Tank Line

Vertical, horizontal & portable storage and blending tanks
CEI offers everything you want in asphalt heating & storage systems.

- Vertical Tanks • Portable Tanks • Multi-Compartment Tanks
- Mixers • Heating Coils • Electric • Direct-Fired
- Calibration • Additive • Barrel Melters • Emissions Control
- Ladders • Stairs • Catwalks • Gauge Boards • Pressure Level Gauges

...just to name a few options.

**CEI Vertical Tanks**

CEI Vertical Tanks are field-proven to provide fast, efficient heating & keep heat loss to an absolute minimum. Their minimal demand on energy consumption helps you avoid unnecessary expenses on your fuel bill.

Tanks are usually built to order, and can be configured to meet your specific needs. Many options are available.

**Advantages of Vertical Tanks**

Vertical tanks minimize the oxidation of asphalt stored inside. That is because the surface area of liquid asphalt that is exposed to air is substantially less inside a vertical tank than in a horizontal tank.

This control of oxidation is particularly important when storing modified asphalt. Oxidation occurs at a much higher rate as temperatures are increased. Modified asphalt is stored at higher temperatures in order to keep the components from separating.

Another advantage of a vertical tank is the minimal ground area it occupies. Vertical tanks have a smaller footprint than horizontal tanks. Four vertical tanks can occupy the same ground space as one horizontal tank.
Mixing Efficiencies
CEI vertical tanks provide ideal agitation, heating and storage for modified asphalt. The flow patterns and minimal stagnation zones keep the mixture in uniform suspension so the modifier cannot separate. Impellers drive the liquid to the bottom of the tank and allow it to circulate upward and around baffles on the inner wall.

Fast Heating
CEI vertical tanks have two to three times the amount of heating surface area than is normally provided in other tanks on the market. That means CEI tanks will heat a load of asphalt faster.

CEI puts two layers of highly efficient finned coils in the bottom of vertical tanks 20,000 gallons and larger. When in use, heat transfer oil flows through the coils, heating the contents of the tank.

The time it takes to raise the temperature of asphalt is related to the amount of heating surface. For example, suppose you get a tanker load (6,000 gallons) of asphalt that needs to have its temperature raised only 10 degrees, from 290 to 300° F.

With 1,100 sq ft of heating surface area, a CEI tank can do the job in just 20 minutes. Tanks with less heating surface will take longer. And long waits can disrupt your work flow.

Temperature Control
A three-way valve controlled by a temperature sensor allows the hot thermal oil to bypass the coils when the material reaches the set temperature. The sensor causes the valve to open and close as needed to maintain temperature of the liquid asphalt.

More Insulation
At CEI, we fully insulate all surfaces of the tank. More insulation means less heat loss. And when it comes to storing asphalt, losing heat means losing money. That’s because if you’re losing heat, the heating system will be working overtime to compensate.

A well-insulated tank pays off more in the long run. And CEI tanks are among the most well-insulated tanks available on the market.

The top bulkhead has a double-wall that encloses 6” of fiberglass insulation. Outer surfaces of the side walls have 6” fiberglass insulation.

Unlike other manufacturers, CEI insulates the tank bottom. Its inner surface has 3” foam glass insulation encased in a sealed steel compartment. This feature alone results in a significant reduction in heat loss. The difference in heat loss between a CEI 30,000 gallon tank and one of the other tanks on the market is amazing. Theirs has no insulation on the tank bottom, and only 4 inches of insulation on the top and sides. Over the span of 20 years, their tank will lose 2,582,000,000 (2.582 billion) Btu more than the CEI tank. That is equal to 19,517 gallons of No. 2 fuel oil.
Colors & Construction
CEI tanks are made from 1/4” welded steel. The outer skin is aluminum, requiring virtually no maintenance. CEI offers skin in an embossed natural finish, or baked-on enamel finish in black or Astec ivory.
A 20-inch flanged side door near the bottom of the tank provides easy access to the interior. Three external side saddles allow the tank to be transported horizontally.
CEI vertical tanks are available without mixers. However, CEI does include baffles and a top flanged port so a mixer can be retrofitted later.

