

Biomass – Thermal Storage Tanks

for use with Biomass Boilers

Please file in Service Binder

Safety and Installation Requirements

Please ensure that these instructions are read and understood before starting any service work. Failure to comply with these instructions may cause product/property damage, severe personal injury and/or loss of life.

Working on the equipment

The installation, adjustment, service and maintenance of this product must be performed by a licensed professional heating contractor who is qualified and experienced in the installation, service, and maintenance of hot water boilers.

There are no user serviceable parts on the tanks.

Ensure that main power to the equipment being serviced is off.

Take precautions to avoid accidental activation of power during service work.

Do not perform service work on any component part without ensuring safe operation of the heating system. When replacing parts, use original Viessmann or Viessmann approved replacement parts.



Refer to the Installation and Start-up/Service Instructions applicable to this boiler.

Product Information



ASME 'U' code symbol stamped, pressure vessel with a Canadian Registration Number (CRN). When used in conjunction with Biomass boilers, the Biomass Thermal Storage Tank acts as a thermal reservoir and as a hydraulic break, decoupling boiler and the system circuit from each other.

Heat may be added to the tank by the biomass boiler, solar system or other back-up systems and removed by the distribution system at different rates. This ensures steady supply temperatures to the heating system and ensures efficient energy use.

The tanks are equipped with three or five temperature sensors connected to the boiler control to regulate the biomass boiler operation.

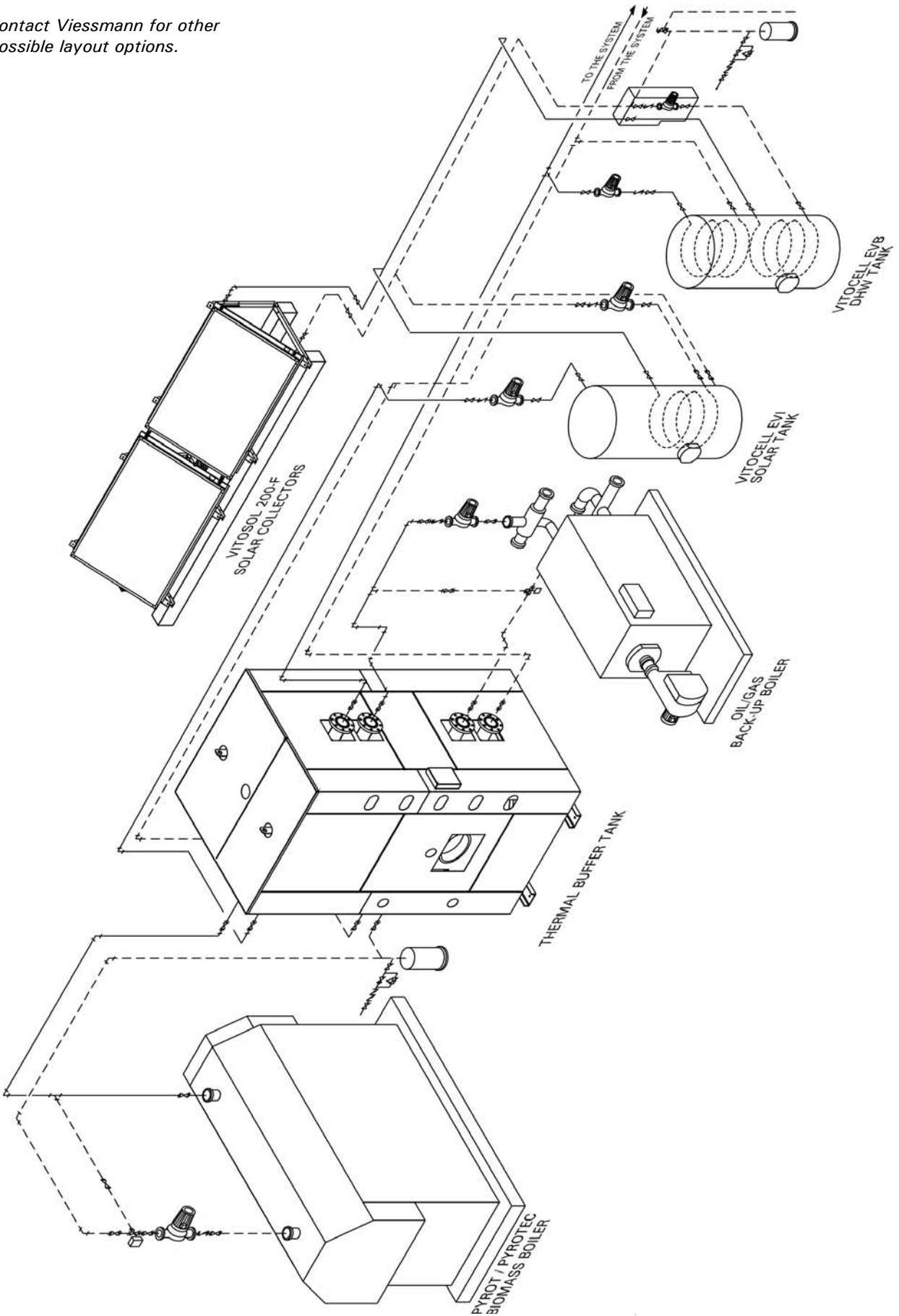
Boiler model, size	Tank USG (L)
Pyrot 150	400 (1514)
Pyrot 220	530 (2006)
Pyrot 300	700 (2650)
Pyrot 400	1000 (3785)
Pyrot 540	1500 (5678)
Pyrotec 390	1000 (3785)
Pyrotec 530	1500 (5678)
Pyrotec 720	1750 (6624)
Pyrotec 950	2500 (9464)
Pyrotec 1250	3300 (12492)

