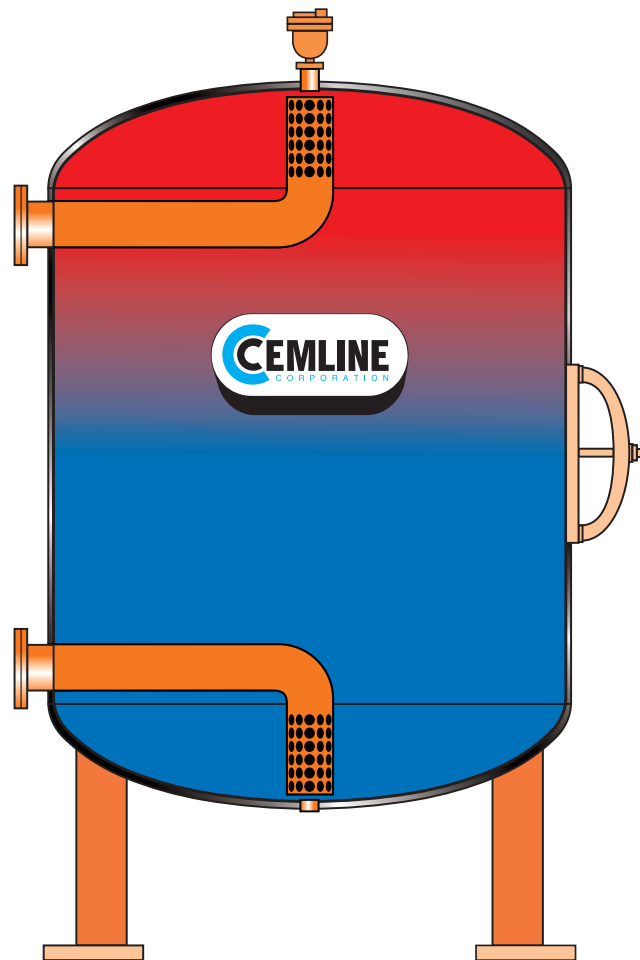


TES Series



Thermal Energy Storage Tanks

Cemline TES Series Tanks are designed to store thermal energy.



CEMLINE CORPORATION

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Cemline® Thermal Energy Storage Tanks Specifications

Cemline Thermal Energy Storage Tanks are designed for Cemline Thermal Energy Storage Tanks are designed to store thermal energy in the event of power loss or for renewable energy sources requiring thermal storage.

Renewable systems such as solar collectors, biomass boilers, geothermal heat pumps, air to water heat pumps transfer energy to the tank during off-peak demand times for availability at later time.

The Cemline TES tank is designed with internal sparge tubes with diffusers located at the top and bottom of the

vessel. The internal sparge tubes are closed end pipe with holes to diffuse water entering and exiting the vessel. The water entering and exiting the vessel have reduced velocity allowing for temperature stratification within the vessel preventing the jet flow and mixing within the tank that would occur with standard inlets and outlets at the top and bottom of the vessel.

Standard Equipment

- Tank - A.S.M.E. (125 psi @ 400°F)
- Legs for vertical installation
- Internal Sparge Tube with Diffuser
- Air Vent
- Openings for Temperature Sensors (12" - 24" centers)

Optional Equipment

- Electric Element
- Heat Exchanger Coil
- Jacket & Insulation
- Leg Stands

Step 1

Select vessel size based on formula.

$$V = \frac{Q_{load}}{\Delta T \times 8.33 \times FOM \times \text{specific gravity}}$$

V = TES Tank Volume Required

Q_{load} = Load in BTU's

ΔT = The temperature difference in the tank

8.33 = 8.33 #/gal

FOM = Ratio of Available Cooling Capacity During Discharge

Theoretical Maximum Cooling Capacity of Fully Charged Tank
(FOM is typically .90)

Specific Gravity of Water at 50°F = 1

Step 2

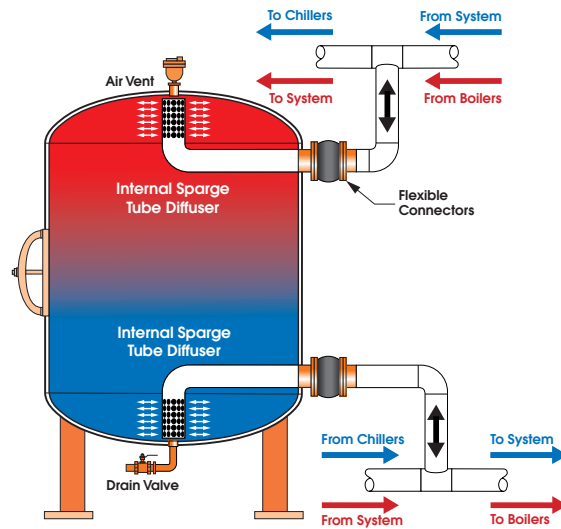
Select pipe size from chart below.

