High Purity Lab Water Skids

Operating Parameters
- Operating RO Pressure: 200-250 psig
- Nominal RO Recovery: 50–65%
- Nominal TDS Rejection: 98–99% (RO unit)
- DI Water Quality: 16-18 Mega Ohms
- Operating Temperature: 45–85° F
- Design Temperature: 50° F
- Minimum Inlet Pressure: 50 psig
- Electrical Requirement: 460 V AC, 3-phase, 60 Hz.
  120 V AC, 1-phase, 60 Hz.
- DI Loop Outlet Pressure: 75 psig

Materials of Construction
- Skid Frame: Epoxy-coated carbon steel
- Membrane Elements: Thin-film Composite (TFC)
- Membrane Housings: FRP
- Low Pressure Piping: Sch 80 PVC
- High RO pressure piping: 304SS
- RO/DI Water Storage Tank: Polyethylene
- DI Water Loop Piping: Fusion-welded Polypropylene

Pump and Motor
- Pump: 304/316SS vertical multi-stage centrifugal
- Motor: TEFC, 460 VAC, 3-phase, 60 Hz.

Standard Features
- Automatic backwashing carbon filter (timer)
- Twin alternating water softener (metered)
- Single pass Reverse Osmosis unit
- Conical bottom, closed top storage tank
- Storage tank level controller and mounting stand
- Duplex RO/DI distribution pumps (2 x 100%)
- Primary/Polisher mixed bed DI polishers
- UV Sterilizer unit with intensity monitor (254 nm)
- NEMA-4 Electrical enclosures
- Pre-wired motor starters with fused disconnect switch
- DI Water outlet flowmeter
- DI Water outlet resistivity monitor

Optional Equipment Available
- Programmable Logic Controller (PLC) systems
- Variable Frequency Drives (VFD's)
- Multi-media filter pre-treatment
- Type III Lab Systems

Overview
Marlo's Pre-Engineered Laboratory Water Systems are designed to serve as the centralized, purified water source for a variety of academic, medical, and other research laboratory facilities. Designed to meet or exceed the Type II reagent-grade water platform set forth by CAP/NCCLS and ASTM standards. Standard systems are furnished with all the treatment equipment fully pre-piped, pre-wired, and factory-tested on a common skid package to minimize field installation and start-up costs. The standard system includes the following equipment:

- Pre-Treatment (inlet filter / carbon / softener)
- Reverse Osmosis (RO) machine
- RO water storage tank
- Stainless steel distribution pumps
- DI exchange polishers (portable exchange type)
- Ultraviolet (UV) sterilizer
- Final sub-micron filter (0.2 micron)
- Central control panel with purity monitoring

Quality Products for Quality Water
### SPECIFICATIONS

<table>
<thead>
<tr>
<th>MODEL</th>
<th>LWS-1500-20</th>
<th>LWS-2500-20</th>
<th>LWS-3600-30</th>
<th>LWS-5400-40</th>
<th>LWS-7200-60</th>
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</thead>
<tbody>
<tr>
<td>RO WATER GENERATION RATE (GPD)</td>
<td>1,500</td>
<td>2,500</td>
<td>3,600</td>
<td>5,400</td>
<td>7,200</td>
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<tr>
<td>DI WATER LOOP RECIRCULATION RATES (GPM)</td>
<td>20 @ 75 psig</td>
<td>20 @ 75 psig</td>
<td>30 @ 75 psig</td>
<td>40 @ 75 psig</td>
<td>60 @ 75 psig</td>
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<tr>
<td>DI WATER LOOP CONNECTION SIZE</td>
<td>1”</td>
<td>1”</td>
<td>1 1/4”</td>
<td>1 1/2”</td>
<td>2”</td>
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<tr>
<td>STORAGE TANK VOLUME (GAL)</td>
<td>300</td>
<td>500</td>
<td>500</td>
<td>1,000</td>
<td>1,000</td>
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<tr>
<td>DI WATER RECIRCULATION PUMP MOTOR (Hp)</td>
<td>2.0</td>
<td>2.0</td>
<td>3.0</td>
<td>3.0</td>
<td>5.0</td>
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<tr>
<td>DI EXCHANGE TANKS (QTY/SIZE)</td>
<td>Qty (4) 12”x52” / 2.5 ft.³ ea.</td>
<td>Qty (4) 12”x52” / 2.5 ft.³ ea.</td>
<td>Qty (4) 14”x47” / 3.5 ft.³ ea.</td>
<td>Qty (4) 14”x47” / 3.5 ft.³ ea.</td>
<td>Qty (6) 14”x47” / 3.5 ft.³ ea.</td>
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<tr>
<td>INLET FEED WATER RATE (GPM)</td>
<td>2.1</td>
<td>3.5</td>
<td>4.25</td>
<td>6.25</td>
<td>7.75</td>
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<td>INLET FEED CONNECTION SIZE</td>
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<td>1”</td>
<td>1”</td>
<td>1”</td>
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<tr>
<td>MAXIMUM WATER TO DRAIN (GPM)</td>
<td>7</td>
<td>10</td>
<td>12</td>
<td>13</td>
<td>15</td>
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<tr>
<td>DRAIN CONNECTION SIZE</td>
<td>1”</td>
<td>1”</td>
<td>1”</td>
<td>1”</td>
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<tr>
<td>SYSTEM DIMENSIONS (LxWxH)</td>
<td>192”x56”x90”</td>
<td>198”x66”x106”</td>
<td>198”x66”x106”</td>
<td>219”x66”x114”</td>
<td>228”x66”x114”</td>
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<tr>
<td>SHIPPING WEIGHT (LBS)</td>
<td>2,700</td>
<td>2,800</td>
<td>3,000</td>
<td>3,200</td>
<td>3,600</td>
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</table>

### PROCESS FLOW DIAGRAM

- **Feed Water**
  - Activated Carbon Filter
  - Water Softener
  - Reverse Osmosis
  - 0.2-micron Filter

- **DI Loop**
  - Pressure Regulator
  - Level Switches

- **Storage Tank**
  - Transfer Pump

- **DI Loop**
  - Mixed-Bed Deionization
  - UV Light
  - In-Line 0.2-micron Filter

- **Concentrate to Drain**

### Notes

- Standard specifications are based on typical, general lab applications and incoming water quality. Specifications may be altered to meet certain site conditions and changes in water quality.

- Dimensions and shipping weights are estimated only. Actual dimensions and weights differ dependant upon the final system design and options selected.