

Export Pump Tanks



# EXPORT PUMP TANKS

Drawn Steel Construction  
Diaphragm Operation  
Corrosion Resistant Base  
Lightweight  
Maximum Working Pressure 100 PSI  
Pre-Charged At 25 PSI

## GLASSLINED

Rolled Steel Construction  
Fused Glasslining  
Maximum Working Pressure 100 PSIG

## GALVANIZED

100% Galvanized



# EXPORT PUMP TANKS

## PRE-PRESSURIZED DIAPHRAGM OPERATION

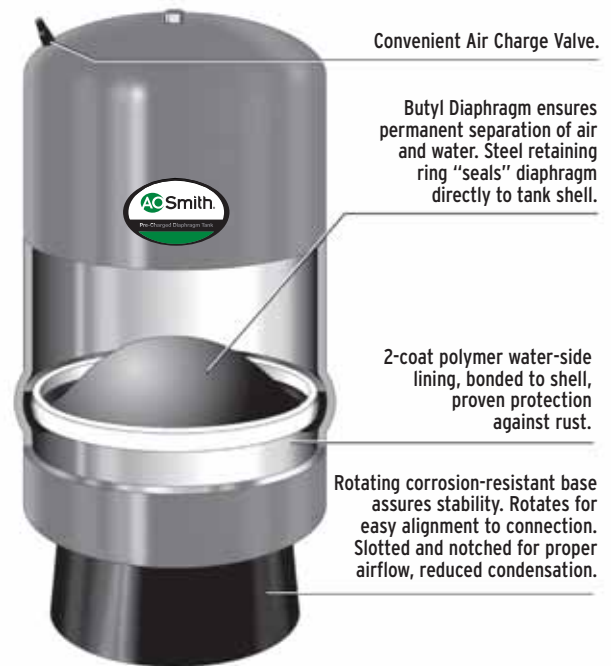
A. O. Smith export pump tanks are designed for installation flexibility and years of trouble-free service. Smooth, dependable diaphragm design and operation provides precise control of system operation cycles. Free-standing and in-line vertical tanks are available, as well as horizontal tanks with universal pump mounting bracket. Every A. O. Smith tank is made in the U.S.A.

### Higher Drawdown Than Competition!

The industry's most popular "standard" tank sizes are 44-gallon. A. O. Smith offers 52-gallon tanks in the same price range. So, a 52-gallon A. O. Smith tank delivers 12% higher drawdown than the industry standard. A 52-gallon tank delivers 18% higher drawdown than standard!

### In-Line Tanks

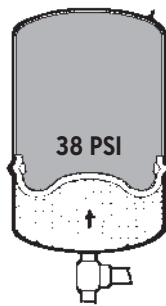
In-Line Series tanks, available in 2, 4.6, and 7.3-gallon sizes and are designed to be supported by system piping (See Typical Installations, page 4).



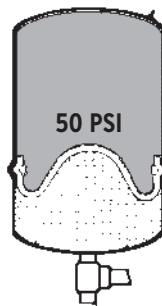
## PRE-PRESSURIZED PUMP TANK OPERATION CYCLES



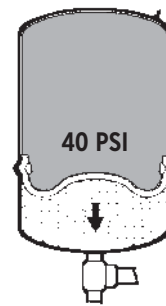
**Start-up Cycle\***  
Diaphragm is pressed against the bottom of the chamber.



**Fill Cycle\***  
Water is pumped into the reservoir, which forces the diaphragm upward into the air chamber.



**Hold Cycle\***  
Pump-cutoff pressure is attained. Diaphragm reaches its uppermost position. Reservoir is now filled to its rated capacity.



**Delivery Cycle\***  
Pump remains shut off while air pressure in top chamber forces diaphragm downward, delivering water to system.

\* Based on 30-50 PSI operating system.



