

DEAP 4.2 INPUTS

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BASIC PROPERTIES

HEAT PUMP TEST DATA

Item Type *

Heat Source

Item Name *

S-Combi 16kW 260L

Keywords *

Hitachi S-Combi

Manufacturer *

Hitachi

Model *

RAS-6.0WHVNPE & RWD-6.0NWE-260S

Heating Source Type *

Heat Pumps

Heat Pump Type *

Air to Water

Space Heating Standard *

I.S. EN 14825

Water Heating Standard *

I.S. EN 16147

Season Space Heating Efficiency, η_s [%] *

125

Water Heating Efficiency, η_{wh} [%] *

134

Temperature Control (Capacity Control) *

Variable Outlet

Integrated Immersion

Flow Temperature \geq [60/65°C]

TOL *

-10

WTOL *

55

CANCEL

SAVE

Create Library Item

BASIC PROPERTIES

HEAT PUMP TEST DATA

 Heating System Test Data: I.S. EN14825

 Test Condition Low (35°C)

	A(88%)	B(54%)	C(35%)	D(15%)	E*(100%)
	-7°C	2°C	7°C	12°C	TOL
Source	A-7	A2	A7	A12	A-10
Sink	W52	W42	W36	W30	W55
Heating Capacity (kW)	<u>13.80</u>	<u>8.40</u>	<u>5.40</u>	<u>3.50</u>	<u>14.10</u>
Coefficient of Performance (KW/KW)	<u>2.40</u>	<u>3.90</u>	<u>5.00</u>	<u>6.00</u>	<u>2.30</u>

 Test Condition High (55°C) *

	A(88%)	B(54%)	C(35%)	D(15%)	E*(100%)
	-7°C	2°C	7°C	12°C	TOL
Source	A-7	A2	A7	A12	A-10
Sink	W52	W42	W36	W30	W55
Heating Capacity (kW)	<u>11.20</u>	<u>6.82</u>	<u>4.38</u>	<u>3.60</u>	<u>10.50</u>
Coefficient of Performance (KW/KW)	<u>1.60</u>	<u>3.35</u>	<u>4.35</u>	<u>5.50</u>	<u>1.40</u>

 Heating System Test Data: I.S. EN16147

Source of Data *	Coefficient of Performance (KW/KW)	Water Heating Efficiency, η_{wh} [%]
Water Heating Efficiency		<u>134</u>
Reference Hot Water Temperature (°C) *		Capacity of Heat Pump (kW) *
<u>54</u>		<u>14</u>
Declared Load Profile *	Standby Heat Loss [kWh/day] *	Volume of DHW accounted for in test (Litres) *
<u>XL</u>	<u>1.85</u>	<u>350</u>

CANCEL

SAVE

Edit Primary Heat Source

Product Details		Survey Details	
Type	Heat Pumps	Heat % *	100
Heat Pump Type	Air to Water	Fuel Type	Electricity
Manufacturer	Hitachi	<input checked="" type="checkbox"/> Heats Water	
Model	RAS-6.0WHVNPE & RWD-6.0NWE-260S	Design Flow Temperature (°C) *	As Required
Seasonal Space Heating Efficiency, η_s	125	Daily Operation (h) *	24
<p>This is the Ecodesign Seasonal Space Heating Efficiency, η_s. When the survey is completed, the efficiency will be updated to reflect the performance of the heat pump in this dwelling.</p>		Backup Space Heater Fuel	Electricity
Eff. Adj. Factor	1	Back Up Space Heater Efficiency (%) *	100
VIEW DETAILS IN LIBRARY		Backup Water Heater Fuel	Electricity
		Back Up Water Heater Efficiency (%) *	100



Hot Water Tab

Options & Storage

Solar

Heat Source



Options



Distribution Losses



Storage Losses



Is supplementary electric water heating used in summer



Is there a combi boiler



Storage



Is hot water storage indoors or in group heating scheme?

