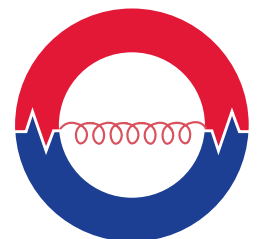


Precision Storage Vessels



EXPANSION TANKS



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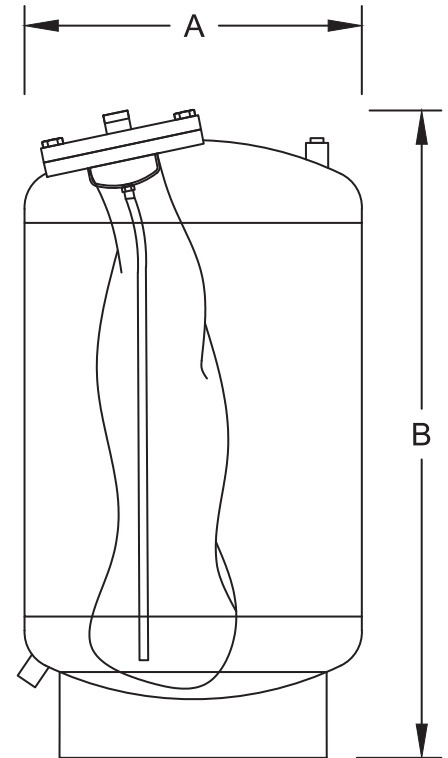
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Application

- To avoid pressure build up in water system due to thermal expansion.
- ET Series tank absorb the increased volume (expanded) water and return the water to the system when demand arise.
- ET Series tank protect the system by maintaining maximum pressure of the operating conditions.
- Can be used for heating and cooling application.

Specification

- Designed and built in accordance with the ASME code section VIII Div I.
- Configuration vertical.
- Replaceable high quality heavy duty butyl Rubber.
- Factory pre charged – 12 PSI
- Shell: Carbon steel with exterior red oxide primer and with one coat of enamel paint.
- Max design temperature - 150°C
- Max design pressure- 20 bar



Model Number	Tank Volume (Gallons)	Max Acceptable (Gallons)	Tank Litres	A Diameter (mm)	B Height (mm)	System conn NPT (inches)	Shipping Weight (Kgs)				
							125 PSI	150 PSI	175 PSI	250 PSI	300 PSI
ET-200	53	53	200	450	1675	1	87	94	114	132	135
ET-300	80	80	300	520	1710	1	105	133	146	175	171
ET-400	106	106	400	620		1	125	156	171	212	271
ET-500	132	132	500	660	1830	1	142	171	198	248	341
ET-600	159	159	600	670	2100	1½	200	232	271	328	369
ET-800	211	211	800	820	1900	1½	247	258	282	412	432
ET-1000	264	264	1000	850	2300	1½	277	341	341	462	485
ET-1200	317	317	1200	925	2200	1½	319	391	391	535	562
ET-1400	370	370	1400	1000	2250	1½	356	441	441	607	637
ET-1600	422	422	1600	1050	2300	1½	503	648	750	871	916
ET-2000	528	528	2000	1170	2400	1½	584	762	1085	1096	1205
ET-2500	660	660	2500	1170	2835	2	702	885	1096	1175	1235
ET-3000	793	793	3000	1260	2950	2	782	1012	1137	1341	1410
ET-3500	925	925	3500	1350	3100	2	995	1080	1191	1664	1719
ET-4000	1057	1057	4000	1450	3100	2	1070	1200	1364	1855	1948
ET-5000	1316	1316	5000	1600	3250	3	1114	1700	1864	1910	2364
ET-7500	1975	1975	7500	1600	4600	3	1819	1955	2046	2523	3069
ET-10000	2632	2632	10000	1800	5700	3	2228	2410	2500	3091	5000

Figure 1 : Water Expansion Factor

Maximum System Temp.	Minimum System Temperature						
	40°F	50°F	60°F	70°F	80°F	90°F	100°F
60°F	0.0005	0.0049		...	...	...	...
70°F	0.0015	0.0014	0.0009	...	...	...	...
80°F	0.0026	0.0025	0.002	0.0011	...	...	...
90°F	0.0041	0.004	0.0035	0.0026	0.0015	...	...
100 °F	0.0058	0.0057	0.0052	0.0043	0.0031	0.0017	...
110 °F	0.0077	0.0077	0.0072	0.0062	0.0051	0.0037	0.0019
120 °F	0.01	0.0099	0.0095	0.0086	0.0074	0.006	0.0043
130 °F	0.0124	0.0123	0.0118	0.0109	0.0098	0.0089	0.0066
140 °F	0.015	0.0149	0.0145	0.0135	0.0124	0.011	0.0093
150 °F	0.0179	0.0178	0.0173	0.0164	0.0153	0.0133	0.0121
160 °F	0.0209	0.208	0.0204	0.0194	0.0181	0.0165	0.0148
170 °F	0.0242	0.0241	0.0236	0.0227	0.0216	0.0201	0.0184
180 °F	0.0276	0.0275	0.0271	0.0261	0.025	0.0236	0.0219
190 °F	0.0313	0.0312	0.0307	0.0298	0.0287	0.0272	0.0255
200 °F	0.0351	0.035	0.0346	0.0336	0.0325	0.0311	0.0294
210 °F	0.0391	0.039	0.0386	0.0376	0.0365	0.0351	0.0334
220 °F	0.0434	0.0433	0.0428	0.0419	0.0408	0.0393	0.0376
230 °F	0.0476	0.0475	0.0471	0.0461	0.045	0.0436	0.0419
240 °F	0.0522	0.0521	0.0517	0.0507	0.0496	0.0482	0.0465