# EXPORT PUMP TANKS

## PRE-PRESSURIZED DIMENSIONS AND WEIGHTS

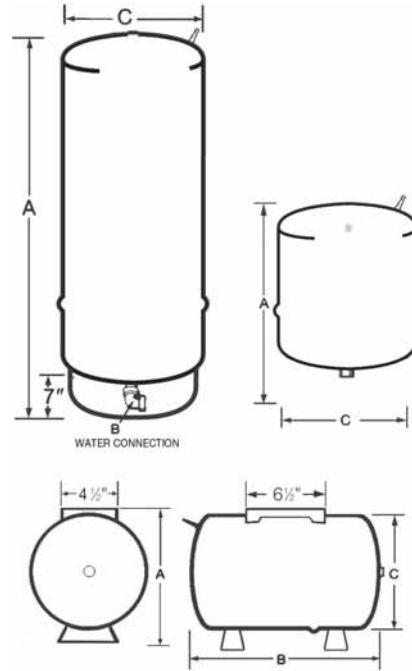
	Model Number	Volume (Gallons)	Dimensions in Inches			Weight (Lbs.)
			"A" Overall Height	"B" To Center of Water Inlet	"C" Diameter	
MDX Series Free Standing	MDX-14	14.0	24 <sup>3</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>4</sub>	15 <sup>3</sup> / <sub>8</sub>	25
	MDX-20	20.0	32 <sup>3</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>4</sub>	15 <sup>3</sup> / <sub>8</sub>	30
	MDX-32	31.0	45 <sup>1</sup> / <sub>2</sub>	2 <sup>1</sup> / <sub>4</sub>	15 <sup>3</sup> / <sub>8</sub>	40
	MDX-36S	36.0	32 <sup>5</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>4</sub>	20	45
	MDX-52	52.0	38 <sup>5</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>4</sub>	23 <sup>3</sup> / <sub>8</sub>	77
	MDX-86	86	59	2 <sup>1</sup> / <sub>4</sub>	23 <sup>3</sup> / <sub>8</sub>	105
	MDX-96	96.0	63 <sup>3</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>4</sub>	23 <sup>3</sup> / <sub>8</sub>	111
	MDX-119	119.5	61 <sup>1</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>4</sub>	26	160
MDX Series In-Line	MDX-2	2.0	10 <sup>3</sup> / <sub>16</sub>	-	8 <sup>1</sup> / <sub>4</sub>	5
	MDX-5	4.6	14 <sup>3</sup> / <sub>4</sub>	-	11	9
	MDX-7	7.3	21 <sup>1</sup> / <sub>16</sub>	-	11	12
MDXH Series Horizontal	MDXH-7	7.3	12 <sup>7</sup> / <sub>8</sub>	21 <sup>1</sup> / <sub>16</sub>	11	16
	MDXH-14	14.0	17 <sup>3</sup> / <sub>8</sub>	21 <sup>3</sup> / <sub>4</sub>	15 <sup>3</sup> / <sub>8</sub>	25 <sup>1</sup> / <sub>2</sub>
	MDXH-20	20.0	17 <sup>3</sup> / <sub>8</sub>	27 <sup>1</sup> / <sub>8</sub>	15 <sup>3</sup> / <sub>8</sub>	30

MDX-14, MDX-20, MDX-36S connection 1" Female.

MDX-52, MDX-86, MDX-96, MDX-119 connection 1-<sup>1</sup>/<sub>4</sub>" Female.

Inline connection <sup>3</sup>/<sub>4</sub>" Male.

MDXH-7 connection <sup>3</sup>/<sub>4</sub>" Male. \* MDXH-14, MDXH-20 connection 1" Male.



# EXPORT PUMP TANK SIZING

## Free-Standing Selection Charts

The charts below allow you to easily select the right free-standing tank for standard size pumps between 2-1/2 and 30 gallons in capacity and for 20-40 PSI, 30-50 PSI and 40-60 PSI pressure ranges. Minimum run times shown (from start-up) are 1 minute, 1-1/2 minutes and 2 minutes. For example, for a system that delivers 10 gpm at 30-50 PSI, with a minimum run time of 1 minute, Chart 1 indicates that the proper tank is the MDX-36S.

**If proper tank selection cannot be made using Chart 1, follow this procedure.**

First find the “drawdown multiplier” by matching the pump start-up and shut-off pressures on Chart 2. For example, the multiplier for a 30-50 PSI pressure range is .31. Next, insert the pump GPM capacity and desired minimum run time into this formula:

$$\text{PUMP GPM} \times \text{Min. Run Time} = \text{Minimum Tank Volume Required} \times \text{Multiplier}$$

To assume dependable Drawdown Volumes, and in keeping with present industry practice, Drawdowns are based on Boyles Law.