IMPORTANT

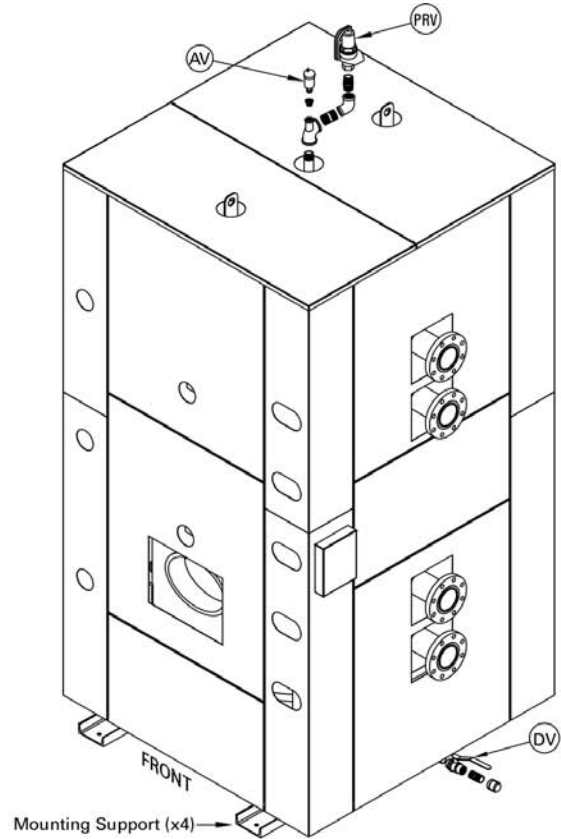
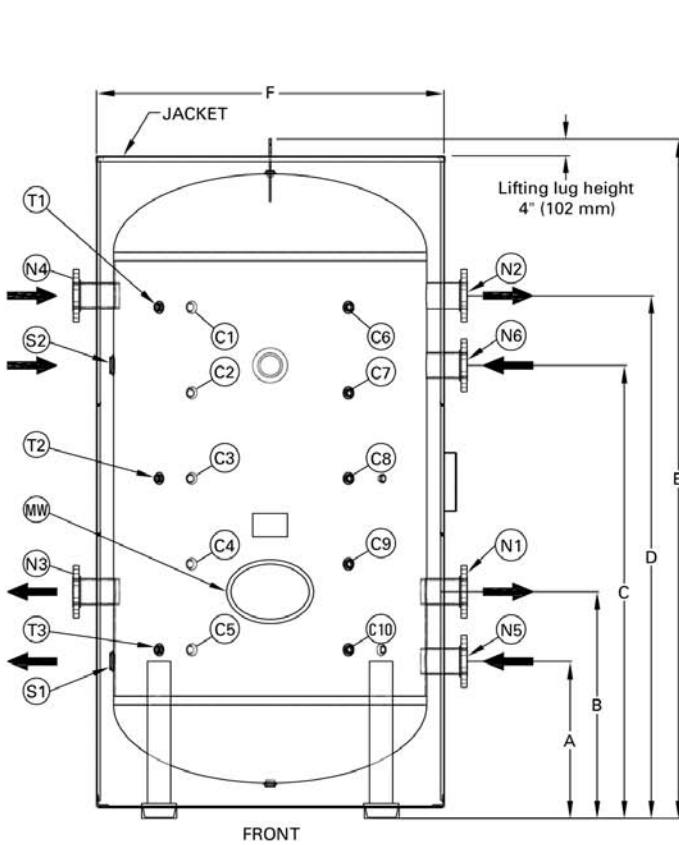
Ensure that the lifting/handling equipment is able to securely handle the size and weight of this tank (see data on page 6). The floor where the tank is to be positioned must be able to properly support the weight of the tank filled with water.