Expansion Tank Sizing :-

1. Total system volume ____gallons
2. Minimum system temperature ____ °F
3. Maximum system temperature ____ °F
4. Minimum operating pressure at expansion tank ____psig
5. Maximum operating pressure at expansion tank ____psig
6. Water expansion factor(see Fig 1)
7. Amount of expanded water = Line (1) X Line (6) ____gallons
8. Tank acceptance factor. ____ (see Fig 2)
9. Minimum volume= Line(7) ÷ Line (8) gallons
10. Select an expansion tank that is equal to line (9)
11. Multiple tanks can be used for higher volumes .

Figure 2 : Tank Acceptance Factor

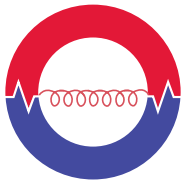
Maximum Operating Pressure Psig	Minimum Operating Pressure at Tank (psig)										
	5	10	12	15	20	30	40	50	60	70	80
27	0.527	0.408	0.36	0.288	0.168	...	...	...	...	...	...
30	0.56	0.447	0.403	0.336	0.224	...	...	...	...	...	...
35	0.604	0.503	0.463	0.403	0.302	0.101	...	...	...	...	...
40	0.64	0.548	0.512	0.457	0.366	0.183	...	...	...	...	...
45	0.67	0.586	0.553	0.503	0.419	0.251	0.084	...	...	...	...
50	0.696	0.618	0.587	0.541	0.464	0.309	0.155	...	...	...	...
55	0.717	0.646	0.617	0.574	0.502	0.359	0.215	0.072	...	...	...
60	0.736	0.669	0.643	0.602	0.0536	0.402	0.268	0.134	...	...	...
65	0.753	0.69	0.665	0.627	0.0565	0.439	0.314	0.188	0.062	...	...
70	0.767	0.708	0.685	0.649	0.59	0.472	0.354	0.236	0.118	...	...
75	0.78	0.725	0.702	0.669	0.613	0.502	0.39	0.279	0.167	0.056	...
80	0.792	0.739	0.718	0.689	0.634	0.528	0.422	0.317	0.211	0.106	...
90	0.812	0.764	0.745	0.716	0.669	0.573	0.478	0.382	0.287	0.191	0.096
100	0.828	0.785	0.767	0.741	0.698	0.61	0.523	0.436	0.347	0.261	0.174
110	0.842	0.802	0.786	0.762	0.723	0.642	0.561	0.481	0.401	0.321	0.24

Typical design Specification

Furnish and install precision make ET Seriesliters, pre charged vertical configuration expansion tank made of carbon steel with replacement heavy duty butyl Rubber bladder. The tank shall have a bottom mounted connection and charging valve connection with full gland to facilitate on site charging of the tank if required. Tank must be fitted with suitable lifting hooks. Tank shall be designed and constructed in accordance with the ASME boiler and pressure vessel code section VIII Div I.

RANGE OF PRODUCTS

- ✦ HEAT EXCHANGER PACKAGE
- ✦ AIR RECEIVER
- ✦ OIL AND GAS FIRED WATER HEATERS
- ✦ INDIRECT HEATED STORAGE CALORIFIERS
- ✦ AIR SEPARATORS
- ✦ FEED TANKS & CONDENSATE RECEIVERS
- ✦ BLOWDOWN VESSEL
- ✦ ELECTRIC WATER HEATERS
- ✦ SEPARATORS BUFFER VESSELS
- ✦ AIR & DIRT SEPARATORS

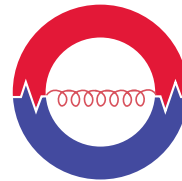


PRECISION

Precision Storage Vessels Pvt. Ltd.

Kalpadi, P.O.
Kalpadi, K. K. Dist.
Tamil Nadu, India
Tel : 0091 4651 237730
Fax: 0091 4651 238585

email: manuel@psvpl.com



PRECISION

Precision Storage Tanks LLP

3rd Floor 82 King Street
Manchester MZYWQ
United Kingdom
Tel : 0044 161 8 325 080
Fax: 0044 161 8 352 323