Storage Type

Integrated thermal store and gas-fired CPSU

Storage Volume (l)

260

Heat Pump Type of DHW *

Integral Hot Water Storage



Is manufacturers declared loss available

Make and Model

Hitachi RWD-6.0NWE-260S

Declared Loss (kWh/day)

1.85

Insulation Type

Factory Insulated

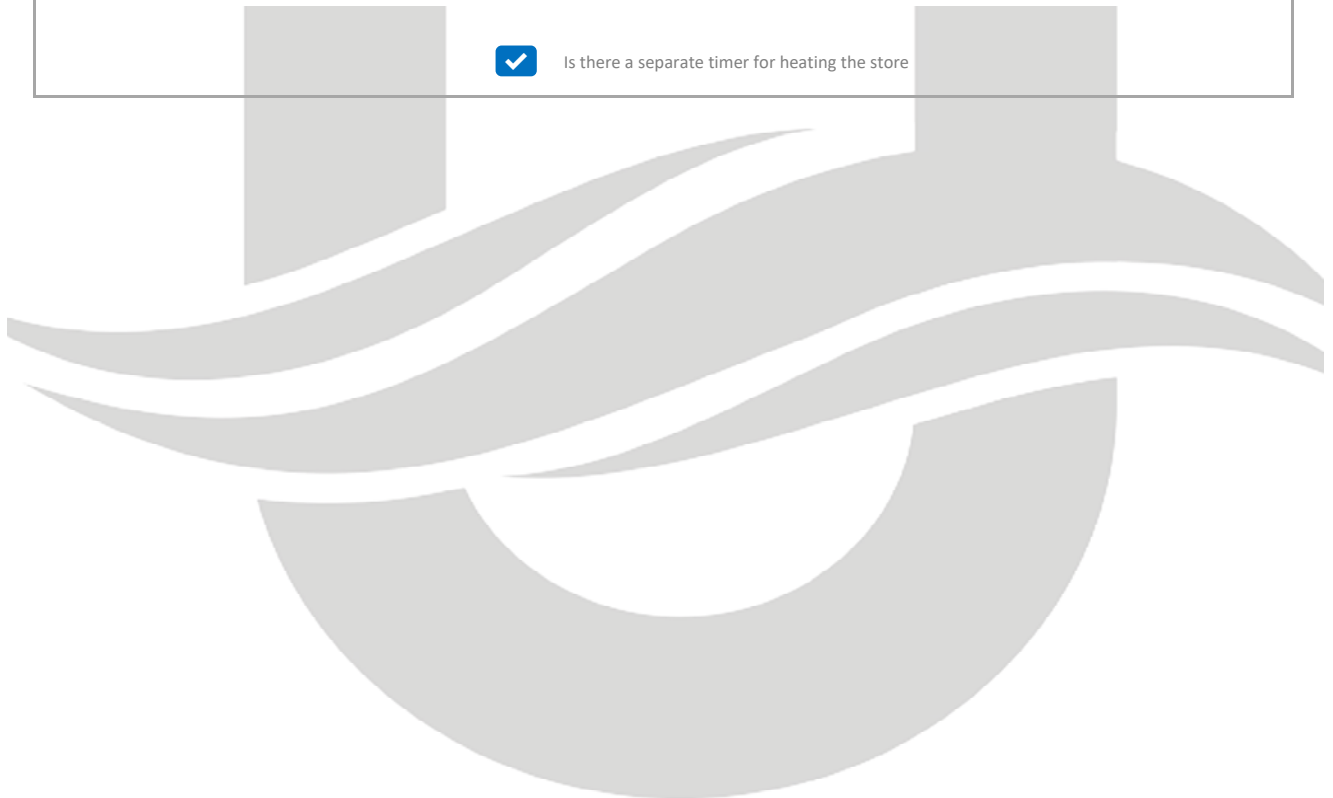
Insulation Thickness (mm)

Primary Circuit Loss Type

None



Is there a separate timer for heating the store



Subject: Performance data for YUTAKI S COMBI: air to water heat pump with integrated tank.