Typical System Piping Layout

Note: Contact Viessmann for other possible layout options.



Tank A – for straight wall installation



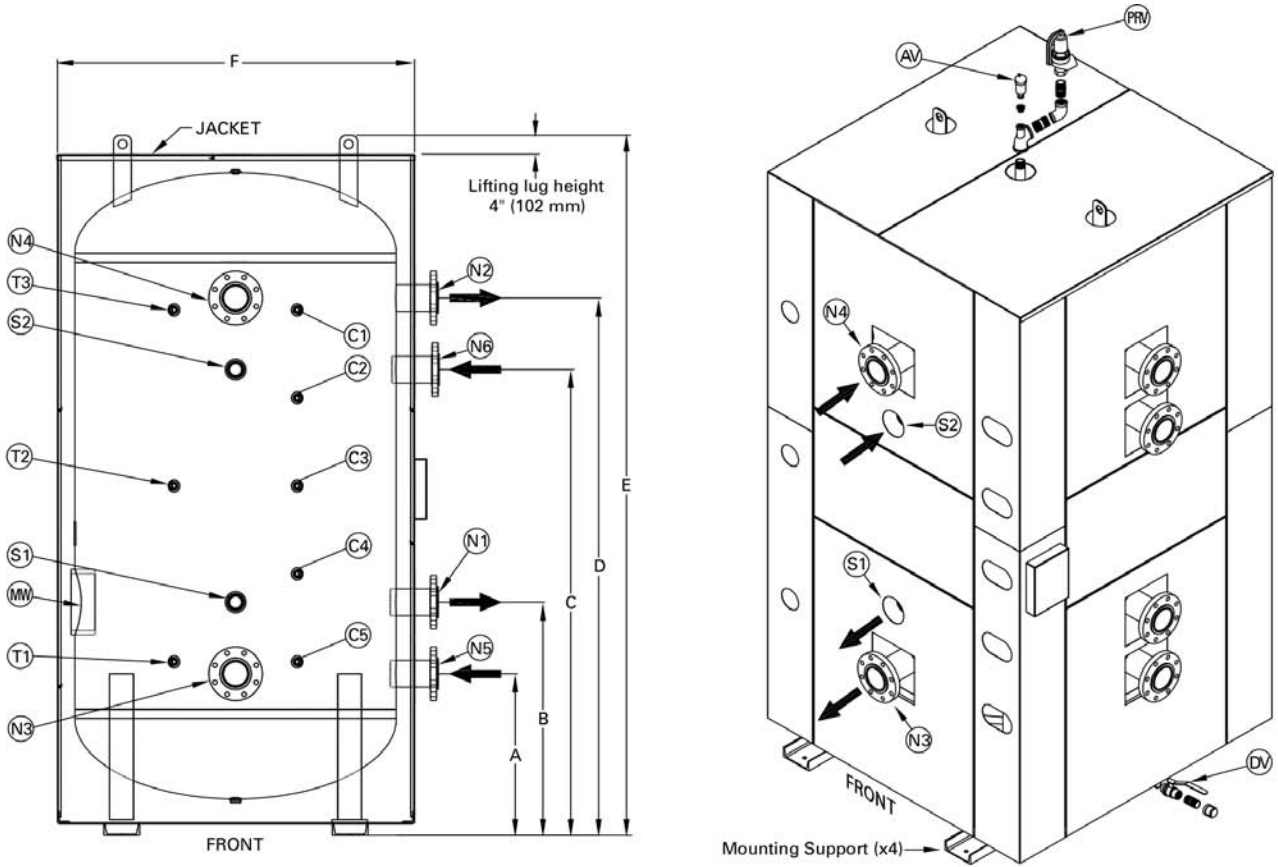
Note: The tank must be securely bolted to the floor using all four mounting supports.

DIMENSIONS (inches)							
GALLON	DIA	A	B	C	D	E	F
400	42	24	36	47	59	84	48
530	48	25½	37½	48½	60½	87	54
700	54	27	36	48	59	87	60
1000	54	27	39	87	90	118	60
1500	66	30	42	75	87	118	72
1750	72	31½	43½	74½	86½	119	78
2500	84	34½	46½	80	92	127½	90
3300	84	34½	46½	111½	123½	159	90

