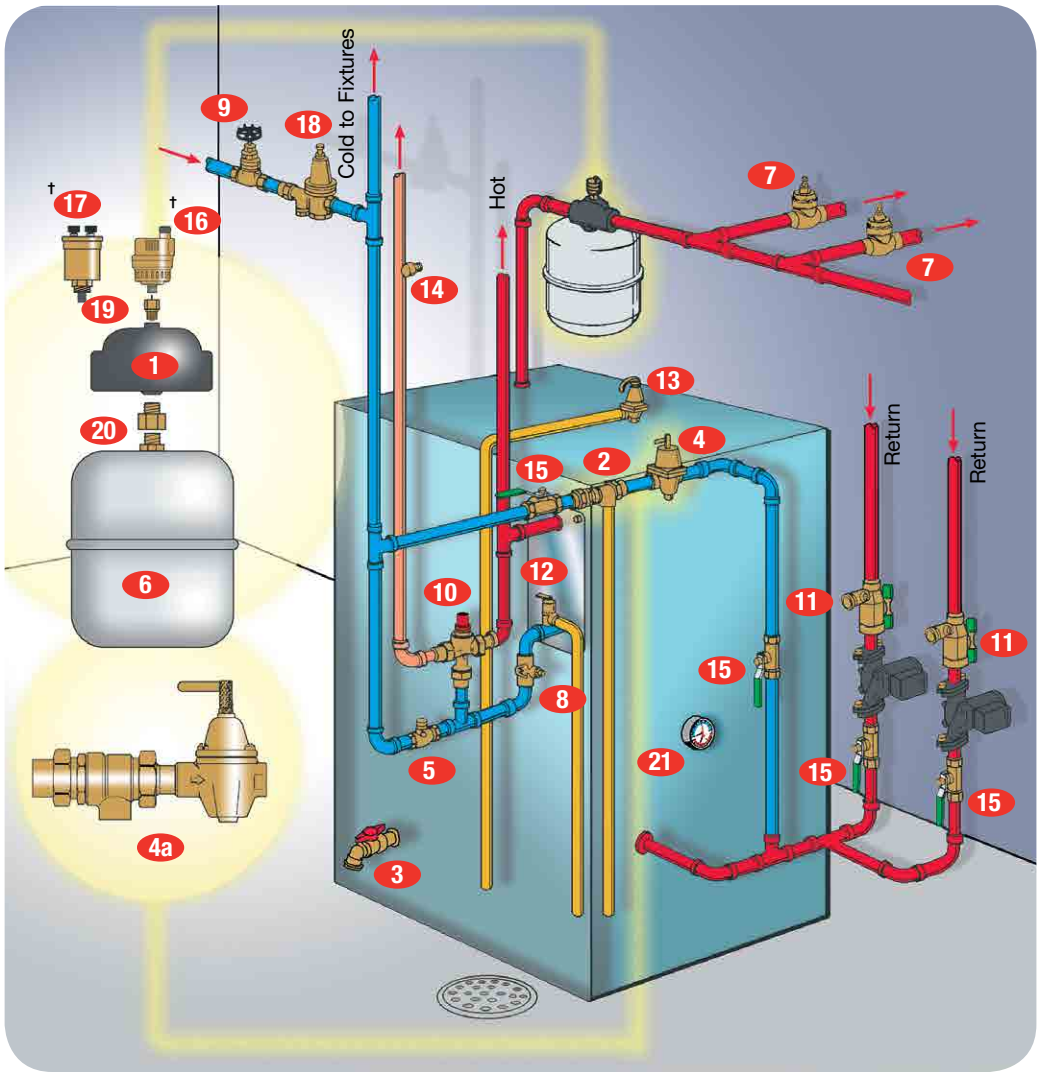
Control Thermal Expansion

in Hot Water Heating Systems

Thermal expansion of heated water may occur wherever water is heated in a closed system (when the boiler water is isolated from the public water supply by a one-way valve, such as a feed water pressure reducing valve, backflow preventer, check valve, etc.). Watts Nonpotable water expansion tanks are designed to absorb the increased volume of water caused by thermal expansion and maintain a balanced pressure throughout the hot water heating system. They are used to prevent system damage and unnecessary relief valve discharge caused by excessive pressure from thermal expansion.