Piping & Pipe Insulation
Piping connections are standardized for easy installation. This is particularly useful when installing multiple tanks, or adding more tanks in the future. CEI factory-fabricated piping is available to make installation even easier.
Insulating asphalt and hot oil piping reduces heating costs. For example, one inch of insulation on jacketed 4” asphalt pipe and flanges could save over 21,756 gallons No. 2 fuel oil per year, per 100 feet of pipe.

Power Actuated Valves are available optionally for tank fill, supply and return valves. A centralized control panel with status lights reduces the likelihood of operating errors. When the tanks are being filled, the valves are controlled by the plant operator, who is less likely to make errors than truck drivers who may set manually operated valves at the tanks.

Sampling Valves are available optionally for taking asphalt samples for laboratory analysis.

Vent Condensers are available optionally for reducing blue smoke emissions from the tank. Vent condensers capture and reliquefy asphalt fumes, and return them to the tank.

Heating Options
Multiple heating options are available:
- Heating coils with jacketed firebox heater
- Heating coils with helical coil heater
- Heating coils alone

Heating Coils
The serpentine coil assembly consists of three banks with 10 runs each of 2-inch schedule 40 seamless pipe. The pipe banks are contoured to fit the bottom of the tank. Heated oil circulating through the coils heats asphalt stored in the tank. Temperature controls are the same as on our vertical tanks.

Hot Oil Heaters
The CEI-1200 jacketed firebox heater is the standard hot oil heater used on CEI portable tanks. This compact, fuel-efficient unit will heat two large tanks with pumps and connecting piping, and still have enough BTU’s left to allow a temperature rise if necessary. Firebox heaters feature 2-stage heating. Hot burner gases circulate in the firebox, then exit through a heat exchanger. Thermal oil circulates through the heat exchanger, then around the firebox in a spiral pattern.
Helical coil heaters are also available. The coil is designed and built to ASME code. It is designed to provide a large heat transfer surface area, low flux rates, and an ideal fluid velocity of 7 to 11 feet per second. ASME stamp is available as an option.

Both jacketed firebox and helical coil heaters can be used to heat another coil tank, an asphalt metering package, or a vertical tank, and are also available in geometric shapes.

Full-modulation burners ensure fuel efficiency. Standard burners are fired on No. 2 fuel oil. Optional burners for natural gas or combination gas/oil are available for burners.

Microprocessor controls regulate the flame safeguard and temperature. UL-rated, NEMA 4 control panels provide watertight protection against splashing water, hose-directed water, rain, sleet, snow, ice, dirt, and windblown dust. Panels that meet CSA specifications, and other NEMA standard enclosures are available optionally.

Rugged Construction
Tanks are made from 1/4” A-36 steel plate. Tank heads are also 1/4” steel, flanged and reinforced with channel stiffeners. Ladders are provided both inside and out. Tanks are covered with 6 inches of fiberglass insulation, and the same options of aluminum skin as vertical tanks.

Multi-Compartment Options
Internal bulkheads are optional for coil-heated tanks. These bulkheads divide the storage tank into separate compartments for different grades or types of asphalt, heavy fuel, or additives. The bulkheads are double-walled and insulated. Various combinations of heating coils and controls can be furnished. Optional electric heating elements such as helical coil heaters are available. The coil is designed and built to ASME code. It is designed to provide a large heat transfer surface area, low flux rates, and an ideal fluid velocity of 7 to 11 feet per second. ASME stamp is available as an option.

Special Versions for Modified Asphalt
Two special versions of portable tanks are available to heat and store other grades of asphalt or asphalt-rubber mixtures. Both versions maintain the modified asphalt at high temperatures, and constantly agitate the material. Pump and piping systems are oversized because modified asphalt has a higher viscosity and lower asphalt. Motor-driven mixers, agitators, or augers are mounted in the tank and spaced for optimum agitation.

Foundation Options
Optional steel plate foundations with hand cranks make setup easy. They can be cranked down in minutes, drastically reducing setup time and eliminating the need for cribbing. Screw type support level jacks with 30” x 30” plates are also available.

Fuel Tank Options
A 350-gallon compartment can be built on or in the gooseneck for storage of No. 2 fuel oil for the heater’s burner. A fuel oil filter and sight glass are included.

Additive Tank Options
A 2,000 gallon additive tank can be bolted onto the rear frame extension. It is heated and insulated.

Metering System Options
Highly-accurate twin-pump asphalt meters and mass-flow meters can be added. Meters are typically mounted on a frame extension on the back of the tank.

