Vessel Installation and Maintenance Recommendations

I. INSTALLATION RECOMMENDATIONS

Vertical Vessels

1. Vessels with a capacity of 660 gallons and above should be placed on a suitable concrete foundation.
   a) Refer to Table 1 for recommended minimum concrete footing depths for vertical receivers.
   b) For larger vessels or vessels with higher MAWP's, greater weights, or vessels subjected to external seismic or wind loadings – consult a certified contractor or civil engineer for foundation requirements.
   c) Vessels should be lifted into position using both lifting lugs. A 2-branch chain or wire rope sling should be used having a lift angle not less than 60 degrees from grade. Once the vessel is in position, torque anchor bolting until a tight, snug fit is achieved.

Table 1: Minimum Recommended concrete footing depths for Vertical Air Receivers

TANK SIZE	**MAWP** (PSI)	**W.C.** (GAL)	**APPROX. WT.** (LBS.)	**SERVICE**	**SUPPORT**	**DEPTH** (IN)
42" X 117"	165	660	1365	AIR	SKIRT	4
48" X 144"	165	1060	2100	AIR	SKIRT	4
54" X 166"	165	1550	2600	AIR	SKIRT	4
60" X 190"	165	2200	3650	AIR	SKIRT	4
60" X 220"	165	2560	4500	AIR	SKIRT	4
66" X 214"	165	3000	5700	AIR	SKIRT	6
72" X 228"	137	3800	6800	AIR	SKIRT	6

Horizontal Vessels

1. Vessels with a capacity of 660 gallons and above should be placed on a suitable concrete foundation.
   a) Refer to Table 2 for recommended minimum concrete footing depths for horizontal receivers.
   b) For larger vessels or vessels with higher MAWP's, greater weights, or vessels subjected to external seismic or wind loadings – consult a certified contractor or civil engineer for foundation requirements.

Table 1: Minimum Recommended concrete footing depths for Horizontal Air Receivers

TANK SIZE	**MAWP** (PSI)	**W.C.** (GAL)	**APPROX. WT.** (LBS.)	**SERVICE**	**SUPPORT**	**DEPTH** (IN)
42" X 117"	165	660	1365	AIR	SADDLE	3
48" X 144"	165	1060	2100	AIR	SADDLE	3
54" X 166"	165	1550	2600	AIR	SADDLE	3
60" X 190"	165	2200	3650	AIR	SADDLE	4
60" X 220"	165	2560	4500	AIR	SADDLE	4
66" X 214"	165	3000	5700	AIR	SADDLE	4
72" X 228"	137	3800	6800	AIR	SADDLE	6

Vessel Installation and Maintenance Recommendations

There should be at least one high quality pressure indicating device attached directly to an opening in the vessel.

A relief valve must be selected and installed. The valve must be sized according to the maximum flow rate into the vessel such that over-pressurization cannot occur. See ASME Section VIII, Division 1, Paragraph UG-125 for details on relief valves.

An automatic drain device is recommended to regularly drain any condensate from the vessel. In lieu of an automatic device, the user should be cautioned to regularly drain the receiver manually.

Notes: Reinforced concrete 28 day ultimate strength – 2500 psi minimum

Uniform gravel and soil base beneath footing. Footing surface shall be flat and level in all directions.

Anchoring the vessel to the concrete footing is necessary to stabilize the receiver only and is not intended to provide resistance against wind, seismic, or other external loadings that may create a vessel tipping condition. The above table represents footing depths for compressive loading only.

Check local construction codes, fire codes, or building standards.

Use an appropriately sized anchor bolt of SA-325 material or better, a wrought steel washer, and a heavy hex nut.

Footings exposed to freezing temperatures should be sufficiently sized in depth to prevent cracking.

Larger vessels not covered in the table, saddles may be provided which have holes on one end of the vessel and slots on the other end of the vessel. When bolting saddles to the foundation, anchor bolting should be fixed by first hand-tightening the nut and then locking the threads by staking, double nutting, or tack welding.

VESSEL MAINTENANCE

All Pressure Vessels

Maintaining a pressure vessel includes proper inspection. Many states have adopted the National Board Inspection Code (NB-23) for rules concerning post-construction activities. Check with your local authorities having jurisdiction over pressure vessel installations and operations for any additional requirements concerning in-service inspection.

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