The following figures show the configuration of the absorption machine and the performance for typical application conditions.

Fig. 1 illustrates the main components of the machine in a Pressure-Temperature plot of the ammonia-lithium nitrate.
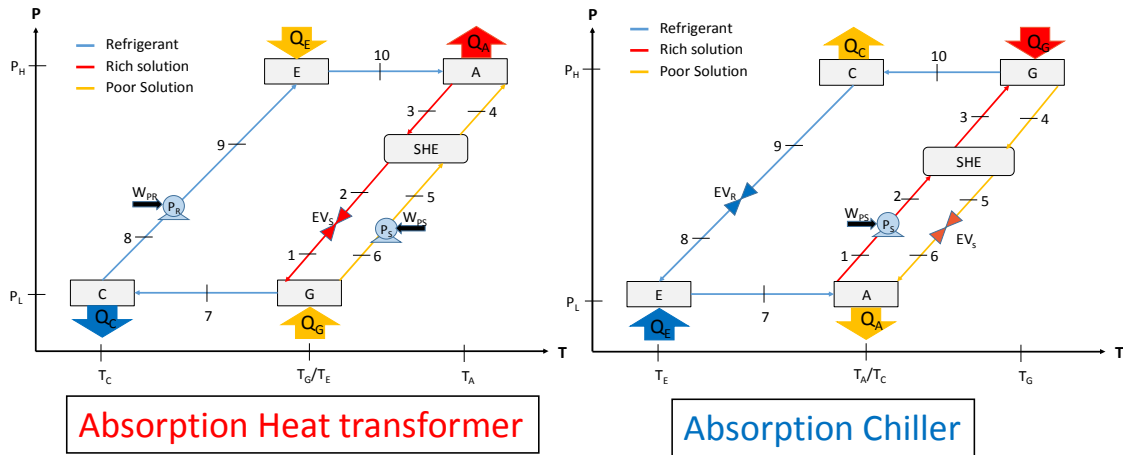

Fig 1. P-T diagram for a heat transformer amb absorption chiller

Fig. 2 shows a schematic diagram of the machine that could operate reversely as an absorption cooling cycle and as an absorption heat transformer for heating.
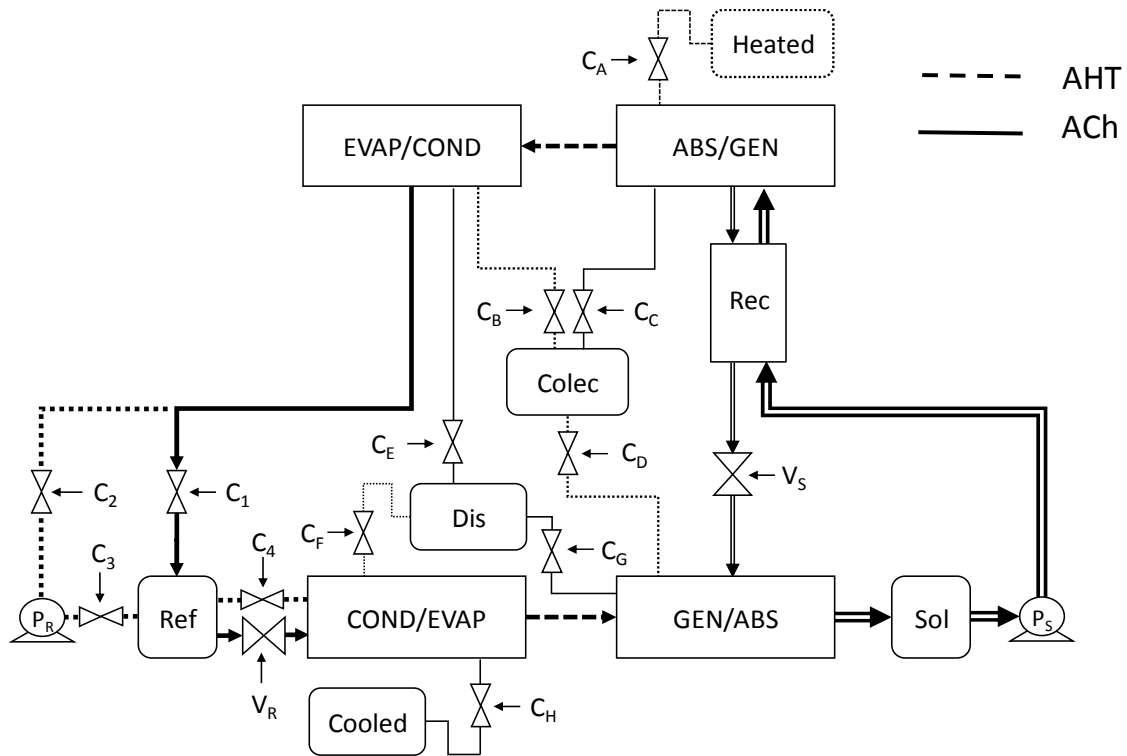

