

Heat Pump Storage Tanks



Heat Pump Storage Tanks Heat Pump Storage Tanks with Resistance Electric Heating



Cemline® Heat Pump Storage Tanks (HPST) are designed to work in conjunction with heat pumps in domestic water systems. The increased demand for domestic heat pump water heaters creates a need for storage tanks for these systems. Cemline has the perfect solution for storage of domestic hot water when using an external heat pump water heater. These tanks can be used in a single pass or multi-pass system design allowing users to have demand response capabilities. When used in a single pass system the storage tank acts as a thermal battery charging tanks in off peak hours and discharging the tanks when there is a call for demand. Single pass systems are the preferred design, while multi-pass systems are utilized when replacing a fossil fuel water heater in an existing system.

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Cemline® Heat Pump Storage Tanks

Advantages/Standard Equipment

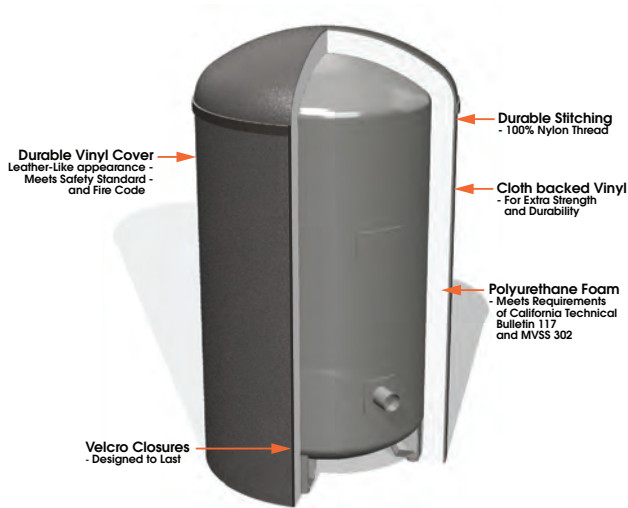
- A.S.M.E. Cement Lined Pressure Vessel** A.S.M.E. Code stamping and Registration offer the assurance of quality-controlled construction. Cement lining prevents rust and corrosion while eliminating the need for anode rods while providing long lifespan.
- 4" Connections** Minimizes water velocity entering and leaving the vessel improving stratification and provides piping flexibility.
- Thermowell Sensor Openings**..... The vessels are provided with 5 thermowell sensor openings to better monitor stratification and optimize storage capacity.
- Lifting Lugs**..... Vessel provided with welding lifting lugs to assist with maneuverability on site.
- Ring Base** Integrated ring base can eliminate the need for a house keeping pad and can be seismically clipped via bolt holes eliminating field welding in retrofits. Includes cutouts to allow Fork Truck to easily move into place.
- Painted Vessel**..... Vessels are painted with a primer coat to prevent rusting on the outside. The vessels can accommodate up to R-20 insulation blanket to comply with WSEC C404.6.1 for water storage up to 165°F.
- Flexible installation**..... These units can be used with single-pass and multi-pass piping designs while the strategically located water connections and manhole allow for space saving installation fitting into tight mechanical rooms.

Optional Equipment

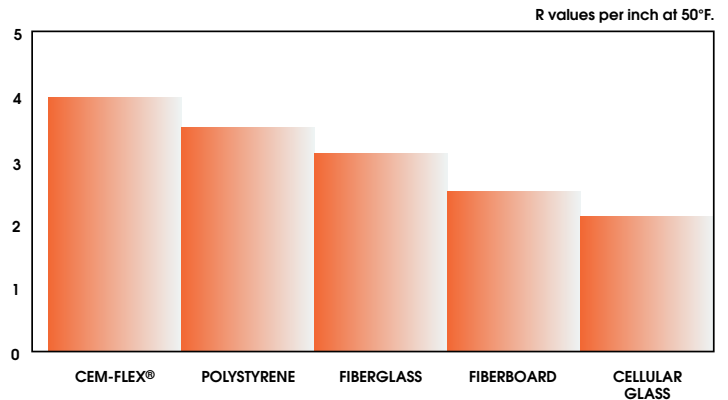
- Additional Openings**..... Adding additional inlet/outlet connections to accommodate alternative piping configurations.
- 316-L Stainless Steel Vessel** Type 316-L provides long life with corrosion resistance.
- Internal Sparge Tube with Diffuser** Further reduce water velocity entering and leaving the vessel improving stratification within the tank.
- Insulation Jacket (Cem-Flex®)** Field installed foam insulation and jacket are available R-12.5 (3-1/8" thick), R-16 (4" thick), and R-20 (5" thick) meeting or exceeding current energy code requirements.