1 Air Separator
2 Backflow Preventer
3 Boiler Drain Valve
4 Boiler Fill Valves
4a Combination Fill Valve and Backflow Preventer
5 Bronze Check Valve
6 Expansion Tank
7 Flow Checks
8 Flow Control Valve
9 Gate or Globe Valves
10 Mixing Valves
11 Purge Valves
12 Pressure Relief Valves
13 Hot Water Boiler Safety Relief Valve
14 T&P Test Plug
15 Ball Valve
† 16 Float Vent Valve
† 17 Automatic Float Vent Valve
18 Water Pressure Reducing Valve
19 ⅛" (3mm) or ¼" (8mm) Service Check Valves
20 ½" (15mm) Service Check Valve
21 Combination Temperature & Pressure Gauge

† Choose one item #16 or #17

Series 276H300, IWTG

Water Pressure Test Gauge

Ideal to accurately determine system pressure in a building. The ¾" (20mm) hose connection easily attaches to a hose bibb or the drain connection on a water heater. A red indicator hand holds at the highest reading registered. When left on overnight, it will register the highest pressure in the system during that period.

(A)

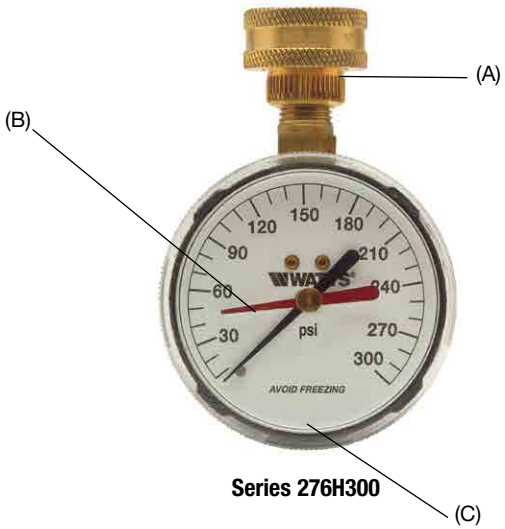
¾" (20mm) H.T. Hose Connection which easily attaches to an outside hose bibb or to the drain connection on a water heater.

(B)

A Red indicator hand that "HOLDS" at the highest reading registered, to record shock pressure or when left on overnight will register the highest surge pressure which occurred during that period.

(C)

Features a large (2½" (65mm)) face for easy reading.



Series 276H300

Model	Size (DN)		Range	
	in.	*mm*	*psi*	*bar*
276H300	¾	20	0 – 300	0 – 21
IWTG	¾	20	0 – 200	0 – 14

Series SCV

Service Check Valves

Series SCV service check valves facilitate the servicing of components in systems under pressure. They install between the system and the component.

As the component is threaded into the Service Check Valve, the spring loaded valve opens to system pressure.

As the component is removed, the valve closes, maintaining system integrity while the component is being inspected. This prevents having to drain the entire system each time a component is serviced.

⚠ WARNING

This device is not to be used on safety relief valves or other safety or flow sensitive components.

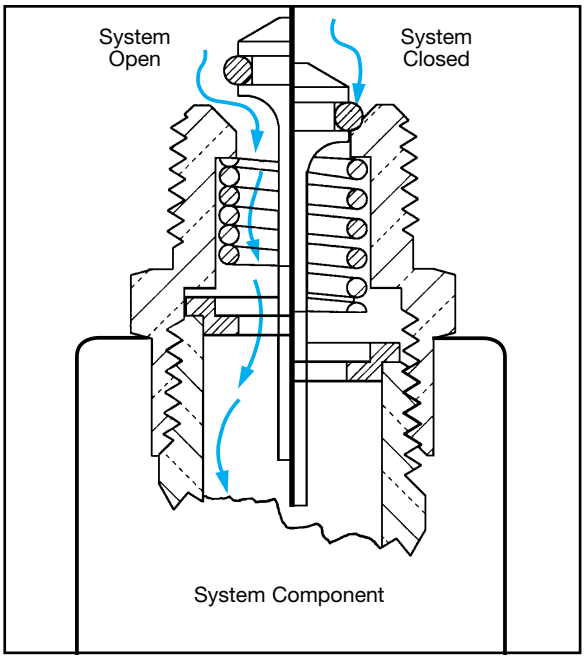
NOTICE

System pressure must be reduced prior to removing system component.

