

Domestic Hot Water Tank

Water heaters with tank are suitable solutions for hospitals, sports arenas, hotels, apartment blocks and similar large buildings. The product range covers storage and charge systems which all combine the demand for high-performance, comfort, hygiene resource-efficient operation. The systems can be combined with a second or multiple DHW storage tanks for optimum tailoring to on-site conditions, available with ready-to-mount piping. A storage water heater operates by releasing hot water from the top of the tank when the hot water tap is turned on. To replace that hot water, cold water enters the bottom of the tank, ensuring that the tank is always full.



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More info about this product.

PACKMAN Domestic hot water heater Tank Properties

PACKMAN Domestic hot water Tanks are made of SA 36 (St 37.2 in accordance with DIN standard) or in the case of customer request they can be made of 17MN4 (which is Suitable for boiler construction) with a certain thickness.

PACKMAN domestic hot water tank is used for supplying clean hot water, used in buildings and industries. These tanks are capable of operation with a steam and hot water system. Steel shell with three-layers of epoxy coating, hot-galvanized steel (suitable for the manufacturing of pressure vessels without direct heat exposure) or 17MN4 shells (suitable for the manufacturing of vessels -no direct heat exposure).

The tanks are fabricated by vertical cylinders with two heads and different diameters and thicknesses. Epoxy coating/galvanizing method is used for producing clean water. Normally PACKMAN suggests the usages of epoxy coating instead of galvanized shells because of lead issue.

The tank contains a copper coil for transferring heat from hot fluid to cold one with a thickness of 1 mm. It also has a hand hole for capacities lower than 2000 liters (Man-Holes are used for greater capacities). It should be noted that access to the inside of the tank is possible through the the coil flange.

Manufacturing Standards

ASME Standard is used for construction of Domestic hot water tanks.

PACKMAN Domestic hot water tank head is Tori spherical. This type of head has a longer life and a higher pressure resistance with the same thickness against other shapes. The production price/per kilo of these heads is even up to two times the size of the usual heads on the market.

Welding Procedure

Welding is done by the Swedish ISBU submerged arc welding equipment. After constructing the tank and welding the lugs, the body of the tank is connected to the heads by welding with a submerged welding method.

Interior and exterior coating and painting conditions

PACKMAN DHW is coated with three layers of epoxy-coated colors with a total thickness of 305 microns and is heat-resistant for use in sanitary applications. The outer surface of the tank is also an epoxy layer and an industrial paint layer with a total thickness of 150 microns. For the galvanized material, only industrial colors will be sprayed.

Distinction of PACKMAN Product

- Lifespan of the device because of the quality of welding, color and epoxy
- Welding and cutting via the latest technology in the world
- High strength against the working pressure because of the thickness and quality of the material
- High quality of connections and tank legs
- High quality of Epoxy and industrial colors

Product Capacity Calculation & Selection:

$$Q = \frac{\text{Kcal}}{h} = \frac{CV\Delta T}{t}$$

$$C = \frac{1 \text{ Kcal}}{\text{kg}^\circ\text{C}} \quad (\text{Water specific heat})$$

V= Volume of water (Liter)

t= 1 hr(heating time)

ΔT = temperature difference ($^\circ\text{C}$)

The volume of water which is needed for a project could be selected from the table of consumers and the demand factor which is selected by the references.

Calculation of heating surface area:

To obtain the heating surface area, divide the thermal capacity by the logarithmic temperature difference between the inlet and outlet water as well as the total heat transfer coefficient.

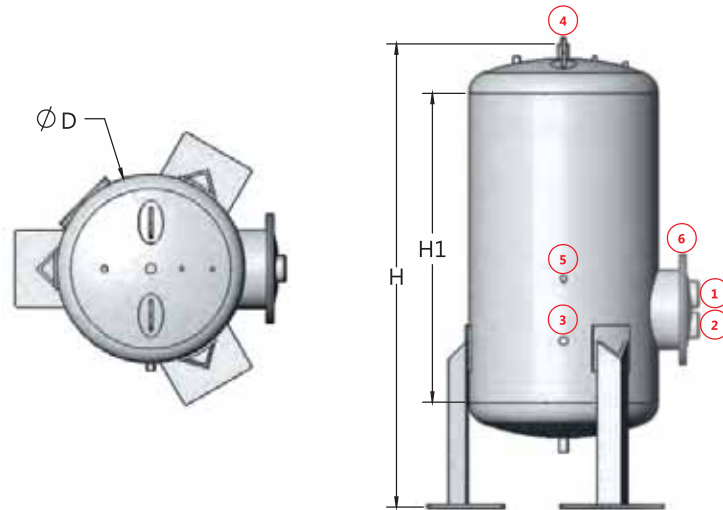
$$A (\text{m}^2) = \frac{Q}{U\Delta t_m}$$