CEM-FLEX® Advantage

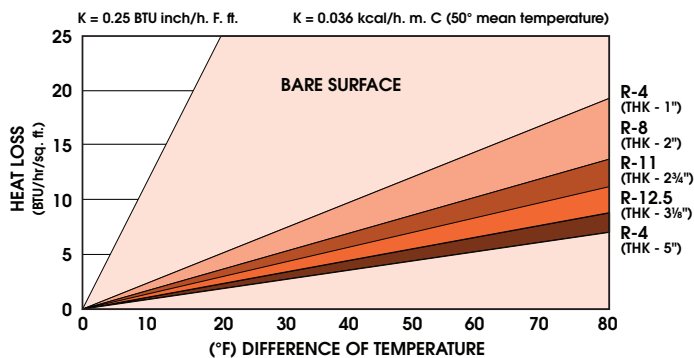
- *PAYBACK in as little as 6 Months*
- *EASY to Install On-site*
- *CUSTOM Fitted*
- *EASY Clean Finish*
- *REMOVABLE in Minutes*



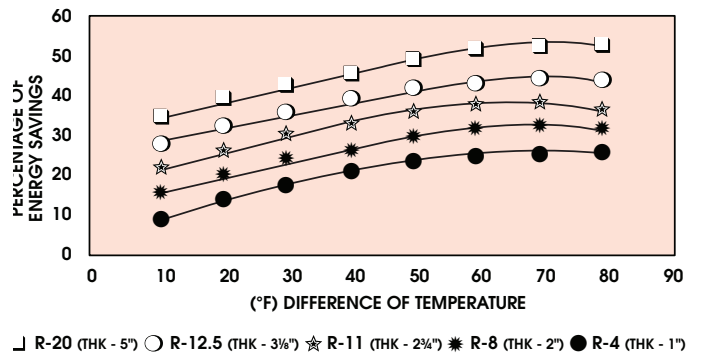
Compared with other Materials



Heat Loss

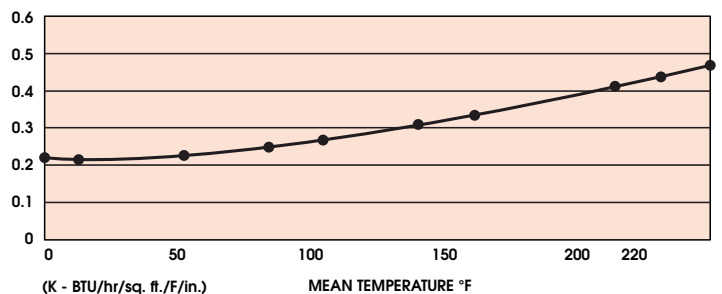


Energy Savings



