

Table 1 - Evaporator/Condenser minimum and maximum Δt

Max evaporator water ΔT	°C	8
Min evaporator water ΔT	°C	4
Min condenser water ΔT	°C	4
Max condenser water ΔT	°C	8

Table 2 - Evaporator fouling factors

Fouling factors $m^2\text{°C} / kW$	Cooling capacity correction factor	Power input correction factor	EER correction factor
0.0176	1.000	1.000	1.000
0.0440	0.978	0.986	0.992
0.0880	0.957	0.974	0.983
0.1320	0.938	0.962	0.975

Minimum glycol percentage for low water temperature 3 - Condenser fouling factors

Fouling factors $m^2\text{°C} / kW$	Cooling capacity correction factor	Power input correction factor	EER correction factor
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Table 4.1 - Condenser fouling factors

Evaporator leaving water temperature °C	2	0	-2	-4	-6	-8
Ethylene glycol (%)	10	20	20	20	30	30
Propylene glycol (%)	10	20	20	30	30	30

Note: Minimum glycol percentage to be used with evaporator leaving water temperature below 4°C to prevent freezing of water circuit.

Table 4.2 - Minimum glycol percentage for low air temperature

Air ambient temperature (°C) (2)	-3	-8	-15	-23	-35
Ethylene glycol (%) (1)	10%	20%	30%	40%	50%
Air ambient temperature (°C) (2)	-3	-7	-12	-20	-32
Propylene glycol (%) (1)	10%	20%	30%	40%	50%

Note (1): Minimum glycol percentage to prevent freezing of water circuit at indicated air ambient temperature

Note (2): Air ambient temperature do exceed the operating limits of the unit, as protection of water circuit may be needed in winter season at non-working conditions.

Table 5 - Correction factors for low evaporator leaving water temperature

Evaporator leaving water temperature °C	2	0	-2	-4	-6	-8
Cooling capacity	0.842	0.785	0.725	0.670	0.613	0.562
Compressor power input	0.950	0.940	0.920	0.890	0.870	0.840

Note: Correction factors have to be applied at working conditions: evaporator leaving water temperature 7°C

Table 6 - Correction factors for water and glycol mixture

	Ethylene glycol (%)	10%	20%	30%	40%	50%
Ethylene glycol	Cooling capacity	0.991	0.982	0.972	0.961	0.946
	Compressor power input	0.996	0.992	0.986	0.976	0.966
	Flow Rate (Δt)	1.013	1.04	1.074	1.121	1.178
	Evaporator Pressure Drop	1.070	1.129	1.181	1.263	1.308
Ethylene glycol	Cooling capacity	0.985	0.964	0.932	0.889	0.846
	Compressor power input	0.993	0.983	0.969	0.948	0.929
	Flow Rate (Δt)	1.017	1.032	1.056	1.092	1.139
	Evaporator Pressure Drop	1.120	1.272	1.496	1.792	2.128