Unloading Pump Options
An optional pump, motor, and strainer system unloads AC tankers into the tank. The system can be piped so it also unloads the tank. A reversing starter may be used to clear the piping.

### Portable Asphalt Tanks

<table>
<thead>
<tr>
<th>Model</th>
<th>Nominal Capacity</th>
<th>Coil Heating Surface</th>
<th>Overall Length (Including Rear Frame Extension) (A)</th>
<th>Height Above Ground (B)</th>
<th>Dual Build/Wheel Spring Suspensions Axle Arrangements</th>
<th>Standard Hot Oil Heater</th>
<th>Number of Optional Foundations</th>
<th>Approximate Shipping Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>HT-10P</td>
<td>10,000 gal.</td>
<td>213 sq. ft.</td>
<td>36 ft</td>
<td>14 ft 3 in</td>
<td>single axle</td>
<td>CEI-1200</td>
<td>3</td>
<td>28,700 lbs</td>
</tr>
<tr>
<td>HT-15P</td>
<td>15,000 gal.</td>
<td>369 sq. ft.</td>
<td>46 ft</td>
<td>14 ft 3 in</td>
<td>single axle</td>
<td>CEI-1200</td>
<td>3</td>
<td>34,100 lbs</td>
</tr>
<tr>
<td>HT-20P</td>
<td>20,000 gal.</td>
<td>529 sq. ft.</td>
<td>55 ft</td>
<td>14 ft 3 in</td>
<td>tandem axles</td>
<td>CEI-1200</td>
<td>4</td>
<td>43,300 lbs</td>
</tr>
<tr>
<td>HT-25P</td>
<td>25,000 gal.</td>
<td>679 sq. ft.</td>
<td>63 ft</td>
<td>14 ft 3 in</td>
<td>tandem axles</td>
<td>CEI-1200</td>
<td>4</td>
<td>53,880 lbs</td>
</tr>
<tr>
<td>HT-30P</td>
<td>30,000 gal.</td>
<td>828 sq. ft.</td>
<td>71 ft 6 in</td>
<td>14 ft 3 in</td>
<td>triple axles</td>
<td>CEI-1200</td>
<td>5</td>
<td>62,010 lbs</td>
</tr>
<tr>
<td>HT-35P</td>
<td>35,000 gal.</td>
<td>977 sq. ft.</td>
<td>79 ft</td>
<td>14 ft 3 in</td>
<td>triple axles</td>
<td>CEI-1200</td>
<td>5</td>
<td>72,140 lbs</td>
</tr>
</tbody>
</table>

(1) CEI-1800, CEI-2400, HCS-100, HCS-175, HC-120, and HC-200 heaters are available options.
(2) Approx. Shipping Weight includes CEI-1200 heater, 3” unloading pump pkg (1,050 lbs), 3” asphalt metering system (1,500 lbs), and plate foundations (1,000 lbs each).
(3) Subtract 7 feet from overall length for rear frame extension.
(4) Optional axle arrangements include air bags, triple and quad axles.
(5) Other models are available. Please call CEI sales for detailed specifications.
**Piping Options**

A variety of piping options are available:

- Piping sizes from 2 to 4 inches
- AC lines with hot oil jackets
- Rigid AC lines with 12° ball joints
- Insulation on hot oil and AC lines
- Piping to drum mixer and other tanks
- 1-1/2" hot oil jumper lines

**Other Options**

Other options include a calibration tank for calibrating the asphalt metering system, a sock filter to clean debris from heat transfer oil and protect hot oil pumps, a 7-day, 24-hour time clock, fold-down handrails, vent condensers, and high-low AC level alarm.

**HORIZONTAL TANKS**

Stationary Horizontal Asphalt Tanks share most of the same features and options as our portable tanks, with the exception of the portable chassis and travel components.

Horizontal tanks come in eleven different sizes with capacities 5,000 to 40,000 gallons. Numerous options are available, including electric heating.

Like all CEI asphalt tanks, our horizontal tanks feature high-level and low-level safety limit switches and overflow protection.