Fig 2. Schematic diagram of the system

Figs. 3(a) and 3(b) show, for the absorption chiller, the COP values versus the generator temperature at an evaporation temperature of 5 and 10 °C, respectively.
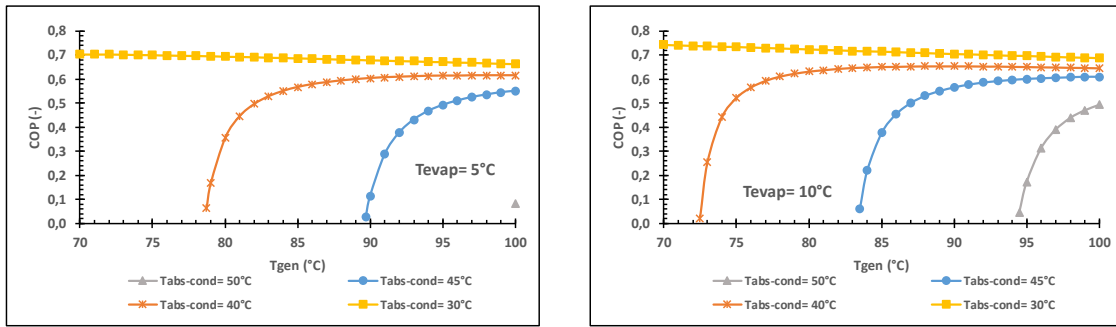

Fig 3. *Effect of generator temperature on COP for Absorption Chiller at: (a) T_{evap}= 5 °C; (b) T_{evap}= 10 °C*

Figs. 4(a) and 4(b) show the COP values, for the heat transformer, versus generator-evaporator temperatures at an absorption temperature of 60 and 50 °C, respectively.
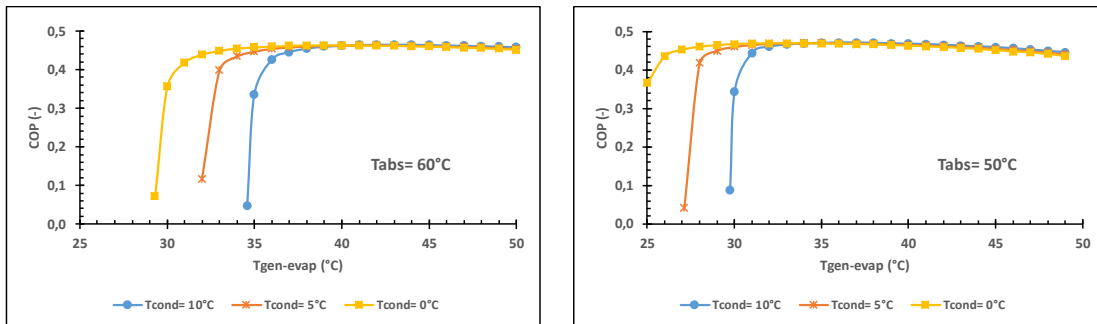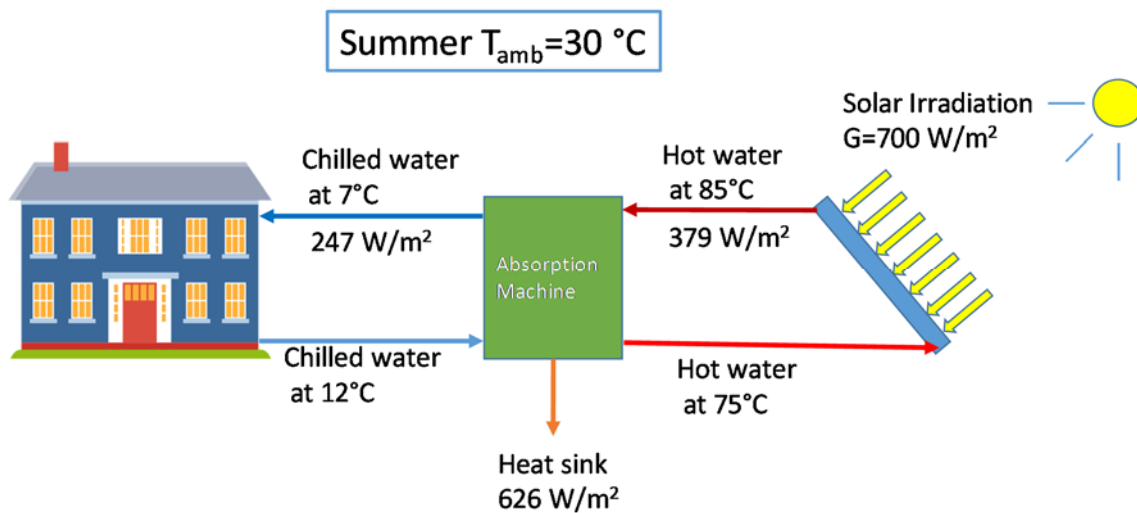

Fig 4. *Effect of generator and evaporator temperature on COP for Heat Transformer at: (a) T_{abs}= 60 °C; (b) T_{abs}= 50 °C*

Figure 5 shows the heat duties per square meter of solar thermal collectors for typical summer and winter conditions

Winter T_{amb}=5 °C

Heating water at 50°C
176 W/m²

Hot water at 40°C
390 W/m²

Solar Irradiation
G=600 W/m²

Absorption Machine

Heating water at 45°C

Hot water at 30°C

Heat sink
211 W/m²