Expansion Tank

Technical Document



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Technical Information

SELECTION OF EXPANSION VESSEL SIZE

According to ANCC technical specifications, selection of vessel size to installed is derived as folows: Ths vessel sizing formula is general use. In the Uk, BS 7074 covers the application, selection and installation of expension vessels and gives similar results.

$$Vo = \frac{e \times c}{1-Pf/Pi}$$

(Tolorance=+10%)

Where

Vu = Total useful volume of tank = Vi - Vf

Vi = Intilal volume

Vf = Final volume

e = Expension coefficint corresponding diffrence between thr cold system water temperature (heating off) and the boiling point of water at atmospheric pressure in standart systems, e=approx 0..35 (90°C, i.e. 100 - 10).

c = Total water capacity of the systems in litres: oiler, piprwork, radiators etc (as a general approximation, C is between 10 and 20 liters for every kW of boiler output.

Pi = Intial charge pressure (absolute) of vessel. This pressure must not be less than the hydrostatic pressure at the point where the is connected to the system.

Pf = Maximum operating pressure (absolute) of the pressure relief (safety) valve, taking into account any difference in level between the vessal and safety valve.

SELECTION OF PRESSURE

In order to avoid an excessive number of starting-ups of the pumps pratical experince indicates that the reserve of water contained in a tnak must be equal to at least a quarter of the plant's

Maximum absorption capacity: $Vu = \frac{A\ max}{4}$

This ratio, wich we retain valid for plants having electropumps of uh 2 HP, should be multipled by;

1.5 for installations with pumps from 2.5 to 4 HP

2.5 for installations with pumps from 5 to 8 HP

3.5 for installations with pumps from 9 to 12 HP

The Following data

- min, pressure thrustmeter
  Pi (eg Pi = 1.5 ate)
- max pressure thrustmeter
  Pf (eg Pf = 3.5 ate)
- maximum absorption
  A max (eg A max = 115lt)
- Electropump pover (eg = 4 HP)

for the tank (Vt), which is to be installed, we shall apply the formula:

$$Vt = \frac{A\ max \times 1.5}{4} \times \frac{Pf + 1}{Pf - P1}$$

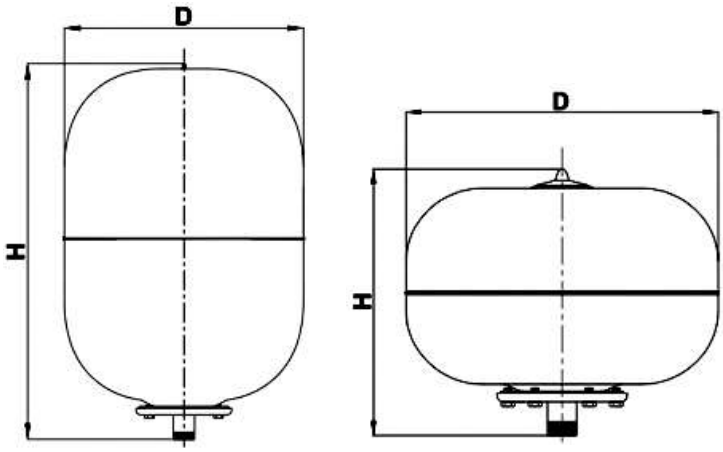
$$es.\ Vt = \frac{115 \times 1.5}{4} \times \frac{3.5 + 1}{3.5 - 1.5} = 97\ liters$$

T-TB-TM-TR-TH Series

Expansion Tank with Interchangeable Membrane
10 Bar Vertical Pressure Tank Series

Technical Specifications	
CE marked according to directive	PED 2014 / 68 / EU
Maximum working pressure	10 Bar
Standart pre-set pressure	2 Bar
Working Temperature	-10 °C / +100 °C
Membrane type	EPDM

Model	Hacim	Operating Pressure	Pre-Charge Pressure	Design Structure	Installation Type	Connection	Dia (mm)	Height (mm)
T24	24 lt	10 Bar	2 Bar	Globe	Footless	1"	280	470
T50	50 lt	10 Bar	2 Bar	Globe	Footless	1"	380	620

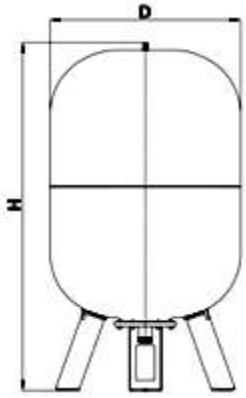


T-TB-TM-TR-TH Series

Expansion Tank with Interchangeable Membrane
10 Bar Vertical Pressure Tank Series