DIMENSIONS (mm)							
GALLON	DIA	A	B	C	D	E	F
400	1067	610	914	1194	1499	2134	1219
530	1219	648	953	1232	1537	2210	1372
700	1372	686	914	1219	1499	2210	1524
1000	1372	686	991	2210	2286	2997	1524
1500	1676	762	1067	1905	2210	2997	1829
1750	1829	800	1105	1892	2197	3023	1981
2500	2134	876	1181	2032	2337	3239	2286
3300	2134	876	1181	2832	3137	4039	2286

LEGEND	400 - 700 USG CAPACITY	1000 - 3300 USG CAPACITY
(N1)	RETURN TO BACKUP BOILER	RETURN TO BACKUP BOILER
(N2)	SUPPLY TO HEATING SYSTEM	SUPPLY TO HEATING SYSTEM
(N3)	RETURN TO BIOMASS BOILER	RETURN TO BIOMASS BOILER
(N4)	SUPPLY FROM BIOMASS BOILER	SUPPLY FROM BIOMASS BOILER
(N5)	RETURN FROM HEATING SYSTEM	RETURN FROM HEATING SYSTEM
(N6)	SUPPLY FROM BACKUP BOILER	SUPPLY FROM BACKUP BOILER
(C1)	ALTERNATE SENSOR WELL B28.1	ALTERNATE SENSOR WELL B28.1
(C2)	NOT USED	ALTERNATE SENSOR WELL B28.2
(C3)	ALTERNATE SENSOR WELL B28.2	ALTERNATE SENSOR WELL B28.3
(C4)	NOT USED	ALTERNATE SENSOR WELL B28.4
(C5)	ALTERNATE SENSOR WELL B28.3	ALTERNATE SENSOR WELL B28.5
(C6)	SENSOR WELL B28.1	SENSOR WELL B28.1
(C7)	NOT USED	SENSOR WELL B28.2
(C8)	SENSOR WELL B28.2	SENSOR WELL B28.3
(C9)	NOT USED	SENSOR WELL B28.4
(C10)	SENSOR WELL B28.3	SENSOR WELL B28.5
(T1)	THERMOMETER WELL	THERMOMETER WELL
(T2)	THERMOMETER WELL	THERMOMETER WELL
(T3)	THERMOMETER WELL	THERMOMETER WELL
(T4)	THERMOMETER WELL	THERMOMETER WELL
(T5)	THERMOMETER WELL	THERMOMETER WELL
(T6)	THERMOMETER WELL	THERMOMETER WELL
(S1)	RETURN TO SOLAR HEAT EXCH.	RETURN TO SOLAR HEAT EXCH.
(S2)	SUPPLY FROM SOLAR HEAT EXCH.	SUPPLY FROM SOLAR HEAT EXCH.
(PRV)	PRESSURE RELIEF VALVE	PRESSURE RELIEF VALVE
(AV)	AIR VENT	AIR VENT
(DV)	DRAIN VALVE	DRAIN VALVE
(MW)	MANWAY 12 x 16" (305 x 406 mm)	MANWAY 12 x 16" (305 x 406 mm)

