Expansion Tank Volume Calculation

Job:

1. Enter Total System Water Content _____ gal.
2. a. Enter Minimum System Temperature _____ °F
   b. Enter Maximum System Temperature _____ °F
   c. Enter Expansion Factor From **Table 1** _____
3. Calculate Expanded Water Volume (Multiply line 1 by line 2c) _____
4. a. Enter Minimum System Pressure (P1) _____ psig
   b. Enter maximum System Pressure (Po) _____ psig
   c. Enter acceptance Factor From **Table 2**
5. Calculate Total Tank Volume Required (Divide line 3 by line 4c) _____ gal.
6. Select Tank from Product Data Table--Side 1 Model _____

Note: When using WPA Tanks, amount of expanded water generated (Line 3) must not exceed acceptance volume of tank.

Maximum Temp °f	Initial Temperature °F												
	40	45	50	55	60	65	70	75	80	85	90	95	100
50°	0.00006	0.00008											
55°	0.00025	0.00027	0.00019										
60°	0.00055	0.00057	0.00049	0.0003									
65°	0.00093	0.00095	0.00087	0.00068	0.00033								
70°	0.00149	0.00151	0.00143	0.00124	0.00094	0.00056							
75°	0.00194	0.00196	0.00186	0.00169	0.00139	0.00101	0.00045						
80°	0.0026	0.00262	0.00254	0.00235	0.00205	0.00167	0.00111	0.00066					
85°	0.00326	0.00328	0.0035	0.00301	0.00271	0.00233	0.00177	0.00132	0.00066				
90°	0.00405	0.00407	0.00399	0.0038	0.0035	0.00312	0.00256	0.00211	0.00145	0.00079			
95°	0.00485	0.0087	0.00479	0.0046	0.0043	0.00392	0.00336	0.00291	0.00225	0.00159	0.0008		
100°	0.00575	0.00577	0.00569	0.0055	0.0052	0.00482	0.00426	0.00381	0.00315	0.00249	0.0017	0.0009	
105°	0.00671	0.0067.	0.00665	0.00646	0.00616	0.00578	0.00522	0.00477	0.00411	0.00315	0.00266	0.00186	0.00096
110°	0.00771	0.00773	0.00765	0.00746	0.00715	0.00678	0.00622	0.00577	0.00511	0.00445	0.00366	0.00286	0.00196
115°	0.00879	0.00881	0.00873	0.00854	0.00824	0.00786	0.0073	0.00685	0.00619	0.00553	0.00474	0.00394	0.00304
120°	0.04004	0.01006	0.00998	0.00979	0.00949	0.00911	0.00855	0.0081	0.00744	0.00678	0.00599	0.00519	0.00429
125°	0.00011	0.0113	0.01105	0.01086	0.01056	0.01018	0.00962	0.00917	0.00851	0.00785	0.00706	0.00625	0.00536
130°	0.01236	0.01238	0.0123	0.01211	0.01181	0.01143	0.01087	0.01042	0.00976	0.0091	0.00831	0.00751	0.00661
135°	0.01368	0.0137	0.01362	0.01342	0.01313	0.01275	0.01219	0.01174	0.01108	0.01042	0.00963	0.00883	0.00793
140°	0.01501	0.01503	0.01495	0.01476	0.01446	0.01408	0.01352	0.01307	0.01241	0.01175	0.01096	0.01016	0.00326
145°	0.01643	0.01645	0.01637	0.01318	0.01588	0.0155	0.01494	0.01449	0.01383	0.01317	0.01238	0.01158	0.01068
150°	0.01787	0.01787	0.01779	0.0176	0.0173	0.01692	0.01636	0.01591	0.01525	0.01459	0.0133	0.013	0.0121
155°	0.01937	0.01939	0.01931	0.01912	0.01882	0.01844	0.01788	0.01743	0.01677	0.01611	0.01532	0.01452	0.01362
160°	0.02092	0.02094	0.02086	0.02067	0.02037	0.01999	0.01943	0.01877	0.01811	0.01732	0.01652	0.01572	0.01482
165°	0.02252	0.02254	0.02246	0.02227	0.02197	0.02159	0.02103	0.02058	0.01992	0.01926	0.01847	0.01767	0.01677
170°	0.02418	0.0242	0.02412	0.02393	0.02363	0.02325	0.02269	0.02224	0.02158	0.02092	0.02013	0.01933	0.01843
175°	0.02588	0.0259	0.02582	0.02563	0.02533	0.02495	0.02439	0.02394	0.02328	0.02262	0.02183	0.02103	0.02013
180°	0.02763	0.02765	0.02757	0.02738	0.02708	0.0267	0.02614	0.02569	0.02503	0.02437	0.02358	0.02278	0.02188
185°	0.02941	0.02943	0.02935	0.029616	0.02886	0.02848	0.02792	0.02747	0.02681	0.02615	0.02536	0.02456	0.02366
190°	0.03127	0.03129	0.03121	0.03102	0.03072	0.03034	0.02978	0.02933	0.02867	0.02801	0.02722	0.02642	0.02552
195°	0.03314	0.03316	0.03308	0.03289	0.03259	0.03221	0.03165	0.0312	0.03054	0.02988	0.02909	0.02829	0.02739
200°	0.0351	0.03512	0.0354	0.03485	0.03455	0.03417	0.03361	0.033116	0.0325	0.03184	0.03105	0.03025	0.02935
205°	0.03707	0.03709	0.03701	0.03682	0.03652	0.03614	0.03558	0.03513	0.03447	0.03381	0.03302	0.03222	0.03132
210°	0.03911	0.03913	0.03905	0.03885	0.03856	0.03818	0.03762	0.03717	0.03651	0.03585	0.03506	0.03426	0.03336
215°	0.0412	0.04122	0.04114	0.04095	0.04065	0.04027	0.03971	0.03926	0.0386	0.03794	0.03715	0.03635	0.03545
220°	0.04335	0.04337	0.04329	0.0431	0.0428	0.04242	0.04186	0.04141	0.04075	0.04009	0.0393	0.0385	0.0376
225°	0.04519	0.04551	0.04543	0.04524	0.04494	0.04456	0.044	0.04355	0.04289	0.04223	0.04144	0.04064	0.03974
230°	0.04762	0.04764	0.04756	0.04737	0.04707	0.04669	0.04613	0.04568	0.04502	0.04436	0.04357	0.04277	0.04187
235°	0.04991	0.04993	0.04985	0.04966	0.04936	0.048998	0.04842	0.04797	0.04731	0.04665	0.04586	0.04506	0.04416
240°	0.0522	0.05222	0.05214	0.05195	0.05165	0.05127	0.05071	0.05026	0.0496	0.04894	0.04815	0.04735	0.04645