Available in sizes
⅛" and ½" inches.
Max. Temperature: 240°F (115°C), Max. Pressure: 150psi (10 bar)

Model.	Size (DN)	
	in.	*mm*
SCV	⅛	3.2
SCV	½	12.7

Typical Installation



Series ETX-ASF

Combination Packages

Series ETX-ASF hydronic boiler combination packages make it easier to buy system components by including an ETX expansion tank, AS air separator, and FV4-M1 float vent valve all in one package and for a lower cost than buying each of the components separately.

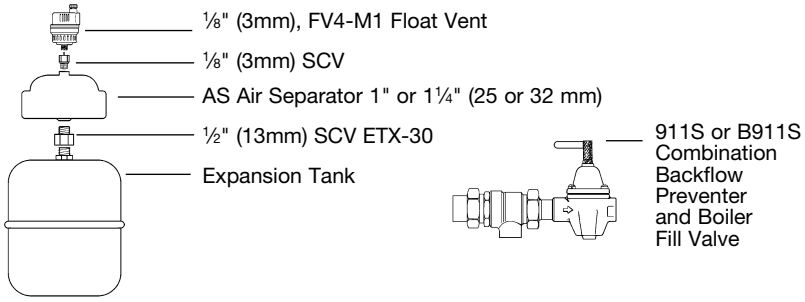
Model	Air Separator		Float Vent FV-4M1		Expansion Tank		
	1" (25mm)	1¼" (32mm)	⅛" (3mm)	⅛" (3mm)	ETX-15	ETX-30	ETX-60
Combination Packages							
ETX-15-ASF	X		X		X		
ETX-15-ASF		X	X		X		
ETX-30-ASF	X		X			X	
ETX-30-ASF		X	X			X	
ETX-60-ASF	X		X				X
ETX-60-ASF		X	X				X

Series HPX

Boiler Trim-Out Packages

Series HPX boiler trim-out packages contain all the essential trim-out components of a quality boiler installation in a single easy to carry package.

Package Includes:



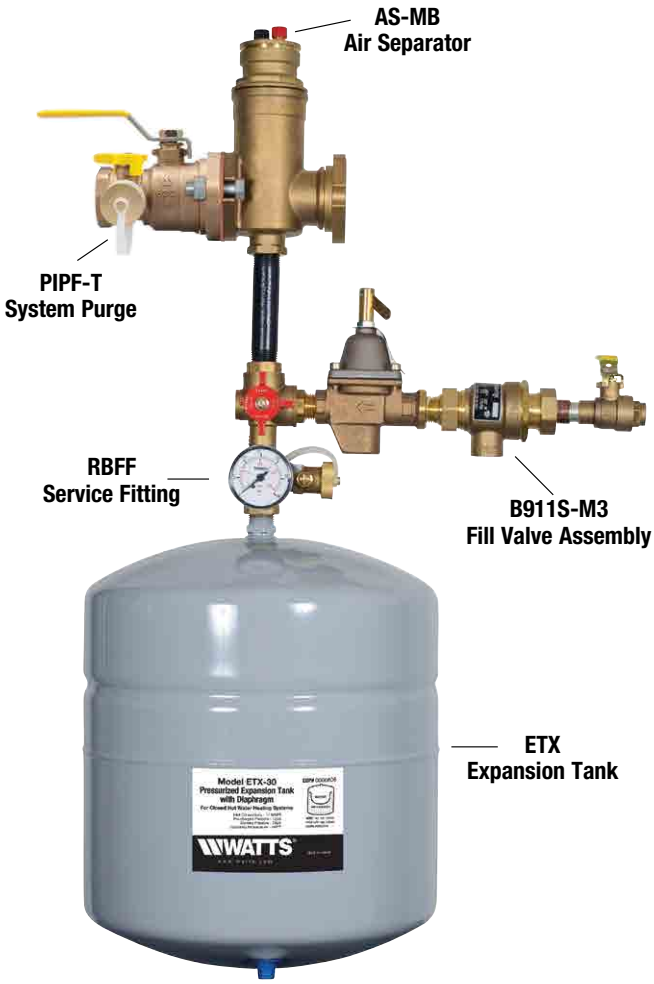
Package Selection Chart

Model	Air Separator		Service Check Valve		Float Vent FV-4M1	Float Vent DuoVent	Fill Valve B1156	Fill Valve/ Backflow Preventer 911S	Fill Valve/ Backflow Preventer B911S	Flow Check 2000S-M5 1" (25mm)	Expansion Tank ETX-15	Expansion Tank ETX-30
	1" (25mm)	1¼" (32mm)	⅛" (3mm)	½" (15mm)	⅛" (3mm)	⅛" (3mm)						
Boiler Trim-out Packages												
HPX-C	X		X	X	X			X				X
HPX-D		X	X	X	X			X				X
HPX-15 BC	X		X	X		X			X		X	