For example, using a 10 GPM pump, a one-minute minimum run time, and a 30-50 PSI pressure range, the formula is as follows:

$$\frac{10 \times 1}{.31} = 32.25 \text{ Minimum Tank Volume}$$

Then, using Chart 3, select the tank that has a minimum volume that meets or exceeds your minimum volume requirement, and supplies adequate drawdown at the required pressure range. Minimum drawdown equals Pump GPM x Minimum Run Time. Therefore, in the above example, select the MDX-36S 36-gallon tank. It provides adequate drawdown at 30-50 PSI.

Chart 1- MDX Series Free-Standing Tank Selection Chart

Pump GPM	System Pressure Ranges-PSI								
	20-40			30-50			40-60		
	Minimum Run Times (Minutes)								
	1	1-1/2	2	1	1-1/2	2	1	1-1/2	2
2.5	MDX-14	MDX-14	MDX-14	MDX-14	MDX-14	MDX-20	MDX-14	MDX-20	MDX-20
5	MDX-14	MDX-20	MDX-36S	MDX-20	MDX-36S	MDX-36S	MDX-20	MDX-36S	MDX-52
7	MDX-20	MDX-36S	MDX-52	MDX-36S	MDX-36S	MDX-52	MDX-36S	MDX-52	MDX-86
10	MDX-36S	MDX-52	MDX-86	MDX-36S	MDX-52	MDX-86	MDX-52	MDX-86	MDX-86
12	MDX-36S	MDX-52	MDX-86	MDX-52	MDX-86	MDX-86	MDX-52	MDX-86	MDX-96
15	MDX-52	MDX-86	MDX-86	MDX-52	MDX-86	MDX-119	MDX-86	MDX-96	MDX-119
20	MDX-86	MDX-86	MDX-119	MDX-86	MDX-119	[2]MDX-86	MDX-86	MDX-119	[2]MDX-86
25	MDX-86	MDX-119	[2]MDX-86	MDX-86	[2]MDX-86	[2]MDX-86	MDX-96	[2]MDX-86	[2]MDX-96
30	MDX-86	[2]MAX-86	[2]MDX-86	MDX-119	[2]MDX-86	[2]MDX-119	MDX-119	[2]MDX-96	[2]MDX-119

Chart 2- Drawdown Volume Multiplier (Approximate)

Pump Shut-Off Pressure Psi	Pump Start-Up Pressure-PSI							
	10	20	30	40	50	60	70	80
20	0.26							
30	0.41	0.22						
40		0.37	0.18					
50		0.46	0.31	0.15				
60			0.40	0.27	0.13			
70			0.47	0.35	0.24	0.12		
80				0.42	0.32	0.21	0.11	
90				0.48	0.38	0.29	0.19	0.10
100					0.44	0.35	0.26	0.17

Chart 3- Drawdown in Gallons

Model No.	Vol. in Gallons	20-40	30-50	40-60
MDX-2	2.0	0.7	0.6	-
MDX-5	4.6	1.7	1.4	-
MDX-7	7.3	2.7	2.3	-
MDX-14	14.0	5.2	4.3	3.8
MDX-20	20.0	7.4	6.2	5.4
MDX-32	31	11.4	9.6	8.4
MDX-36S	36.0	13.3	11.2	9.7
MDX-52	52.0	19.2	16.1	14.0
MDX-86	86.0	31.8	26.7	23.2
MDX-96	96.0	35.5	29.8	25.9
MDX-119	119.5	44.2	37.0	32.3

## Rule of Thumb System Sizing

The following water requirements figures are based on averages accepted by the industry. They represent typical household and farm animal water use requirements. Generally speaking, a reliable daily average water requirement is 100 gallons per day per person.

