

\dot{m}_{ORC}	ORC mass flow, kg s ⁻¹	T_{max}	ORC: Maximum temperature
\dot{m}_{REF}	REF mass flow, kg s ⁻¹	$T_{sat}(p)$	Saturation temperature at pressure p , °C
\dot{m}_{DHW}	DHW mass flow, kg s ⁻¹	W_A	Alternator power, kW
NO _x	Nitrogen Oxides	W_K	REF Compressor power, kW
nZEB	near Zero Energy Building	W_P	ORC Pump power, kW
ORC	Organic Rankine Cycle	W_T	ORC Turbine power, kW
ORC_fluid	Generic ORC working fluid	x	Quality
p_0	Atmospheric pressure, bar	Greek symbols	
p_c	REF Condensing pressure, bar	α	Turbine power fraction to feed the electric alternator
p_e	REF Evaporating pressure, bar	η_{ORC}	ORC Efficiency
p_h	ORC high pressure, bar	η_{ORC_T}	REF Compressor isentropic efficiency
p_l	ORC low pressure, bar	η_{REF_K}	ORC Turbine isentropic efficiency
Q_{DHW}	DHW Heat flux, kW	Subscripts	
Q_{REF_E}	Refrigerating load, kW	1..4	REF_fluid thermodynamic state
Q_{ORC_B}	ORC Boiler Heat flux, kW	5..8	ORC_fluid thermodynamic state
Q_{ORC_C}	ORC Condenser Heat flux, kW	9..11	DHW thermodynamic state
Q_{REF_C}	REF Condenser Heat flux, kW	APPENDIX	
REF	Refrigerator		
REF_fluid	Generic REF working fluid		
s	Entropy, kJ kg ⁻¹ K ⁻¹		
T_c	REF: Condensing temperature, °C		
T_e	REF: Evaporating temperature, °C		
T_h	ORC: T_{sat} at high pressure, °C, $T_{sat}(p_h)$		
T_l	ORC: T_{sat} at low pressure, °C, $T_{sat}(p_l)$		

Table A1. Fluid characteristics

	R 717	R600a	R290	R1270	R245fa	Toluene	R134a
	Ammonia	Isobutane	Propane	Propylene			
CAS#:	7664-41-7	75-28-5	74-98-6	115-07-1	460-73-1	108-88-3	811-97-2
Molar mass:	kg/kmol	17.03	58.122	44.096	42.08	134.05	102.03
Triple point	°C	-77.65	-159.42	-187.625	-458.35	-102.1	-103.3
NBT	°C	-33.33	-11.75	-42.11	-320.77	15.14	-26.07
Critical temp.	°C	132.25	134.66	96.74	-182.09	154.01	101.06
Critical pressure	bar	113.33	36.29	42.512	455.5	36.51	40.593
Refrigerant No.		R717	R600a	R290		R245fa	R134a
Type		Inorganic	HC	HC	HC	HFC	HFC
Classification		B2L	A3	A3	A3	B1	A1
ODP		0	0	0	0	0	0
GWP		0	3	3	2	1,030	1,430
GWP (AR5)		0	3	3	2	856	1,300

Notes: There are two values of GWP. The use of GWP (AR5) values is recommended. The AR5 values (IPCC Fifth Assessment Report, 2014 - AR5) are the most recent, but the previous values are also listed because they are sometimes used for inventory and reporting purposes