Boiler Header Modules

Complete Packages to Purge, Quiet, Fill, and Service Your Hydronic System

Out of the box, our Boiler Header Module delivers components that make following the industry recommended near-boiler piping virtually foolproof. Boiler industry recommendations (system purge station, followed by an air separator, followed by a service fitting) ensure the contractor correctly pipes a hydronic installation — quickly, easily, and neatly in a compact job space.



Boiler Header Module Pro Hydronic Packages

Model	Ordering Code	Includes
HP-30PRO-P100	0235098	HP-BHM-100, ETX-30 (0066606), B911S-M3 (0386462)
HP-30PRO-P125	0235099	HP-BHM-125, ETX-30 (0066606), B911S-M3 (0386462)

Pro Hydronic Packages with NPT AS-MB & RBFF

Model	Ordering Code	Includes
HP-30PRO-100	0235096	AS-MB-100 (0858547), RBFF (0386466), ETX-30 (0066606), B911S-M3 (0386462)
HP-30PRO-125	0235097	AS-MB-125 (0858548), RBFF (0386466), ETX-30 (0066606), B911S-M3 (0386462)
HP-30PRO-100S	0235101	AS-MB-S-100 (0858551), RBFF (0386466), ETX-30 (0066606), B911S-M3 (0386462)
HP-30PRO-125S	0235102	AS-MB-S-125 (0858552), RBFF (0386466), ETX-30 (0066606), B911S-M3 (0386462)

Series ETX, ETSX

Pressurized Expansion Tanks for Heating and Cooling Systems*

Series ETX and ETSX Pressurized Expansion Tanks for Heating and Cooling Systems are designed to absorb the increased volume of water created when water is heated. These tanks maintain system pressure below the relief setting of the relief valve. The Series ETX and ETSX's prepressurized steel tank features a durable expansion membrane that prevents contact of the water with the air in the tank. This rugged diaphragm minimizes loss of the air change and ensures long and trouble-free life for the system.

Series ETX

Features

- Precharged at 12psi (83 kPa)
- Rugged flexible butyl diaphragm
- In-line and free standing models
- Compatible with glycol in systems
- Steel construction

Models

ETX	Mounts to supply piping
ETSX	Free standing

Specifications

Furnish and install as shown on plans a Watts Model ETX/ETSX _____ gallon _____ " diameter x ____ " (high) pre-charged steel expansion tank with a fixed butyl bladder. The tank shall have an NPT system connection and a .302"-32 charging valve connection (standard tire valve) to facilitate the on-site charging of the tank to meet system requirements. The tank shall be factory precharged to 12psi. The tank shall be a Watts Series ETX or ETSX.

Maximum Working Temperature: 220˚F (115˚C)

Maximum Working Pressure:

ETX-15, ETX-30, ETX-60: 75psi (517 kPa)

ETX-90 and ETSX Series: 100psi (6.9 bar)

Precharge (field adjustable): 12psi (83 kPa)

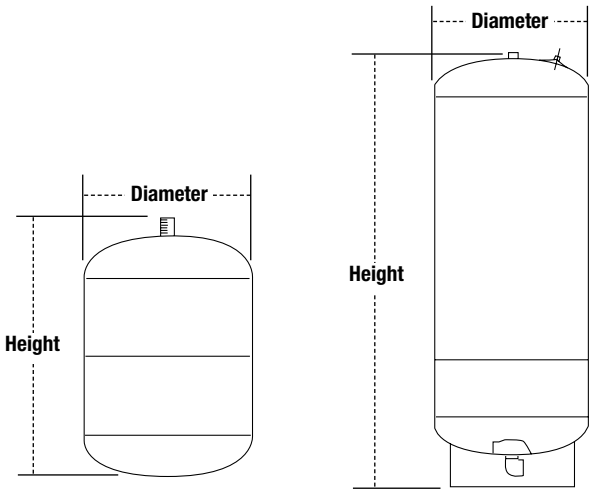
*Not for use on potable water systems.