**Table: Horizontal Asphalt Tanks**

<table>
<thead>
<tr>
<th>Model</th>
<th>Nominal Capacity</th>
<th>Coil Heating Surface</th>
<th>Overall Length (A)</th>
<th>Height (B)</th>
<th>Width</th>
<th>Approximate Shipping Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>TA-10E</td>
<td>10,000 gal.</td>
<td>231 sq. ft.</td>
<td>18 ft 4 in</td>
<td>11 ft 11 in</td>
<td>11 ft 11 in</td>
<td>10,960 lbs</td>
</tr>
<tr>
<td>TA-15E</td>
<td>15,000 gal.</td>
<td>380 sq. ft.</td>
<td>26 ft 4 in</td>
<td>11 ft 11 in</td>
<td>11 ft 11 in</td>
<td>14,931 lbs</td>
</tr>
<tr>
<td>TA-20E</td>
<td>20,000 gal.</td>
<td>529 sq. ft.</td>
<td>34 ft 4 in</td>
<td>11 ft 11 in</td>
<td>11 ft 11 in</td>
<td>18,894 lbs</td>
</tr>
<tr>
<td>TA-25E</td>
<td>25,000 gal.</td>
<td>679 sq. ft.</td>
<td>42 ft 4 in</td>
<td>11 ft 11 in</td>
<td>11 ft 11 in</td>
<td>22,912 lbs</td>
</tr>
<tr>
<td>TA-30E</td>
<td>30,000 gal.</td>
<td>828 sq. ft.</td>
<td>50 ft 4 in</td>
<td>11 ft 11 in</td>
<td>11 ft 11 in</td>
<td>26,625 lbs</td>
</tr>
<tr>
<td>TA-35E</td>
<td>35,000 gal.</td>
<td>977 sq. ft.</td>
<td>58 ft 4 in</td>
<td>11 ft 11 in</td>
<td>11 ft 11 in</td>
<td>31,160 lbs</td>
</tr>
<tr>
<td>TA-40E</td>
<td>40,000 gal.</td>
<td>1,126 sq. ft.</td>
<td>66 ft 4 in</td>
<td>11 ft 11 in</td>
<td>11 ft 6 in</td>
<td>35,200 lbs</td>
</tr>
</tbody>
</table>

Capacities shown are nominal capacities. Heights shown is for 6-inch insulation. Weights are approximate.
Direct-Fired Asphalt Tanks

Direct-Fired Tanks made by CEI provide a traditional solution for heating asphalt. The HSP and HAO series of tanks from CEI are designed specifically for production of asphalt. Tank capacities range from 10,000 gallons to 35,000 gallons. Numerous options are available.

Heating System
The direct-fired heating system consists of a burner that fires into a large combustion chamber inside the bottom of the tank. The combustion chamber is lined with refractory material for longer life.

Direct-fired tanks use an 800,000 Btu on/off burner. The standard burner uses No. 2 fuel oil. However, burners are also available for gas, LP or combination gas/oil.

The deluxe HAO tank has two secondary heating tubes that connect to the far end of the combustion chamber. They double back inside the tank and connect to two exhaust stacks that exit through the top of the tank. The secondary tubes significantly increase the amount of heating surface area in contact with the asphalt. They enable the heating system to easily outperform other direct-fired tanks on the market.

Scavenger Coils
Available optionally, scavenger coils are similar to the heating coils in our coil-heated asphalt tanks. Heat transfer oil circulates through the coils, and is heated by the hot asphalt stored in the tank. The heated oil can then be used to heat other plant components such as jacketed asphalt lines, asphalt meters, unloading pumps, etc.

The economy HSP tank lacks the secondary heating tubes. A single exhaust stack connects to the far end of the combustion chamber. Although it is not as efficient as our deluxe tanks, its efficiency is comparable to other units on the market.

Controls
Burner and safety limit controls are mounted in a control panel that is UL listed and meets NEMA 4 requirements. The panel protects against windblown dust and rain, splashing water and hose-directed water.

The burner management system uses a microprocessor to manage the burner controls and provide proper burner sequencing, ignition and flame monitoring protection. Readouts and signal lights on the face of the control panel indicate the current burner status and its operating history. If a problem occurs that causes the burner to shut down, the lights identify all switches affected by the shutdown. You can normally tell from the lights which limit switches tripped first, setting off the chain reaction that caused the shutdown.

The controls also include an asphalt high temperature backup controller and alarm switches for low and high asphalt levels. An asphalt level float gauge is also included.