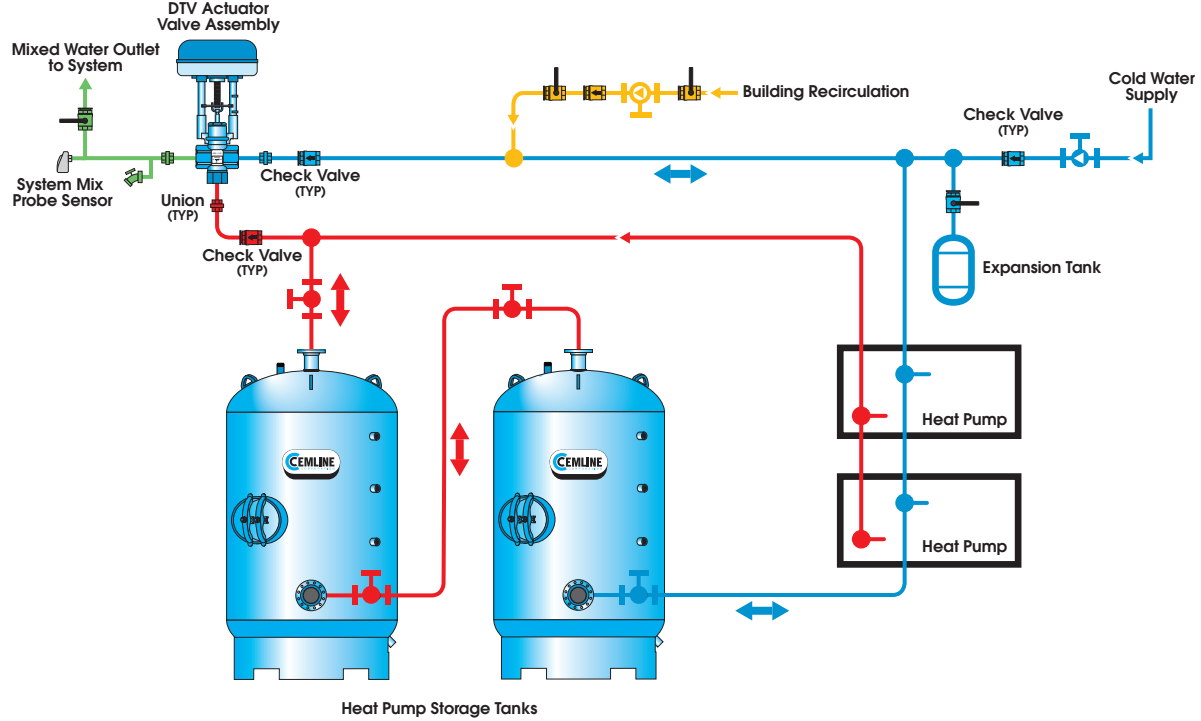
K Factor Versus Temperature

The K Factor of foam changes with the temperature of the foam. The chart below was obtained by Test Method C 117-87 which allows a better precision than other tests and which also allows measuring the K Factor for the temperature range the foam can withstand.