Tank B – for right corner wall installation



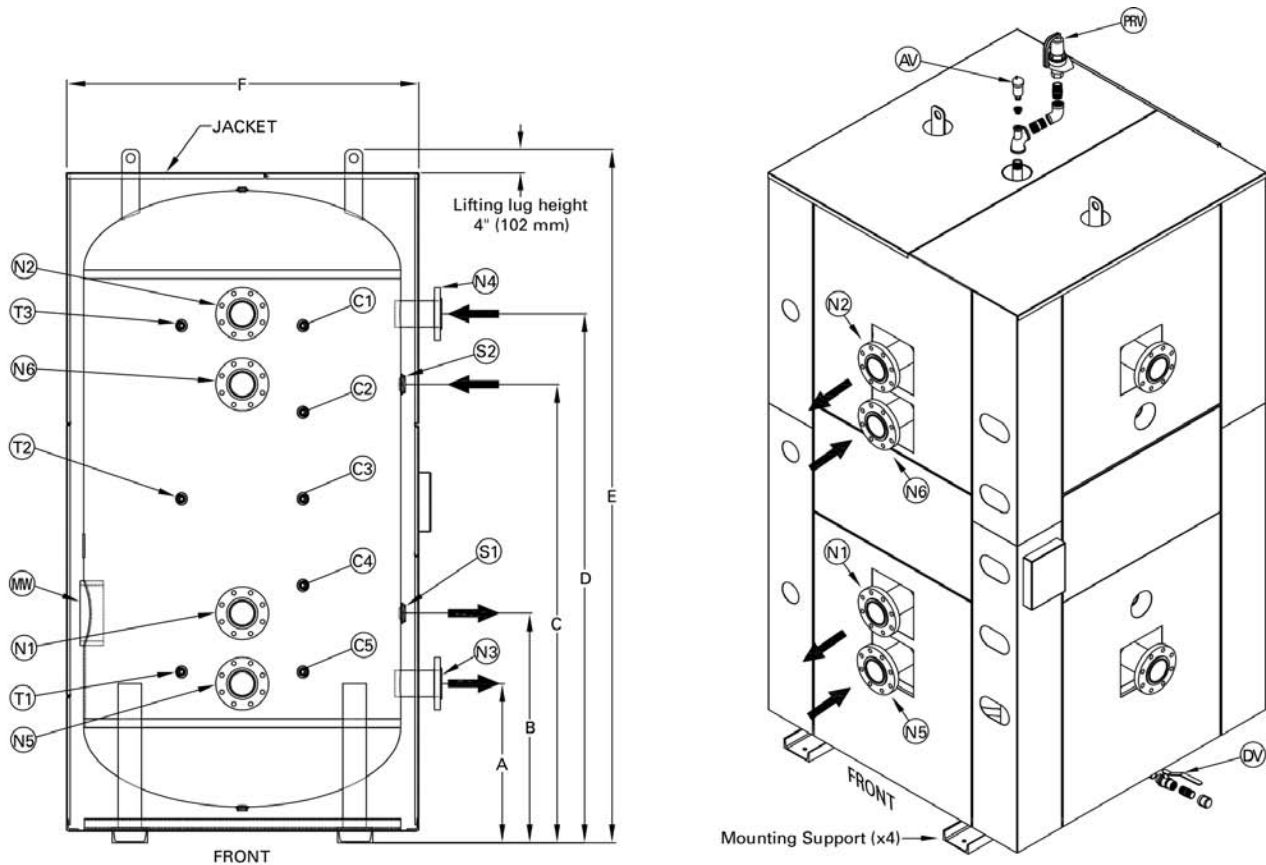
Note: The tank must be securely bolted to the floor using all four mounting supports

DIMENSIONS (inches)							
GALLON	DIA	A	B	C	D	E	F
400	42	24	36	47	59	84	48
530	48	25½	37½	48½	60½	87	54
700	54	27	36	48	59	87	60
1000	54	27	39	87	90	118	60
1500	66	30	42	75	87	118	72
1750	72	31½	43½	74½	86½	119	78
2500	84	34½	46½	80	92	127½	90
3300	84	34½	46½	111½	123½	159	90

DIMENSIONS (mm)							
GALLON	DIA	A	B	C	D	E	F
400	1067	610	914	1194	1499	2134	1219
530	1219	648	953	1232	1537	2210	1372
700	1372	686	914	1219	1499	2210	1524
1000	1372	686	991	2210	2286	2997	1524
1500	1676	762	1067	1905	2210	2997	1829
1750	1829	800	1105	1892	2197	3023	1981
2500	2134	876	1181	2032	2337	3239	2286
3300	2134	876	1181	2832	3137	4039	2286

LEGEND	400 - 700 USG CAPACITY	1000 - 3300 USG CAPACITY
(N1)	RETURN TO BACKUP BOILER	RETURN TO BACKUP BOILER
(N2)	SUPPLY TO HEATING SYSTEM	SUPPLY TO HEATING SYSTEM
(N3)	RETURN TO BIOMASS BOILER	RETURN TO BIOMASS BOILER
(N4)	SUPPLY FROM BIOMASS BOILER	SUPPLY FROM BIOMASS BOILER
(N5)	RETURN FROM HEATING SYSTEM	RETURN FROM HEATING SYSTEM
(N6)	SUPPLY FROM BACKUP BOILER	SUPPLY FROM BACKUP BOILER
(C1)	SENSOR WELL B28.1	SENSOR WELL B28.1
(C2)	NOT USED	SENSOR WELL B28.2
(C3)	SENSOR WELL B28.2	SENSOR WELL B28.3
(C4)	NOT USED	SENSOR WELL B28.4
(C5)	SENSOR WELL B28.3	SENSOR WELL B28.5
(T1)	THERMOMETER WELL	THERMOMETER WELL
(T2)	THERMOMETER WELL	THERMOMETER WELL
(T3)	THERMOMETER WELL	THERMOMETER WELL
(S1)	RETURN TO SOLAR HEAT EXCH.	RETURN TO SOLAR HEAT EXCH.
(S2)	SUPPLY FROM SOLAR HEAT EXCH.	SUPPLY FROM SOLAR HEAT EXCH.
(PRV)	PRESSURE RELIEF VALVE	PRESSURE RELIEF VALVE
(AV)	AIR VENT	AIR VENT
(DV)	DRAIN VALVE	DRAIN VALVE
(MW)	MANWAY 12 x 16" (305 x 406 mm)	MANWAY 12 x 16" (305 x 406 mm)

Tank C – for left corner wall installation



Note: The tank must be securely bolted to the floor using all four mounting supports.