### Average daily farm animal requirements

	Gallons/Day
Horse, Mule, Steer	12
Cow-Dry	15
Cow-Milking	35
Hog	4
Sheep	2
Chicken/100	6
Turkey/100	20

### Average home water requirements based on industry-accepted 7-minute peak demand cycle

Unit	Flow Rate GPM	Requirement Gallons
Kitchen sink	5	3
Toilet	4	5
Lavatory	4	2
Tub or Shower	5	35
Auto Wash Machine	5	35
Dishwasher	2	14
Garden Hose (1/2")	3	} Depends upon cycle time
Lawn Sprinkler	3-7	
Water Softener	7	

### Average household water requirements (GPM) using industry-accepted 7-minute peak demand cycle

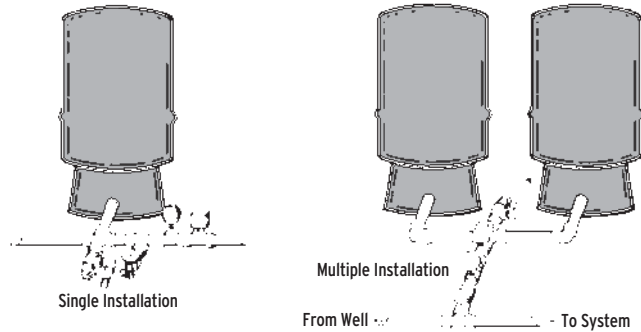
No. of Bathrooms	Type of Water Using Fixtures Installed	GPM Required
1	Sink, Toilet, Lavatory Tub/Shower	7
1 1/2	Same as Above but with Automatic Washer	10
2-2 1/2	Same as Above but with Automatic Dishwasher	14
3-4	Same as Above	17

# TYPICAL INSTALLATIONS

For multiple installations, manifold size is critical. If you have questions about sizes call our Technical Engineering Services Department at 1-800-527-1953.

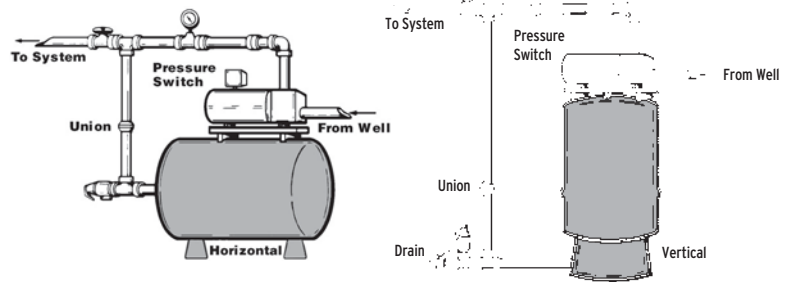
## Free-Standing Series\*

The standard installation, utilizing front entry, with gauge, relief valve and pressure switch installed in *front* of tank.



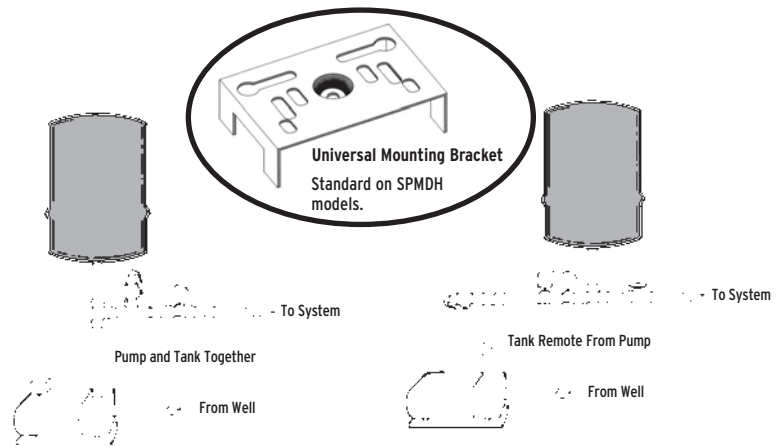
## Free-Standing Series With Pump Mounted On Tank\*

The pump can be mounted on tank using a universal mounting base. The pump and base can be strapped to the tank in the horizontal position, or mounted to the tank in a vertical position.



## In-Line Series\*

The In-Line Series is designed to be supported by system piping, either directly above the pump, or in a convenient place in the piping system as close to the pump as possible.



\* When pump and tank are in different locations, the pressure switch should be at the tank location. Or compensating adjustment must be made for pressure loss due to head of water, i.e., one PSI for every two feet of elevation.

