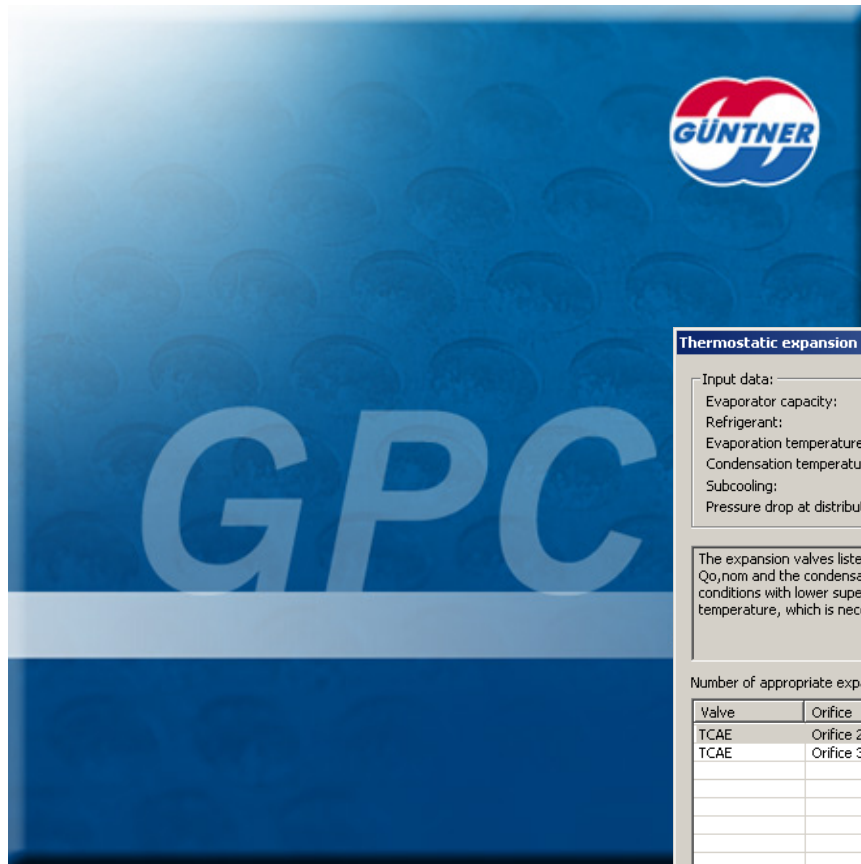


Selection of thermostatic expansion valves with the GPC



Thermostatic expansion valve

Input data:

Evaporator capacity:	10.0 kW
Refrigerant:	R134a
Evaporation temperature:	-8.0 °C
Condensation temperature:	35.0 °C
Subcooling:	5.0 K
Pressure drop at distributor:	1.0 bar

Thermostatic element for evaporation temperatures: **-40 °C to +10 °C without MOP**

MOP = Max. operating pressure

pressure drop of liquid line: **0.8 bar** Auto

The expansion valves listed below are suitable to the provided conditions. The indicated nominal evaporator capacity $Q_{0,nom}$ and the condensation temperature $T_{c,min}$ are valid to the factory-side setting of the standard superheating. At conditions with lower superheatings the adjusting-screw must be adapted. $T_{c,min}$ ist the minimal required condensation temperature, which is necessary to obtain the provided evaporation capacity at the provided evaporation temperature.

Number of appropriate expansion valves: 2

Valve	Orifice	$T_{c,min}$	$Q_{0,nom}$	Opening degree	Price
TCAE	Orifice 2	27.5 °C	11.4 kW	87.9 %	284.00 EUR
TCAE	Orifice 3	18.8 °C	14.8 kW	67.6 %	284.00 EUR

Straight way valve with exchangeable orifice, external equalization. Standard superheating for $Q_{0,nom}$: 9.0 K.

Cancel OK

Selection of thermostatic expansion valves with the GPC



Small valve (opening degree ~ 75 % - 110 %)

Advantages:

- High control quality
- Part load of evaporator (smaller Δt_1 than in design mode) can be controlled

Disadvantage:

- No reserve for peak powers

Large valve (opening degree ~ 60 % - 75 %)

Advantages:

- Condensing temperature can be decreased to a large extent (energy saving by enhancing the efficiency of the refrigerant circuit)
- Power reserves existing

Disadvantage:

- Low control quality (danger of hunting)