Series ETSX

Quick Sizing Chart

Boiler Output Net BTU/H	Finned Tube Baseboard	Convectors or Unit Heaters	Cast Iron Radiators	Cast Iron Baseboard
	Suggested Selection			
20,000	ETX-15	ETX-15	ETX-15	ETX-15
30,000	ETX-15	ETX-15	ETX-15	ETX-15
40,000	ETX-15	ETX-30	ETX-30	ETX-30
50,000	ETX-15	ETX-30	ETX-30	ETX-30
60,000	ETX-30	ETX-30	ETX-60	ETX-60
70,000	ETX-30	ETX-30	ETX-60	ETX-60
80,000	ETX-30	ETX-30	ETX-60	ETX-60
90,000	ETX-30	ETX-30	ETX-60	ETX-60
100,000	ETX-30	ETX-60	ETX-60	ETX-60
125,000	ETX-30	ETX-60	ETX-60	ETX-90
150,000	ETX-30	ETX-60	ETX-90	ETX-90
175,000	ETX-60	ETX-60	ETX-90	ETX-90
200,000	ETX-60	ETX-60	ETX-90	ETX-90
250,000	ETSX-30	ETSX-30	ETSX-40	ETSX-30
300,000	ETSX-30	ETSX-40	ETSX-40	ETSX-30
350,000	ETSX-30	ETSX-40	ETSX-60	ETSX-30
400,000	ETSX-30	ETSX-60	ETSX-90	ETSX-40
500,000	ETSX-40	ETSX-60	ETSX-90	ETSX-40
600,000	ETSX-40	ETSX-90	ETSX-90	ETSX-60
700,000	ETSX-60	ETSX-90	ETSX-90	ETSX-60
800,000	ETSX-60	ETSX-110	ETSX-110	ETSX-90
900,000	ETSX-60	ETSX-110	ETSX-110	ETSX-90
1,000,000	ETSX-90	ETSX-110	ETSX-110	ETSX-90
1,200,000	ETSX-90	ETSX-110	ETSX-160	ETSX-90
1,400,000	ETSX-110	ETSX-160	ETSX-160	ETSX-110
1,500,000	ETSX-110	ETSX-160	ETSX-110 (2)	ETSX-110

Note: These recommendations are based on the average water volume of typical closed systems.
Fill pressure 12psi, relief valve set pressure of 30psi and system temperature of 200˚F.



ETX **ETSX**

Model	Connection Size (DN)		Tank Volume		Accept. Volume		Diameter		Height		Weight	
	gallons	*liters*	*gallons*	*liters*	*gallons*	*liters*	*in.*	*mm*	*in.*	*mm*	*lbs.*	*kgs.*
ETX-15	½" MNPT	15	2.1	7.9	1.0	3.8	8	203	12½	318	0.5	0.23
ETX-30	½" MNPT	15	4.5	17.1	2.5	9.5	11	279	14	356	10.0	4.54
ETX-60	½" MNPT	15	6.0	22.8	3.0	11.4	11⅜	290	17 3/16	437	11.5	5.22
ETX-90	¾" MNPT	20	15.0	57.0	6.0	22.8	16	406	20 13/16	528	28.0	12.70
ETSX-30	1" FNPT	25	15.0	57.0	6.0	22.8	16	406	21 11/16	551	32.0	14.51
ETSX-40	1" FNPT	25	20.0	76.0	8.0	30.4	16	406	28 13/16	732	39.0	17.69
ETSX-60	1" FNPT	25	33.0	125.4	13.3	50.5	16	406	42 13/16	1087	57.0	28.85
ETSX-90	1¼" FNPT	32	44.0	167.2	17.7	67.3	21	533	36 3/16	919	72.0	32.66
ETSX-110	1¼" FNPT	32	62.0	235.6	24.9	94.6	21	533	47⅞	1217	112.0	50.80
ETSX-160	1¼" FNPT	32	81.0	307.8	32.6	123.9	21	533	62	1575	123.0	55.79

Series ETA

ASME Pressurized Expansion Tanks for Heating and Cooling Systems

Models ETA 15 – ETA 240

Series ETA tanks are ASME fixed bladder type pre-charged expansion tanks. They are designed to absorb the expansion forces and control the pressure in heating and cooling systems. The water is contained in the heavy duty bladder preventing tank corrosion and waterlogging problems.