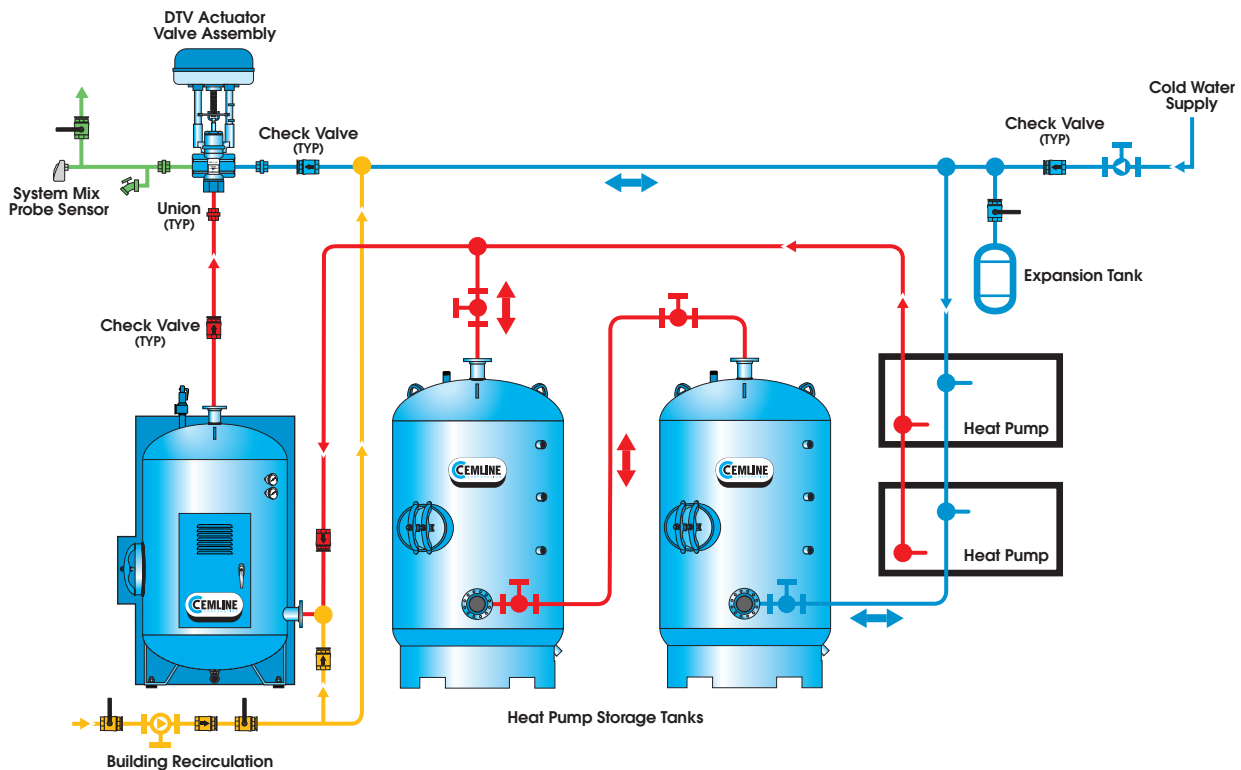


Typical Piping Diagram for Heat Pump Storage Tanks

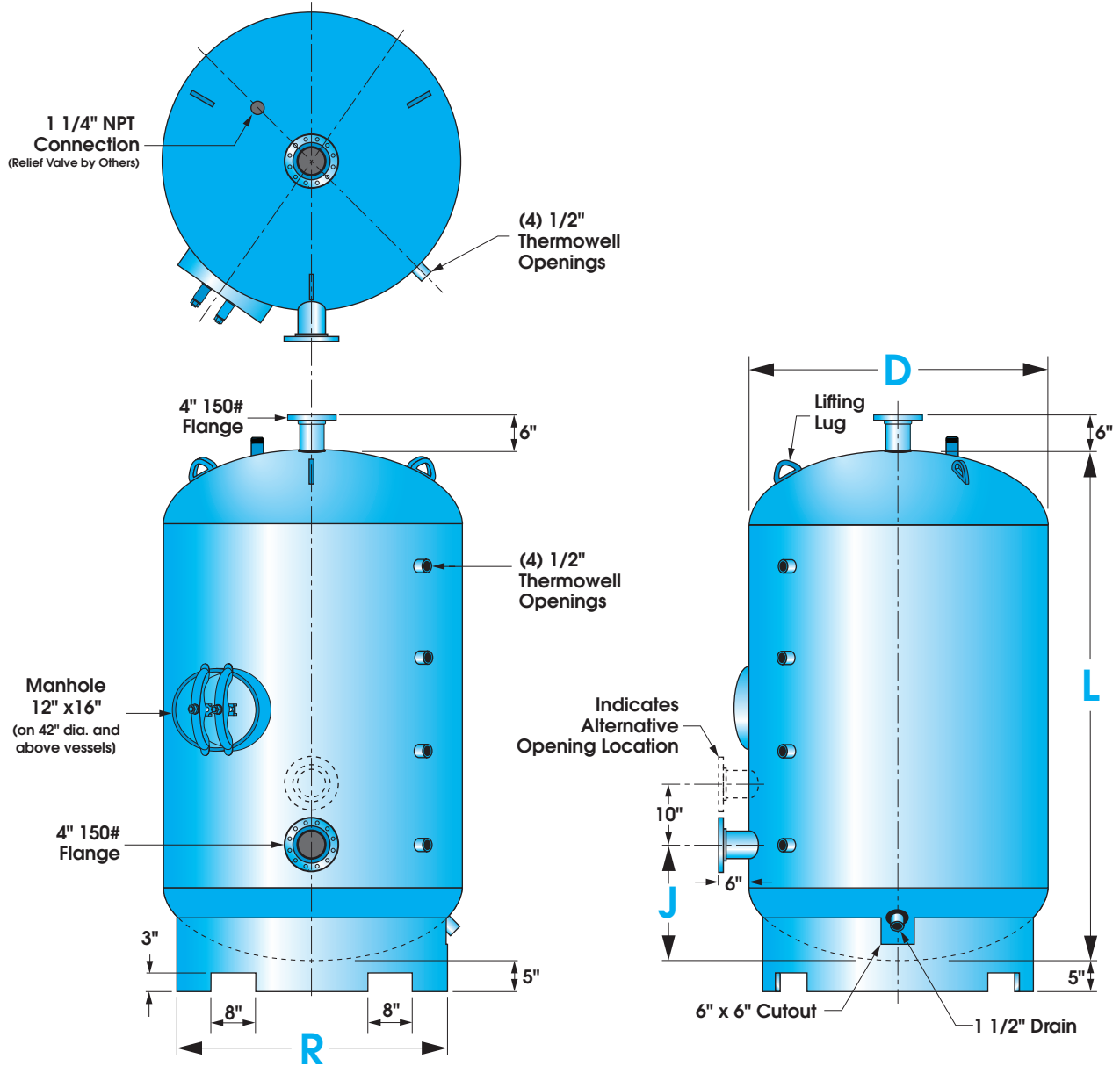
Single Pass



Single Pass with Electric Backup



Heat Pump Storage Tank Dimensional Data



MODEL	TANK CAPACITY	DIAMETER "D"	LENGTH "L"	OVERALL HEIGHT	DIMENSION "J"	RING BASE "R"	INSULATED DIMENSIONS*	SHIPPING WEIGHT
V120CST-HP	120	24"	63"	74"	15"	18"	34" x 70"	480 lbs.
V200CST-HP	200	30"	76"	87"	20"	24"	40" x 84"	720 lbs.
V300CST-HP	300	36"	80"	91"	20"	30"	46" x 91"	1,040 lbs.
V440CST-HP	440	42"	84"	95"	20"	36"	52" x 95"	1,460 lbs.
V560CST-HP	560	48"	84"	95"	20"	42"	58" x 95"	1,690 lbs.
V670CST-HP	670	54"	84"	95"	22"	48"	64" x 95"	2,250 lbs.
V1020CST-HP	1020	66"	84"	95"	25"	60"	76" x 95"	3,200 lbs.

*Assuming using CEM-FLEX® insulation R-20 (5" Thick)

Other tank sizes are available. Contact your local Cemline Representative for further details.

Heat Pump Storage Tank with Resistance Heating

Cemline can provide a Heat Pump Storage (Swing) Tank with electric elements and controls to be the back-up resistance heating to the heat pump. These are Cemline EHB style water heaters specifically to be used for the back-up heat pump applications.

Standard Equipment

- A.S.M.E. Cement Lined Pressure Vessel
- Thermowell Sensor Openings
- Lifting lugs
- Control Circuit System
- High Limit Thermostats
- Contactors
- Fuses
- Low Water Cut-Off
- Electric Control Cabinet
- Relief Valve
- Thermometer and Pressure Gauge
- Jacket & Insulation
- UL Listing

Sizing Information

480 V		208/240 V	
Total Input (KW)	Number of Steps (480 V)	Total Input (KW)	Number of Steps (208/240 V)
20	1@20	18	1@18
40	1@40	36	2@36
48	1@30 1@18	48	2@15 1@18
60	3@20	60	4@15
80	2@40	75	5@15
95	4@40 1@15	90	6@15
100	4@40 1@20	105	7@15
120	3@40	120	8@15
140	3@40 1@20	135	9@15
160	4@40	150	10@15