PIPE DIA. (in.)	MAX. FLOW (gpm)
2	20
2.5	30
3	45
4	80
6	180
8	310
10	490
12	695
14	840
16	1100
18	1390
20	1730

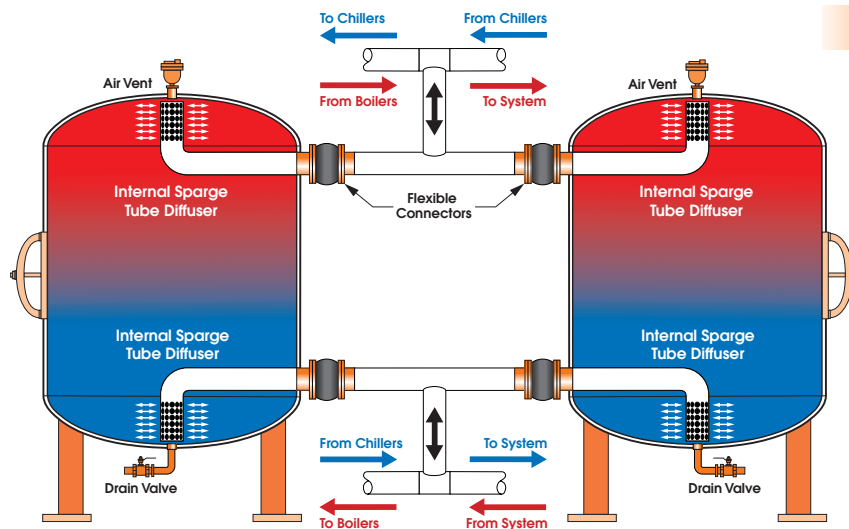
Note: Max. flow rate based on velocity less than 2 ft./sec.