DIMENSIONS (inches)							
GALLON	DIA	A	B	C	D	E	F
400	42	24	36	47	59	84	48
530	48	25½	37½	48½	60½	87	54
700	54	27	36	48	59	87	60
1000	54	27	39	87	90	118	60
1500	66	30	42	75	87	118	72
1750	72	31½	43½	74½	86½	119	78
2500	84	34½	46½	80	92	127½	90
3300	84	34½	46½	111½	123½	159	90

DIMENSIONS (mm)							
GALLON	DIA	A	B	C	D	E	F
400	1067	610	914	1194	1499	2134	1219
530	1219	648	953	1232	1537	2210	1372
700	1372	686	914	1219	1499	2210	1524
1000	1372	686	991	2210	2286	2997	1524
1500	1676	762	1067	1905	2210	2997	1829
1750	1829	800	1105	1892	2197	3023	1981
2500	2134	876	1181	2032	2337	3239	2286
3300	2134	876	1181	2832	3137	4039	2286

LEGEND	400 - 700 USG CAPACITY	1000 - 3300 USG CAPACITY
(N1)	RETURN TO BACKUP BOILER	RETURN TO BACKUP BOILER
(N2)	SUPPLY TO HEATING SYSTEM	SUPPLY TO HEATING SYSTEM
(N3)	RETURN TO BIOMASS BOILER	RETURN TO BIOMASS BOILER
(N4)	SUPPLY FROM BIOMASS BOILER	SUPPLY FROM BIOMASS BOILER
(N5)	RETURN FROM HEATING SYSTEM	RETURN FROM HEATING SYSTEM
(N6)	SUPPLY FROM BACKUP BOILER	SUPPLY FROM BACKUP BOILER
(C1)	SENSOR WELL B28.1	SENSOR WELL B28.1
(C2)	NOT USED	SENSOR WELL B28.2
(C3)	SENSOR WELL B28.2	SENSOR WELL B28.3
(C4)	NOT USED	SENSOR WELL B28.4
(C5)	SENSOR WELL B28.3	SENSOR WELL B28.5
(T1)	THERMOMETER WELL	THERMOMETER WELL
(T2)	THERMOMETER WELL	THERMOMETER WELL
(T3)	THERMOMETER WELL	THERMOMETER WELL
(S1)	RETURN TO SOLAR HEAT EXCH.	RETURN TO SOLAR HEAT EXCH.
(S2)	SUPPLY FROM SOLAR HEAT EXCH.	SUPPLY FROM SOLAR HEAT EXCH.
(PRV)	PRESSURE RELIEF VALVE	PRESSURE RELIEF VALVE
(AV)	AIR VENT	AIR VENT
(DV)	DRAIN VALVE	DRAIN VALVE
(MW)	MANWAY 12 x 16" (305 x 406 mm)	MANWAY 12 x 16" (305 x 406 mm)

Tank Information

Tank size USG (L)	400 (1514)	530 (2006)	700 (2650)	1000 (3785)
Tank diameter	42" (1067 mm)	48" (1219 mm)	54" (76 mm)	54" (76 mm)
Overall depth with feet	56" (1422 mm)	62" (1575 mm)	68" (1727 mm)	68" (1727 mm)
Tank (jacket) width ¹ *	48" (1219 mm)	54" (1372 mm)	60" (1524 mm)	60" (1524 mm)
Tank height (jacket)	80" (2032 mm)	83" (2108 mm)	83" (2108 mm)	112" (2845 mm)
Tank height with lifting lugs ² *	84" (2134 mm)	87" (2210 mm)	87" (2210 mm)	118" (2997 mm)
Overall height with PRV	90" (2286 mm)	94" (2388 mm)	97" (2464 mm)	128" (3251 mm)
Size of connecting flanges (N1-N6) ³ *	3"	3"	4"	4"
Size of threaded couplings for solar connection (S1, S2) (NPT)	2"	2"	2"	2"
No. of temperature sensors	3	3	3	5
Drain valve size (NPT)	1"	1"	1"	1"
PRV outlet size 30 PSI (NPT)	1"	1 ¼"	1 ½"	1 ½"
PRV outlet size 60 PSI (NPT)	¾"	1"	1 ¼"	1 ¼"
Estimated weight (Dry) Jacketed	1800 lb (816 kg)	2400 lb (1090 kg)	3100 lb (1406 kg)	5000 lb (2268 kg)
Estimated weight (Dry) UnJacketed	1100 lb (499 kg)	1600 lb (726 kg)	2300 lb (1043 kg)	3000 lb (1361 kg)