Features

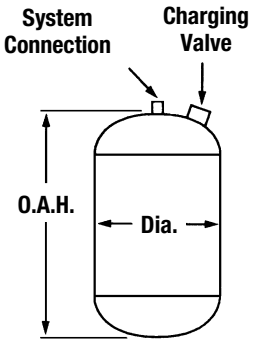
- ASME Section VIII Construction
- Heavy duty butyl bladder
- Precharged to 12psi (83 kPa) (Field Adjustable)
- Shell: Carbon steel
- Bladder: Heavy duty butyl
- Primer coated exterior

Specifications

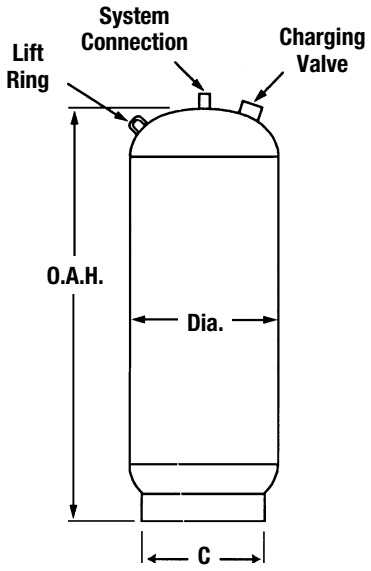
Furnish and install as shown on plans a Watts Model ETA ____ gallon ____ " diameter x ____" (high) precharged steel expansion tank with a fixed butyl bladder. The tank shall have a top NPT system connection and a .302" – 32" (7.6 – 812.8mm) charging valve connection (standard tire valve) to facilitate the on-site charging of the tank to meet system requirements. The tank must be constructed in accordance with Section VIII of the ASME Boiler and Pressure Vessel Code.

Maximum Design Pressure:
ETA 15 – ETA 60: 150psi (10.3 bar)
ETA 80 – ETA 240: 125psi (8.6 bar)
Precharged to 12psi (83 kPa)
Maximum Design Temperature: 240°F (115°C)

For additional information, request literature ES-ETA.



ETA 15 and ETA 20



ETA 40 – ETA 240

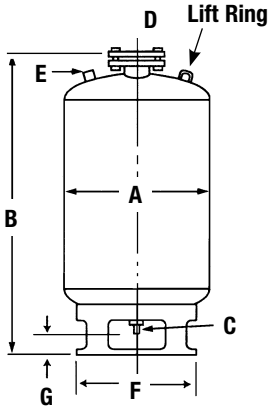
Model	System Connection Size (DN)		Tank Volume		Acceptance Volume		Max. Operating Pressure		Dimensions (approx.)						Weight	
									Dia.		Height		C			
	in.	*mm*	*Gals.*	*Liters*	*Gals.*	*Liters*	*psig*	*bar*	*in.*	*mm*	*in.*	*mm*	*in.*	*mm*	*lbs.*	*kgs.*
ETA 15	¾	20	7.8	29.6	2.5	9.5	150	10.3	12	305	19	483	–	–	42	19
ETA 20	¾	20	10.9	41.4	2.5	9.5	150	10.3	12	305	26	660	–	–	52	24
ETA 40	1	25	25	95	10	38	150	10.3	16	406	33	838	12	305	84	38
ETA 60	1	25	35	133	10	38	150	10.3	16	406	45	1143	12	305	97	44
ETA 80	1	25	45	171	21	80	125	8.6	20	508	38	968	18	457	148	67
ETA 100	1	25	60	228	21	80	125	8.6	20	508	49	1245	18	457	175	79
ETA 120	1½	40	70	266	48	182.4	125	8.6	24	610	46	1168	22	559	259	117
ETA 144	1½	40	80	304	48	182.4	125	8.6	24	610	49	1245	22	559	268	122
ETA 180	1½	40	90	342	48	182.4	125	8.6	24	610	52	1321	22	559	283	128
ETA 200	1½	40	115	437	48	182.4	125	8.6	24	610	66	1676	22	559	325	147
ETA 240	1½	40	140	532	52	197.6	125	8.6	24	610	78	1981	22	559	362	164

Series ET-RA

ASME Pressurized Expansion Tanks for Heating and Cooling Systems

Models ET-RA 35 – ET-RA 2000

Series ET-RA tanks are ASME removable bladder type precharged expansion tanks. They are designed to absorb the expansion forces and control the pressure in heating and cooling systems. The water is contained in the heavy duty bladder, preventing tank corrosion and waterlogging problems.