Options
Available options for direct-fired tanks include:

- 300 gallon fuel tank
- Asphalt metering system
- 4’ rear frame extension with cable rack & step
- 6-inch insulation
- Scavenger coils & hot oil piping
- Spraybar

Specifications are subject to change without notice or obligation.
CEI Calibration Tanks are used to calibrate the liquid asphalt metering system of a drum mix asphalt plant. Calibration tanks save considerable time and money, and are available in vertical or horizontal styles.

**Efficiency is a concern**

Using a calibration tank is far more efficient than using a distributor truck, a common practice in the industry. Efficiency becomes significant when calibration must be done frequently. It was not so bad when calibration had to be done every month or two. But now some states require it every week.

The inefficient way

Just compare using a truck with using a CEI calibration tank. Here is what would have to be done when using a truck to calibrate a metering system:

1. Get an empty asphalt distributor truck. Drive it across a truck scale, record its weight, and then drive it to the plant.
2. Connect the truck to the asphalt tank.
3. Pump one or two thousand gallons of asphalt into the truck as indicated by the metering system. Disconnect the asphalt lines.
4. Drive the truck back across the weigh scale and record its weight.
5. Subtract the truck’s empty weight from its loaded weight. Adjust the metering system readouts to agree with the calculated weight.
6. Reconnect the truck to the asphalt tank and pump the asphalt back into the tank.
7. Repeat the whole process again, and again.

**Efficient Way**

The CEI calibration tank provides an efficient way. It has built-in load cells and a digital readout. The load cells are highly accurate. They are factory calibrated and furnished with a calibration certificate. The system provides a higher degree of accuracy than using a truck scale.

Once the calibration tank is installed, there is no need to connect and disconnect asphalt lines each time the system is calibrated. Here is all that has to be done using a CEI calibration tank:

1. Open the valves to the calibration tank and pump about 1,000 gallons of AC into the calibration tank as indicated by the asphalt metering system.
2. Note the weight shown on the readout of the calibration tank.
3. Adjust the metering system to agree with the weight shown on the readout. Switch the valves, then pump the AC back into the AC tank.

It is worthwhile

Three cycles can be run with the calibration tank in less time than it takes for one cycle with a distributor truck. Two or three hours may be saved every time calibration is needed, maybe more.

CEI Asphalt Barrel Melters are used to heat and reliquefy asphalt that is shipped in barrels. Barrel melters are typically used at remote facilities that are not conveniently served by rail or barge.

Incoming barrels of asphalt are opened, and loaded upside-down onto the barrel melter’s internal chain drive.

Heating coils inside the barrel melter significantly raise the tank’s internal temperature. As the barrels travel along the length of the tank, the internal temperature melts the asphalt in the barrels. The asphalt drops from the barrels, and collects in the bottom of the tank. The reliquefied AC is heated to mix temperature before being transferred to storage tanks or mix equipment.
**LIQUID ADDITIVE TANKS**

**CEI Additive Systems** are comprised of an additive storage tank, heating system, pump, meter and controls.

CEI additive systems are fully-packaged, with all necessary system components mounted on the storage tank. The tanks are heated by hot oil that flows through coils inside the tank.

Electrically-heated tanks are also available.

Heating controls are included to maintain the additive at the proper temperature.

The system incorporates a mass-flow meter for accurate measurement of additive flow. The system can add liquid additives based on a proportional control logic versus production rate and/or asphalt flow rate.

CEI additive systems are available in either stationary or portable design. The systems can be mounted on either portable or stationary asphalt storage tanks.

Options include automated divert valves for batch plants, variable speed drives, and a separate trailer. Temperature-adjusting mass flow meters and volumetric batching canisters are both available to meet specific project specifications.

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**VENT CONDENSERS**

**Vent Condensers** reduce asphalt fumes and visible "blue smoke" emissions from AC storage tanks.

Light ends that are present in liquid asphalt become vapors when heated. Condensing the vapors back into a liquid form, through a heat exchanging process, returns these constituents back into the AC tank instead of allowing them to escape into the atmosphere.

Vent condensers are effective, simple to maintain devices that are suitable for horizontal tanks (stationary or portable), vertical tanks, and even underground storage tanks. Normally, one vent condenser per tank compartment is recommended. However, multiple tanks (or compartments) can be connected to a single vent condenser through a common header system.

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**Equipment. Parts. Service. Rely on CEI.**

A legacy of innovation and quality since 1969.