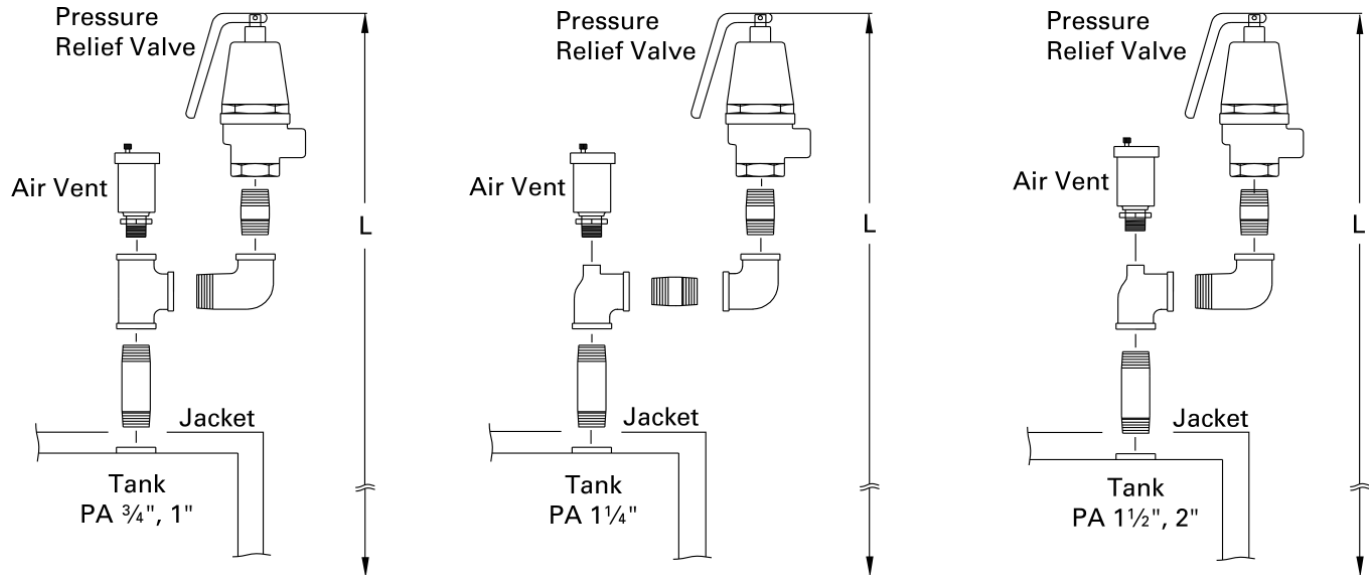
Tank size USG (L)	1500 (5678)	1750 (6624)	2500 (9464)	3300 (12492)
Tank diameter	66" (1676 mm)	72" (1829 mm)	84" (2134 mm)	84" (2134 mm)
Overall depth with feet	80" (2032 mm)	86" (2184 mm)	98" (2489 mm)	98" (2489 mm)
Tank (jacket) width ¹ *	72" (1829 mm)	78" (1981 mm)	90" (2286 mm)	90" (2286 mm)
Tank height (jacket)	114" (2896 mm)	115" (2921 mm)	123 ½" (3137 mm)	155" (3937 mm)
Tank height with lifting lugs ² *	118" (2997 mm)	119" (3023 mm)	127 ½" (3239 mm)	159" (4039 mm)
Overall height with PRV	128" (3251 mm)	132 ½" (3366 mm)	155" (3937 mm)	186 ½" (4737 mm)
Size of connecting flanges (N1-N6) ³ *	4"	6"	6"	6"
Size of threaded couplings for solar connection (S1, S2) (NPT)	2"	2"	2"	2"
No. of temperature sensors	5	5	5	5
Drain valve size (NPT)	1"	1"	1"	1"
PRV outlet size 30 PSI (NPT)	1 ½"	2"	2 ½"	2 ½"
PRV outlet size 60 PSI (NPT)	1 ¼"	1 ¼"	2"	2"
Estimated weight (Dry) Jacketed	6000 lb (2722 kg)	7000 lb (3175 kg)	8700 lb (3946 kg)	12000 lb (5443 kg)
Estimated weight (Dry) UnJacketed	3800 lb (1724 kg)	4400 lb (1996 kg)	5900 lb (2676 kg)	8600 lb (3901 kg)