Technical Specifications	
CE marked according to directive	PED 2014 / 68 / EU
Maximum working pressure	10 Bar
Standart pre-set pressure	4 Bar
Working Temperature	-10 °C / +100 °C
Membrane type	EPDM

Model	Volume	Operating Pressure	Pre-Charge Pressure	Design Structure	Installation Type	Connection	Dia (mm)	Height (mm)
TM50	50 lt	10 Bar	4 Bar	Vertical	Footed	1"	380	750
TM100	100 lt	10 Bar	4 Bar	Vertical	Footed	1"	460	990
TM200	200 lt	10 Bar	4 Bar	Vertical	Footed	1 1/4"	500	1100
TM300	300 lt	10 Bar	4 Bar	Vertical	Footed	1 1/4"	635	1230
TM500	500 lt	10 Bar	4 Bar	Vertical	Footed	1 1/4"	750	1550
TM750	750 lt	10 Bar	4 Bar	Vertical	Footed	2"	800	1810
TM1000	1000 lt	10 Bar	4 Bar	Vertical	Footed	2"	800	2180
TM1500	1500 lt	10 Bar	4 Bar	Vertical	Footed	2"	958	2380
TM2000	2000 lt	10 Bar	4 Bar	Vertical	Footed	2"	1100	2520
TM3000	3000 lt	10 Bar	4 Bar	Vertical	Footed	2 1/2"	1200	2800
TM4000	4000 lt	10 Bar	4 Bar	Vertical	Footed	3"	1500	2940
TM5000	5000 lt	10 Bar	4 Bar	Vertical	Footed	3"	1500	3600

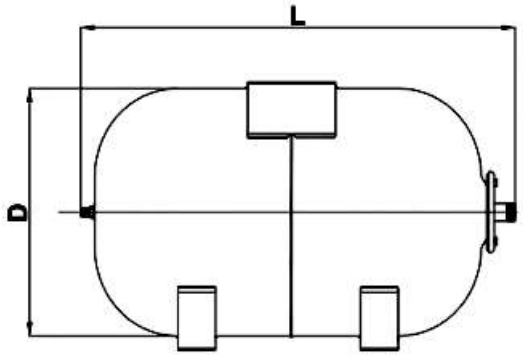


T-TB-TM-TR-TH Series

Expansion Tank with Interchangeable Membrane
10 Bar Horizontal Pressure Tank Series

Technical Specifications	
CE marked according to directive	PED 2014 / 68 / EU
Maximum working pressure	10 Bar
Standart pre-set pressure	2 Bar
Working Temperature	-10 °C / +100 °C
Membrane type	EPDM

Model	Volume	Operating Pressure	Pre-Charge Pressure	Design Structure	Installation Type	Connection	Dia (mm)	Height (mm)
TH24	24 lt	10 Bar	2 Bar	Horizontal	Footed	1"	280	470
TH50	50 lt	10 Bar	2 Bar	Horizontal	Footed	1"	380	620
TH100	100 lt	10 Bar	2 Bar	Horizontal	Footed	1"	460	800

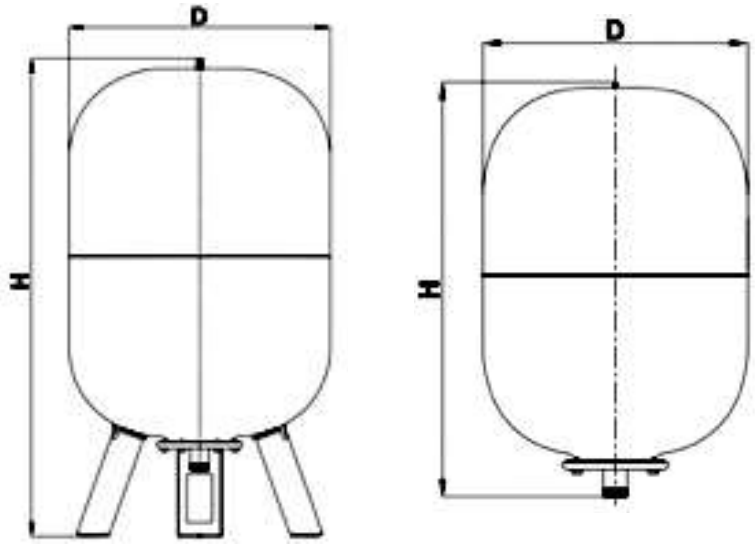


T-TB-TM-TR-TH Series

Expansion Tank with Interchangeable Membrane
15 Bar Vertical Pressure Tank Series

Technical Specifications	
CE marked according to directive	PED 2014 / 68 / EU
Maximum working pressure	16 Bar
Standart pre-set pressure	4 Bar
Working Temperature	-10 °C / +100 °C
Membrane type	EPDM