ET-RA 85 – ET-RA 800

Features

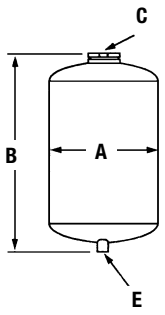
- ASME Section VIII Code Construction
- Removable butyl bladder
- Precharged to 12psi (83 kPa) (Field Adjustable)
- Shell: Carbon steel
- Bladder: Heavy duty butyl
- Primer coated exterior

Specifications

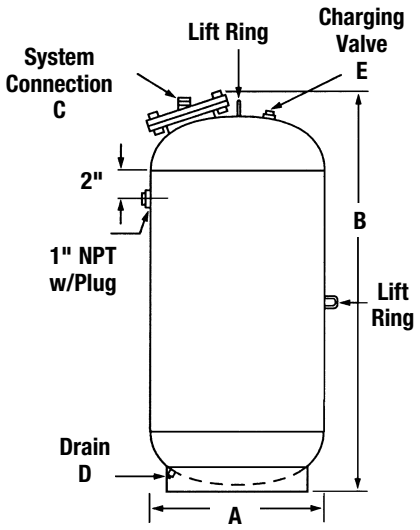
Furnish and install as shown on plans a Watts Model ET-RA ____ gallon ____ " diameter x ____" (high) precharged steel expansion tank with a heavy duty butyl rubber bladder. The tank shall have NPT system connections and a .302" - 32" (7.6 – 812mm) charging valve connection (standard tire valve) to facilitate the on-site charging of the tank to meet system requirements. The tank must be constructed in accordance with Section VIII of the ASME Boiler and Pressure Vessel Code.

Maximum Design Pressure: 125psi* (8.6 bar)
Maximum Design Temperature: 240°F (115°C)
Precharged to 12psi (83 kPa)
*Models with 200 and 250psi ratings are available.

For additional information, request literature ES-ET-RA.



ET-RA 35 and ET-RA 50



ET-RA 1000 – ET-RA 2000

Model	Tank Volume		Tank A (DN)		B		C		D		E	F		G		Weight	
	Gals.	Liters	in.	mm	in.	mm	in.	mm	in.	mm		in.	mm	in.	mm	lbs.	kgs.
ET-RA 35	10	38	12	305	25	635	¾	19	–	–	.302"	–	–	–	–	40	18
ET-RA 50	13	49.4	14	356	25	635	¾	19	–	–	-32NC	–	–	–	–	50	23
ET-RA 85	23	87.4	16	400	37	940	1	25	½	13	–	12	305	5½	140	90	41
ET-RA 130	35	133	20	508	37	940	1	25	½	13	–	16	406	5½	140	125	57
ET-RA 200	53	201.4	24	610	43	1092	1½	38	½	13	.302"	20	508	5¼	133	210	95
ET-RA 300	79	300	24	610	55	1397	1½	38	¾	19	-32NC	20	508	5¼	133	225	102
ET-RA 400	106	402.8	30	750	49	1245	1½	38	¾	19	–	24	610	5¼	133	300	136
ET-RA 500	132	501.6	30	750	57	1448	1½	38	¾	19	–	24	610	5¼	133	335	152
ET-RA 600	158	600.4	30	750	65	1651	1½	38	¾	19	–	24	610	5¼	133	360	163
ET-RA 800	211	801.8	36	900	63	1600	1½	38	¾	19	–	30	762	5¼	133	475	215
ET-RA 1000	264	1003.2	36	900	74	1880	1½	38	¾	19	–	–	–	–	–	710	322
ET-RA 1200	317	1204.6	36	900	86	2184	1½	38	¾	19	–	–	–	–	–	720	327
ET-RA 1400	370	1406	36	900	99	2515	1½	38	¾	19	.302"	–	–	–	–	875	397
ET-RA 1600	422	1603.6	48	1200	72	1829	1½	38	¾	19	-32NC	–	–	–	–	1100	499
ET-RA 2000	528	2006.4	48	1200	85	2159	1½	38	¾	19	–	–	–	–	–	1280	581

Note: Models ET-RA 85 – ET-RA 800 have both top and bottom connections (C and D) to access the bladder.