¹* See pages 3, 4 and 5 for dimension F

²* See pages 3, 4 and 5 for dimension E

³* ANSI Flanges

PRV Installation



Tank size PRV opening	400 PA 3/4"	530 PA 1"	700 PA 1 1/4"	1000 PA 1 1/4"	1500 PA 1 1/4"	1750 PA 1 1/2" 30 psi PA 1 1/4" 60 psi	2500 PA 2"	3300 PA 2"
Tank height (jacket)	80" (2032 mm)	83" (2108 mm)	83" (2108 mm)	114" (2896 mm)	114" (2896 mm)	115" (2921 mm)	130 1/2" (3315 mm)	162" (4115 mm)
PRV assembled	13" (330 mm)	14" (356 mm)	17" (432 mm)	17" (432 mm)	17" (432 mm)	20 1/2" (521 mm)	27 1/2" (699 mm)	27 1/2" (699 mm)
Total height (L) (PRV top installed)	90" (2286 mm)	94" (2388 mm)	97" (2464 mm)	128" (3251 mm)	128" (3251 mm)	132 1/2" (3366 mm)	148" (3759 mm)	179 1/2" (4559 mm)

Note: The pressure relief valve/air vent is normally installed to the top opening of the tank (as shown). If height is a concern, the pressure relief valve can be installed to the flanged supply connection to the heating system or from the biomass boiler (see N2/N4 on page 3, 4 and 5) using a field supplied fitting. Ensure that the pressure relief valve spindle is always installed vertically. The air vent must be installed at the top of the tank.

The discharge line opening of the pressure relief valve must be piped 1.0 ft. (300 mm) above the floor close to the floor drain with copper or steel pipe. The discharge pipe must be installed in the shortest distance and pitch downward from the pressure relief valve and terminate plain. Ensure the pressure relief valve is adequately secured.

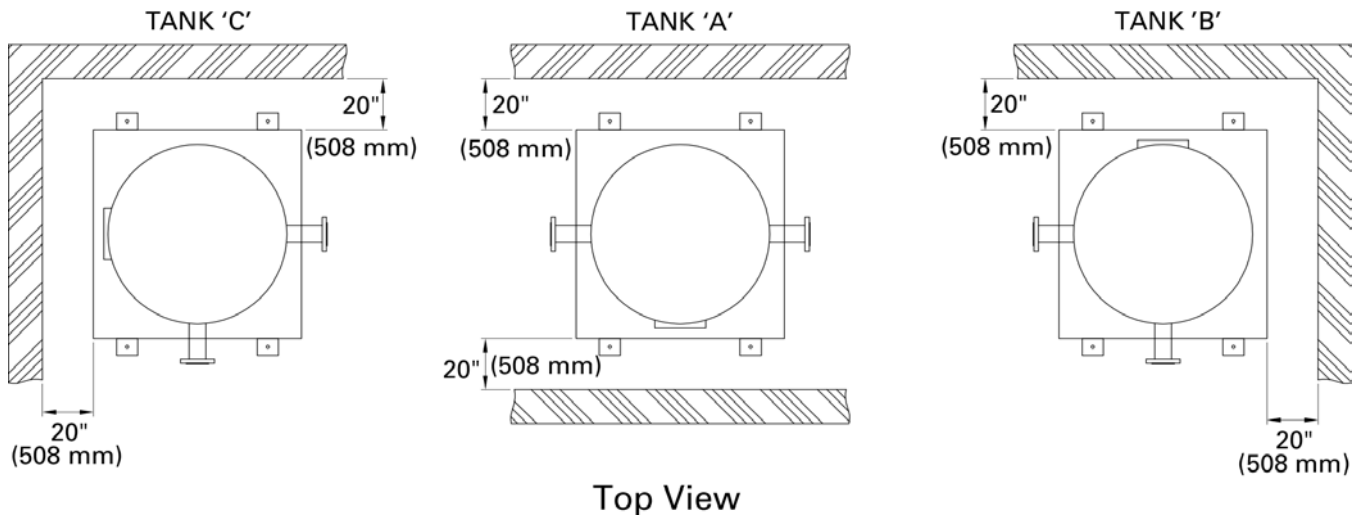
WARNING

Do not install an isolation valve or any kind of an obstruction between the tank and the pressure relief valve or between the pressure relief valve and the discharge pipe outlet.

WARNING

The discharge pipe for the pressure relief valve must be oriented to prevent scalding of attendants. Never pipe the discharge pipe to the outdoors.

Wall Clearances



Note: Dimensions shown are recommended minimum service clearances.
See pages 3, 4 and 5 for tank versions A, B and C.

IMPORTANT

The final location/position of the tank inside the building/structure must allow access to the manway opening for tank inspection. If the tank is tight to the wall, an opening in the wall/structure must be provided to properly access the manway opening.

The tank rating plate must be in an accessible location.

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Technical information subject to change without notice.

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