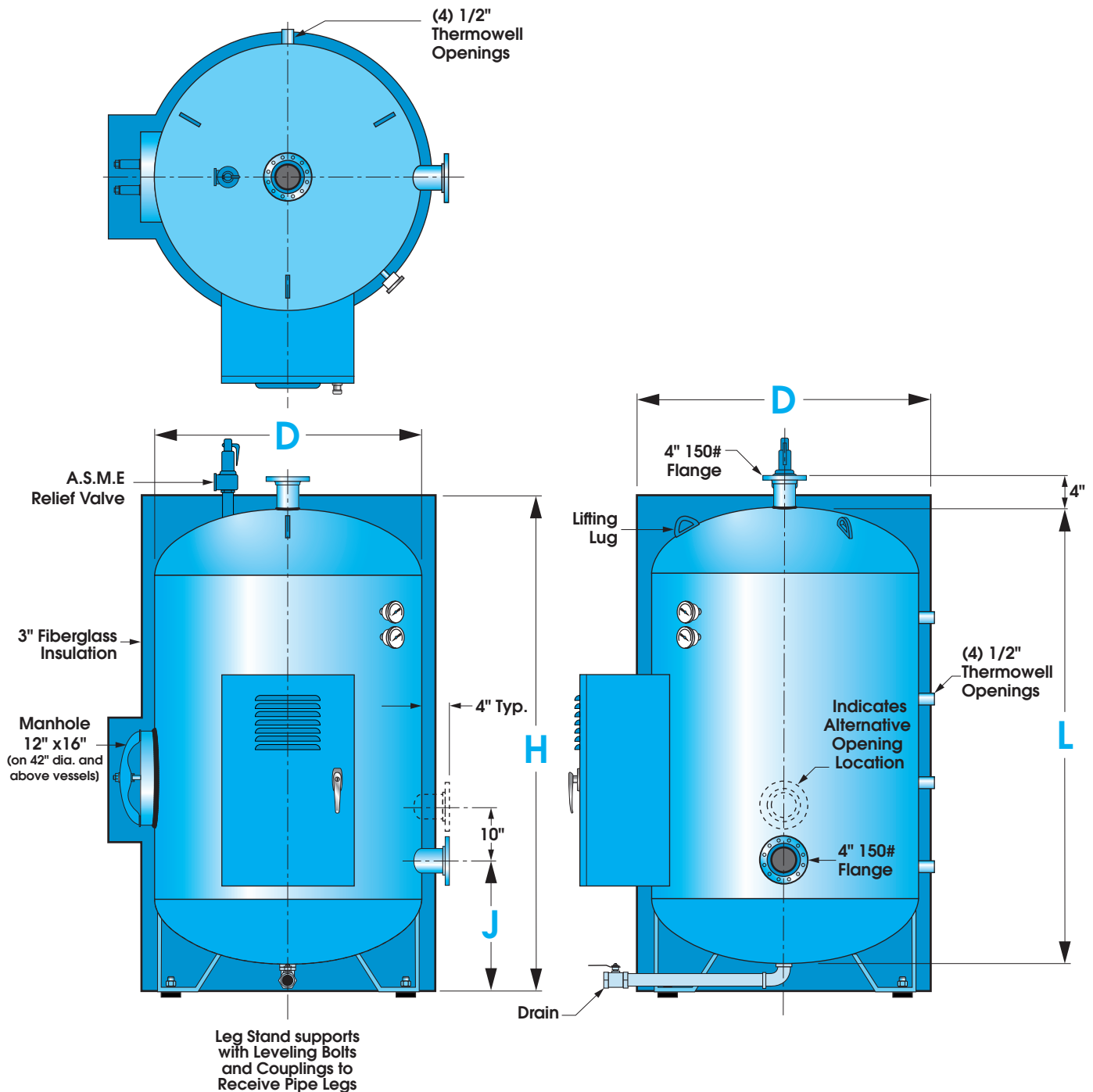
V _____ EHB _____ _____ RL

1 2 3 4 5

1. V for Vertical configuration
2. Tank Volume
3. KW Input
4. Symbol designation voltage

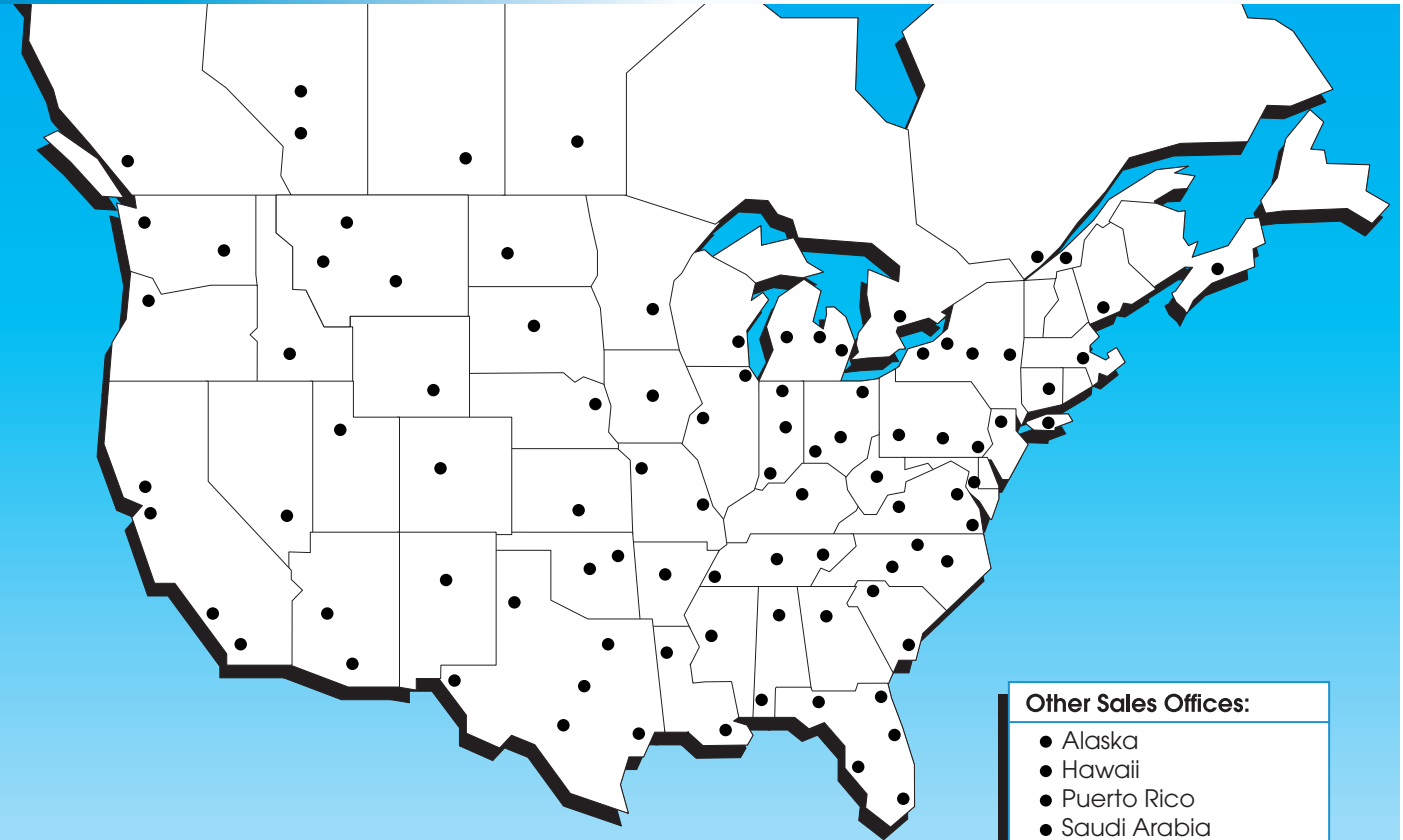
Voltage	Phase	Code
208	1	BY1
208	3	BY3
240	1	B1
240	3	B3
480	3	C3
600	3	D3
5. Symbol for UL listing

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V120EHB	120	24"	63"	70"	28"	66"	15"	1,200 lbs.
V200EHB	200	30"	76"	84"	34"	80"	20"	2,000 lbs.
V300EHB	300	36"	80"	91"	40"	84"	20"	2,600 lbs.
V440EHB	440	42"	84"	95"	46"	88"	20"	3,300 lbs.
V560EHB	560	48"	84"	95"	52"	88"	20"	4,800 lbs.
V670EHB	670	54"	84"	95"	58"	88"	22"	5,200 lbs.
V1020EHB	1020	66"	84"	95"	70"	88"	25"	5,800 lbs.

Sales Offices



Other Sales Offices:

- Alaska
- Hawaii
- Puerto Rico
- Saudi Arabia
- Taiwan
- U.A.E.

Available Cemline Brochures



- www.cemline.com
- Product Sizing Programs
 - Brochures
 - I.O.M. Manuals
 - Drawings & Specifications
 - Agent Locator
 - Plant Tour

- STONESTEEL®
 - Water Storage Tanks
 - Jacketed Storage Tanks
 - Commercial Electric and Packaged Copper Coil Water Heaters
- Submerged Heating Coils
- Replacement Tube Bundles
- Steel Tanks
- Chilled Water Buffer Tanks
- System Efficiency Buffer Tanks
- Electric Boilers
- Stainless Compact Packaged Copper Coil Water Heaters - Semi-instantaneous, Instantaneous
- Unfired Steam Generators
- Condensed Catalog

*Cemline is represented in all major cities.
Please contact your local representative or call Cemline Corporation.*