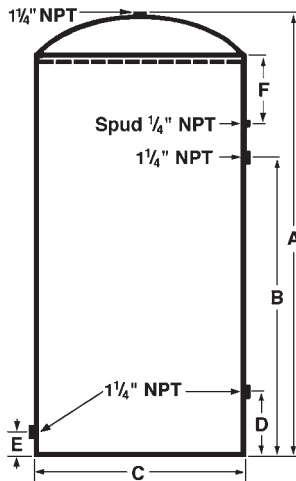
# EXPORT STORAGE TANKS

## GLASSLINED

Rolled Steel Construction  
 Fused Glasslining  
 Maximum working pressure 100 PSIG

“Glasslining,” a porcelain protective coating to a steel tank interior, is the plumbing industry’s most time-tested system protection. A. O. Smith glasslined export storage tanks feature rolled-steel construction. A. O. Smith is one of the world’s largest producers of glasslined tanks, and every storage tank is made in the U.S.A.

Other features include a 1-1/4" NPT spud on top for motor mount or retention tank connections, a 1/4" switch or gauge tapping on the air side of the storage tank, and full-size 1-1/4" connections at all needed locations.

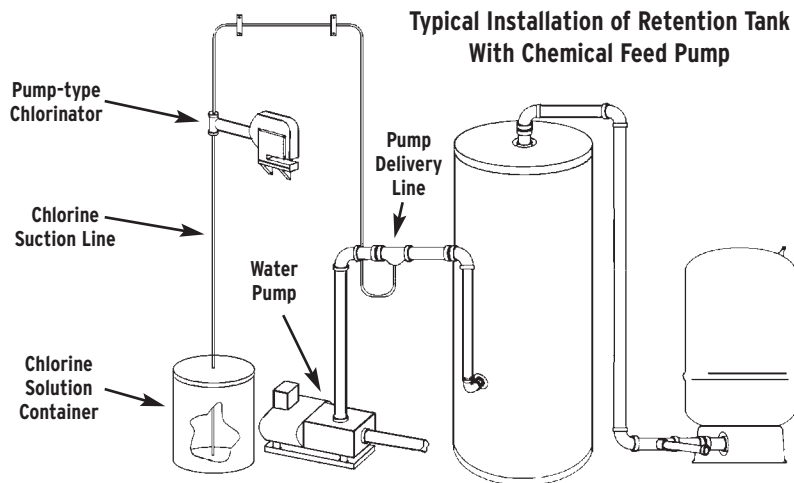


G Series Glasslined Export Storage Tanks

Model Number	Volume (Gallons)	Dimensions in Inches						Weight (Pounds)
		A	B	C	D	E	F	
G-42-T	42	51-1/4	26	16	12	3	6	77
G-42-S	42	35-7/8	17	20	8	3	6	79
G-82	82	62-1/4	33	20	12	3	6	120
G-120	120	63	33	24	12	3	6	160
G-220	220	62	33	36	12	3	6	640

1-1/4" NPT Spud in head for alternate motor mount or retention tank connection.  
 All tapping 1-1/4" Water Connections.  
 1/4" pressure switch tapping on all models.

## A STANDARD RETENTION SYSTEM



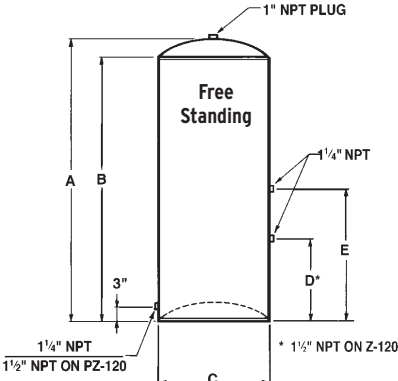
# EXPORT STORAGE TANKS

## GALVANIZED

Horizontal or Vertical Storage Tanks  
 Maximum working pressure 75 PSIG  
 NSF Certified

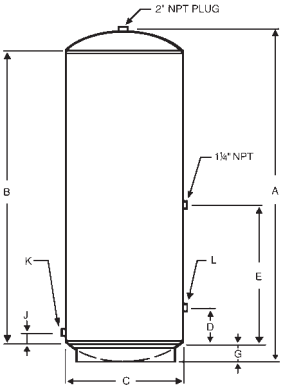
### Sizes 12 to 120 Gallons - Free Standing