Q= Thermal capacity of tank (W), U

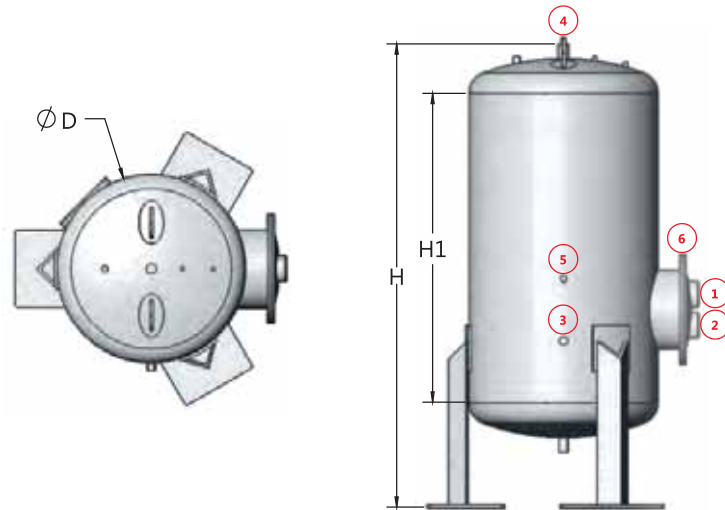
U = Total heat transfer coefficient $\frac{W}{\text{m}^2 \text{K}}$ Δt_m

Δt_m = logarithmic temperature difference

The total heat transfer coefficient is a function of coil material, flow velocity, fluid material and should be examined by the manufacturer.



Model	Capacity	Type	Standard Heating Surface (sq ft)	Standard Heat Capacity One Coil Kcal/Hr	Max Heat Capacity One Coil Kcal/Hr	Min Heat Capacity One Coil Kcal/Hr	Standard Heat Capacity Two Coil Kcal/Hr	Max Heat Capacity Two Coil Kcal/Hr	Min Heat Capacity Two Coil Kcal/Hr
PDHT-300	300	Vertical	15	39,000	53,000	34,000	79,000	106,000	68,000
PDHT-400	400	Vertical	18	47,000	57,000	37,000	94,000	115,000	74,000
PDHT-800	800	Vertical	25	66,000	102,000	29,000	131,000	204,000	58,000
PDHT-1000	1000	Vertical	35	92,000	152,000	31,000	183,000	304,000	63,000
PDHT-1500	1500	Vertical	45	118,000	172,000	64,000	236,000	345,000	127,000
PDHT-2000	2000	Vertical	55	144,000	189,000	100,000	288,000	377,000	199,000
PDHT-2500	2500	Vertical	75	197,000	207,000	186,000	393,000	414,000	372,000
PDHT-3000	3000	Vertical	85	223,000	228,000	218,000	446,000	456,000	435,000
PDHT-3500	3500	Vertical	90	236,000	249,000	223,000	472,000	498,000	446,000
PDHT-4000	4000	Vertical	115	301,000	314,000	288,000	603,000	629,000	577,000
PDHT-5000	5000	Vertical	130	341,000	348,000	333,000	681,000	696,000	667,000
PDHT-6000	6000	Vertical	135	354,000	380,000	328,000	708,000	760,000	655,000
PDHT-8000	8000	Horizontal	150	393,000	419,000	367,000	800,000	850,000	750,000
PDHT-9000	9000	Horizontal	165	432,000	459,000	406,000	880,000	920,000	812,000
PDHT-10000	10000	Horizontal	180	472,000	498,000	446,000	950,000	1,000,000	890,000
PDHT-12000	12000	Horizontal	195	511,000	537,000	485,000	1,050,000	1,100,000	970,000



Model	Diameter	Height / Length	Total Length	Working Pressure Range (bar g)	Hot water inlet	Hot water outlet	Water inlet	Service Water outlet	Service Water Return	Coil Entrance
PDHT-300	609	1000	1500	6-16	3"	3"	1"	1,1/4"	3/4"	10"
PDHT-400	609	1200	1600	6-16	3"	3"	1"	1,1/4"	3/4"	10"
PDHT-800	800	1500	2200	6-16	3"	3"	1"	1,1/4"	3/4"	12"
PDHT-1000	955	1200	1950	6-16	3"	3"	1,1/4"	1,1/2"	1"	14"
PDHT-1500	1100	1500	2200	6-16	3"	3"	1,1/4"	1,1/2"	1"	14"
PDHT-2000	1200	1500	2200	6-16	3"	3"	1,1/2"	2"	1"	14"
PDHT-2500	1320	1500	2300	6-16	3"	3"	1,1/2"	2"	1"	14"
PDHT-3000	1320	1500	2700	6-16	3"	3"	2"	2,1/2"	1,1/4"	14"
PDHT-3500	1320	1500	2900	6-16	3"	3"	2"	2,1/2"	1,1/4"	14"
PDHT-4000	1592	1500	2500	6-16	4"	4"	2"	2,1/2"	1,1/4"	16"
PDHT-5000	1592	2000	3000	6-16	4"	4"	2,1/2"	3"	1,1/2"	16"
PDHT-6000	1750	2000	3100	6-16	4"	4"	3"	4"	1,1/2"	16"
PDHT-8000	1910	2100	3300	6-16	4"	4"	3"	4"	2"	16"
PDHT-9000	1910	2500	3700	6-16	4"	4"	3"	4"	2"	16"
PDHT-10000	1910	3000	4200	6-16	4"	4"	3"	4"	2"	16"
PDHT-12000	1910	3500	4450	6-16	4"	4"	3"	4"	2"	16"