Cemline® Thermal Energy Storage Tanks Piping Arrangements

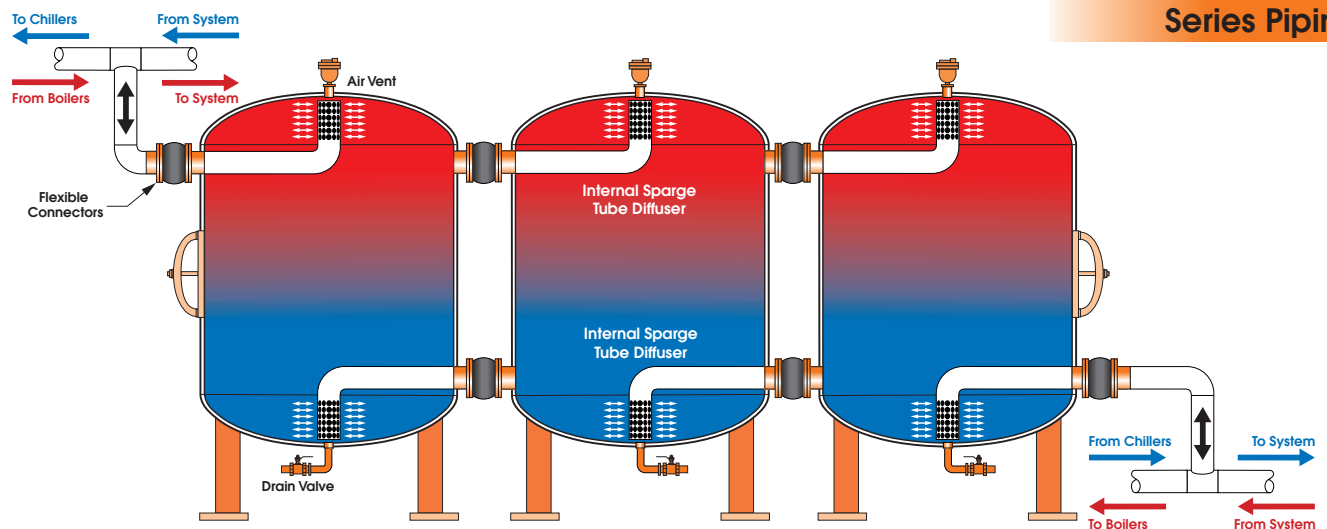
Piping for 1 TES



Parallel Piping



Series Piping



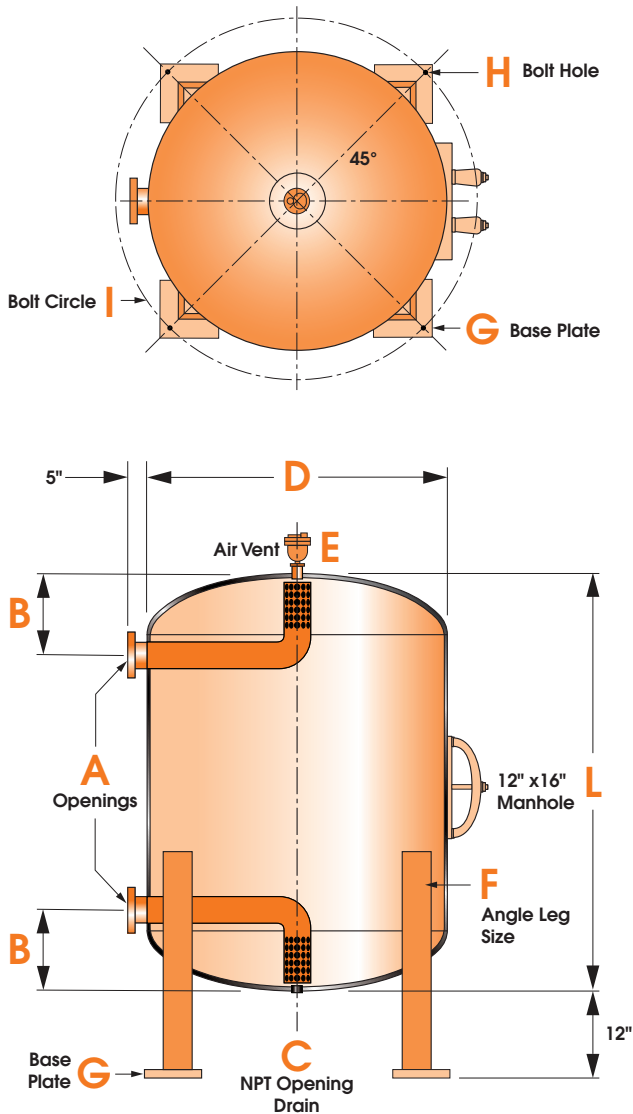
TES Series



Dimensional Charts

"D" Vessel Dia.	"B" Distance of Center Opening	"C" Drain	"E" Drain	"F" Angle Size	"G" Base Plates	"H" Bolt Hole	"I" Bolt Circle
42"	18"	1-1/2"	3/4"	3" x 3" x 1/4"	6" x 6" x 1/4"	7/8"	49"
48"	20"	1-1/2"	3/4"	4" x 4" x 1/2"	6" x 6" x 1/4"	7/8"	56"
54"	22"	1-1/2"	3/4"	4" x 4" x 1/2"	6" x 6" x 1/4"	7/8"	62-5/8"
60"	24"	1-1/2"	3/4"	6" x 6" x 1/2"	10" x 10" x 1/4"	7/8"	74"
72"	30"	2"	3/4"	6" x 6" x 1/2"	10" x 10" x 1/4"	7/8"	86"
84"	34"	2"	3/4"	6" x 6" x 1/2"	10" x 10" x 1/4"	7/8"	96"
96"	40"	2"	3/4"	6" x 6" x 1/2"	10" x 10" x 1/4"	7/8"	110"

Dimensional Drawing



Length	Capacity Gallons						
	Diameter						
	42"	48"	54"	60"	72"	84"	96"
96"	530	680	850	1040	1460	1980	2580
108"	600	770	970	1190	1685	2260	2960
120"	670	860	1085	1330	880	2540	3340
132"	740	955	1200	1470	2080	2820	3720
144"	810	1050	1310	1610	2280	3105	4090
156"	880	1140	1430	1760	2480	3380	4460
168"	950	1235	1550	1905	2700	3660	4840
180"	1020	1320	1660	2040	2900	3940	5220
192"	1090	1410	1780	2190	3100	4220	5590
204"	1160	1500	1900	2330	3325	4500	5960
216"	1230	1590	2015	2475	3520	4780	6340
228"		1680	2130	2620	3720	5060	6720
240"		1770	2240	2760	3920	5340	7090
252"			2360	2910	4140	5620	7460
264"			2470	3060	4340	5900	7840
276"				3120	4550	6180	8220

"A" Openings
2" NPT
2.5" NPT
3" NPT Flange
4" NPT Flange
6" NPT Flange
8" NPT Flange
10" NPT Flange
12" NPT Flange
14" NPT Flange
16" NPT Flange
18" NPT Flange
20" NPT Flange

Model Number Code

V _____ **TES** _____

GALLON CAPACITY **OPENING SIZE**

— — — — —

OPENING TYPE **SUPPORT**

F = Flange **C = Leg Stands**

N = NPT **SL = Siesmic Legs**

G = Groove End Pipe

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