Po Maximum Operating Press. PSIG	P1 - Minimum Operating Pressure at Tank (PSIG)										
	5	10	12	15	20	25	30	35	40	45	50
30	0.56	0.477	0.403	0.336	0.224	0.112					
40	0.64	0.548	0.512	0.457	0.366	0.274	0.183	0.091			
50	0.696	0.618	0.587	0.541	0.464	0.386	0.309	0.232	0.155	0.078	
60	0.736	0.669	0.643	0.602	0.536	0.469	0.402	0.335	0.268	0.201	0.134
70	0.767	0.708	0.685	0.649	0.59	0.531	0.472	0.413	0.354	0.295	0.236
80	0.792	0.739	0.718	0.686	0.634	0.581	0.528	0.475	0.422	0.37	0.317
90	0.812	0.764	0.745	0.716	0.669	0.621	0.573	0.525	0.478	0.43	0.382
100	0.828	0.785	0.767	0.741	0.698	0.654	0.61	0.567	0.523	0.479	0.436
110	0.842	0.802	0.786	0.762	0.723	0.682	0.642	0.601	0.561	0.521	0.481
120	0.854	0.817	0.802	0.78	0.742	0.705	0.668	0.631	0.594	0.557	0.52
125	0.859	0.823	0.809	0.787	0.752	0.716	0.68	0.644	0.608	0.573	0.537

Note: If pressures exceeds tables use formula:

$$1 - \frac{P1 + 14.7}{Po - 14.7}$$ to obtain factor

JOB NAME _____
LOCATION _____
_____
_____
CONTRACTOR _____
CONTRACTOR P.O. NO. _____

ITEMS	QUANTITY

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