



FIGURE 8: Hot water tank, exterior view (Photo: rotex.de)

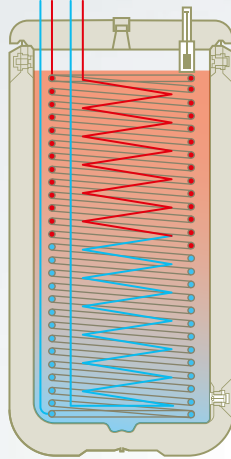


FIGURE 9: The fluid of the primary circuit transfers its heat energy to the domestic hot water through ultra-thin stainless steel tubes (Photo: rotex.de)

The heat exchanger principle (Figures 8-10) also prevents deposits from building up in the collector. Lime or other particles are often found in tap water. They may accumulate in the pipes and eventually reduce the efficiency of the system.



FIGURE 10: Cut-away showing the hot water tank design (Photo: rotex.de)

To facilitate heat transfer, the wall of the tube must be as thin as possible. Owing to its excellent mechanical properties, stainless steel pipes can have walls that are as thin as 0.3 mm. Corrugations give the tube the necessary mechanical resistance to withstand working pressures of up to 6 bar and even survive test pressures of 30 bar without breaking (Figure 11).



FIGURE 11: Corrugated stainless steel tube (witzenmann.com)

Being in contact with potable water, the tube must also meet high hygienic requirements. Here again, stainless steel (a standard choice for heat exchangers in the food and beverage industries) is a preferred material.

Both from hygiene and performance perspectives, stainless steel is the optimal material for heat exchangers in hot water tanks.