH	Width	Length-Inches			
					Single	Twin	Triple	Quad
LWTD-2060	20" x 60"	18" x 40"	75	32	51	83	115	147
LWTD-2460	24" x 60"	24" x 40"	76	36	61	97	133	169
LWTD-3072	30" x 72"	24" x 54"	93	42	66	108	1506	192
LWTD-3672	36" x 72"	24" x 54"	101	50	72	120	168	216
LWTD-4272	42" x 72"	30" x 60"	102	55	84	138	192	246
LWTD-4872	48" x 72"	39" x 60"	115	68	102	162	222	282
LWTD-5472	54" x 72"	39" x 60"	112	74	108	174	240	306
LWTD-6072	60" x 72"	39" x 60"	114	79	114	186	258	330
LWTD-6672	66" x 72"	42" x 60"	116	85	123	201	277	357
LWTD-7272	72" x 72"	50" x 60"	118	94	137	221	305	389
LWTD-8472	84" x 72"	60" x 64"	118	106	159	255	351	447
LWTD-9672	96" x 72"	60" x 64"	118	118	171	279	387	195

- Dims. are approximate. • Add 6" to OAH for skid mounted. • ASME tanks add additional height.
- OAL includes 12" clearance between tanks. • Clearance above tanks required to load resin



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