Model	Volume	Operating Pressure	Pre-Charge Pressure	Design Structure	Installation Type	Connection	Dia (mm)	Height (mm)
TR100	100 lt	16 Bar	4 Bar	Vertical	Footless	1"	460	990
TR200	200 lt	16 Bar	4 Bar	Vertical	Footed	1¼"	585	1120
TR300	300 lt	16 Bar	4 Bar	Vertical	Footed	1¼"	635	1230
TR500	500 lt	16 Bar	4 Bar	Vertical	Footed	1¼"	750	1550
TR750	1000 lt	16 Bar	4 Bar	Vertical	Footed	2"	800	1850
TR1000	1000 lt	16 Bar	4 Bar	Vertical	Footed	2"	800	2180
TR1500	1500 lt	16 Bar	4 Bar	Vertical	Footed	2"	958	2380
TR2000	2000 lt	16 Bar	4 Bar	Vertical	Footed	2"	1100	2520
TR3000	3000 lt	16 Bar	4 Bar	Vertical	Footed	2½"	1200	2800
TR4000	4000 lt	16 Bar	4 Bar	Vertical	Footed	3"	1500	2940
TR5000	5000 lt	16 Bar	4 Bar	Vertical	Footed	3"	1500	3600

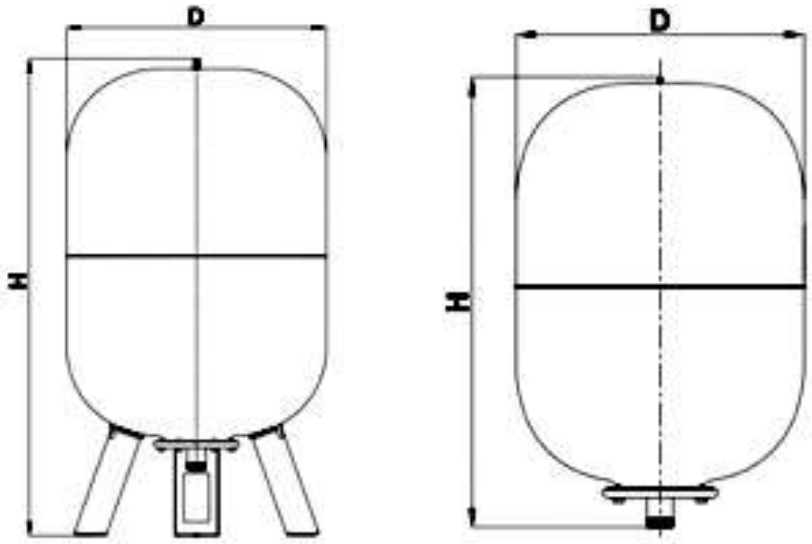


T-TB-TM-TR-TH Series

Expansion Tank with Interchangeable Membrane
25 Bar Vertical Pressure Tank Series

Technical Specifications	
CE marked according to directive	PED 2014 / 68 / EU
Maximum working pressure	25 Bar
Standart pre-set pressure	4 Bar
Working Temperature	-10 °C / +100 °C
Membrane type	EPDM

Model	Volume	Operating Pressure	Pre-Charge Pressure	Design Structure	Installation Type	Connection	Dia (mm)	Height (mm)
TR100	100 lt	25 Bar	4 Bar	Vertical	Footed	1"	450	960
TR200	200 lt	25 Bar	4 Bar	Vertical	Footed	1 1/4"	600	1120
TR300	300 lt	25 Bar	4 Bar	Vertical	Footed	1 1/4"	640	1230
TR500	500 lt	25 Bar	4 Bar	Vertical	Footed	1 1/4"	750	1550
TR750	1000 lt	25 Bar	4 Bar	Vertical	Footed	2"	800	1850
TR1000	1000 lt	25 Bar	4 Bar	Vertical	Footed	2"	800	2180
TR1500	1500 lt	25 Bar	4 Bar	Vertical	Footed	2"	958	2380
TR2000	2000 lt	25 Bar	4 Bar	Vertical	Footed	2"	1100	2520
TR3000	3000 lt	25 Bar	4 Bar	Vertical	Footed	2 1/2"	1200	2800
TR4000	4000 lt	25 Bar	4 Bar	Vertical	Footed	3"	1500	2940
TR5000	5000 lt	25 Bar	4 Bar	Vertical	Footed	3"	1500	3600





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Customer Service:
0850 888 8 627 (MAS)

Orta Mahallesi Atayolu Caddesi
No:16 Tuzla - İstanbul / Türkiye
+90 216 456 47 00

masgrup.com