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NOMENCLATURE

COP	[-]	coefficient of performance
DT	[^{o}C]	temperature difference in the cascade-condenser
h	[kJ/kg]	specific enthalpy
hs	[kJ/kg]	specific enthalpy calculated at suction entropy
m_1, m_5 & m_9	[kg/s]	mass flow rate of high-temperature circuit, mass
.		flow rate of medium-temperature circuit &
		mass flow rate to low- temperature circuit
P	[kPa]	pressure
Q	[kW]	heat transfer rate
RC	[-]	Compressor pressure ratio
S	[kJ/kg.K]	specific entropy
T	[oC]	temperature
W	[kW]	work
X	[-]	quality
X_{des}	[kW]	rate of exergy destruction
Special characters		
η	[-]	Efficiency
η_{Π}	[-]	Exergetic efficiency
ψ	[kJ/kg]	Stream exergy
Subscripts		
cas		Cascade
E		Evaporator
F		Cooling space
C		Condenser
H T		High-Temperature circuit
MT		Medium -Temperature circuit
LT		Low-Temperature circuit
isent		Isentropic
max		maximum