Model Number	Volume (Gallons)	Dimensions in Inches					Weight (Pounds)
		A	B	C	D	E	
Z-12	12	26-1/2	24	12	5	13	27
Z-21	21	27	24	16	5	13	45
Z-32	32	38 3/4	36	16	8	17	52
ZT-42	42	51	48	16	12	26	71
ZS-42	42	33 3/4	30	20	8	17	71
Z-82	82	63	60	20	12	33	114
Z-120	120	64 1/2	60	24	12	33	154

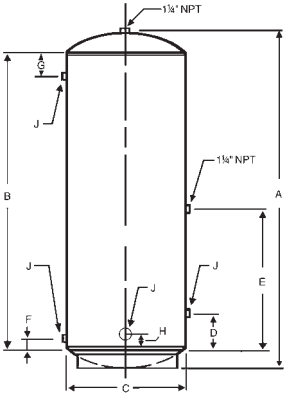


### Sizes 220 to 900 Gallons - Galvanized

Model Number	Volume (Gallons)	Dimensions in Inches									Weight (Pounds)
		A	B	C	D	E	G	J	K	L	
Z-220	220	78	66	30	6	32	6	2-1/2	2	2	303
Z-315	315	79-1/2	66	36	6	32	7	2-1/2	2	2	416
Z-480	480	87	72	42	6	32	7-1/2	2-1/2	2	3	640



Models: Z-220, Z-315, Z-480

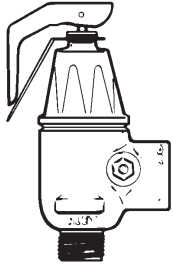


Models: ZU-525, ZU-900

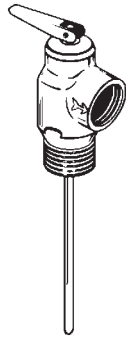
Model Number	Volume (Gallons)	Dimensions in Inches									Weight (Pounds)
		A	B	C	D	E	F	G	H	J	
ZU-525	525	128	114	36	6	56	2-1/2	2-1/2	4	2" NPT	685
ZU-900	900	159	144	42	14	77	4	4	9	3" NPT	1040

1" NPT Spud in head for alternate motor mount or retention tank connection.  
 All tapping 1-1/4" Water Connections.  
 1/4" pressure switch tapping on all models.

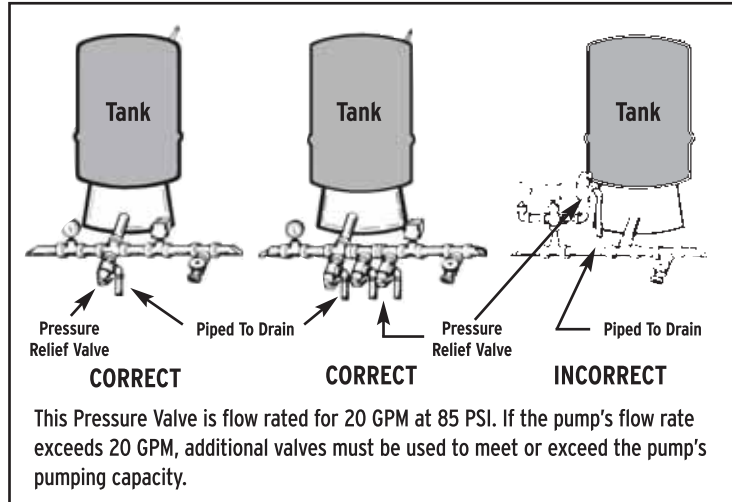
# PRESSURE RELIEF VALVE



- 75 pound setting
- 20 GPM at 85 PSI
- 3/4" male inlet size
- 3/4" female outlet size



- 100 pound setting
- 20 GPM at 85 PSI
- 3/4" male inlet size
- 3/4" female outlet size



In keeping with our policy of continuous product improvements, we reserve the right to make minor changes without prior notice.



All A. O. Smith export pump and storage tanks are manufactured in North America.

Specifications are subject to change without prior notice.



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