Hereby we confirm that the below values are HP Keymark certified and compliant with Ecodesign directive 2009/125/EC (813/2013) and Energy labelling directive 2010/30/EU (811/2013)

Heating & Cooling Performance

EN-14511:2018

HP				2.0 HP	2.5 HP	3.0 HP	4.0 HP	5.0 HP	6.0 HP
Outdoor unit model				RAS-2 WHVNP	RAS-2.5 WHVNP	RAS-3 WHVNP	RAS-4 WH(V)NPE	RAS-5 WH(V)NPE	RAS-6 WH(V)NPE
Indoor unit model				RWD- 2.0NW(S) E-(200/260) S(-K)(-W)	RWD- 2.5NW(S) E-(200/260) S(-K)(-W)	RWD- 3.0NW(S) E-(200/260) S(-K)(-W)	RWD- 4.0NW(S) E-(200/260) S(-K)(-W)	RWD- 5.0NW(S) E-(200/260) S(-K)(-W)	RWD- 6.0NW(S) E-(200/260) S(-K)(-W)
OAT (DB/WB)	WIT / WOT	-	Unit	Heating operation					
7 / 6 °C	30 / 35 °C	CAP (Min./Nom./Max.)	kW	1.85 /4.3/7.0	1.95 /6.0/9.0	2.1/ 7.5/11.0	4.3 /11.0/15.2	4.8 /14.0/16.7	5.5 /16.0/17.8
		COP (Nom.)	-	5.25	4.80	4.55	5.00	4.71	4.57
	40 / 45 °C	CAP (Nom./Max.)	kW	4.3/6.2	6.0/9.0	7.5/10.0	11.0/14.1	14.0/15.7	16.0/17.3
		COP (Nom.)	-	3.90	3.59	3.50	3.98	3.61	3.40
	47 / 55 °C	CAP (Nom./Max.)	kW	4.3/6.0	6.0/8.0	7.5/9.2	11.0/13.5	14.0/15.2	16.0/17.0
		COP (Nom.)	-	3.0	2.89	2.57	3.00	2.80	2.50
2 / 1 °C	30 / 35 °C	CAP (Nom./Max.)	kW	3.5/5.5	4.5/7.0	5.5/8.9	9.5/12.8	10.5/13.9	11.1/15.0
		COP (Nom.)	-	4.10	3.65	3.53	3.61	3.55	3.41
-7 / -8 °C	30 / 35 °C	CAP (Nom./Max.)	kW	4.3/4.7	5.3/5.7	5.8/6.7	9.7/10.6	11.5/12.0	12.0/13.0
		COP (Nom.)	-	2.85	2.60	2.57	2.74	2.65	2.57
	40 / 45 °C	CAP (Nom./Max.)	kW	4.3/4.6	5.0/5.5	6.0/6.4	10.0/10.0	11.0/11.6	11.5/12.5
		COP (Nom.)	-	2.45	2.25	2.25	2.45	2.25	2.15
	47 / 55 °C	CAP (Nom./Max.)	kW	4.0/4.2	4.6/5.0	5.0/5.5	8.7/9.7	9.7/11.2	10.5/12.0
		COP (Nom.)	-	1.93	1.82	1.60	1.78	1.85	1.75
OAT (DB/WB)	WIT / WOT	-	Unit	Cooling operation (Using cooling kit accessory)					
35 / -- °C	12 / 7 °C	CAP (Nom/Max)	kW	3.8/4.9	5.0/5.8	6.0/7.0	7.2/11.8	9.5/12.6	10.5/13.7
		EER (Nom.)	-	3.12	3.15	2.75	3.54	3.54	3.31
	23 / 18 °C	CAP (Nom/Max)	kW	4.1/6.1	5.5/7.4	6.0/8.5	10.4/15.0	12.9/16.0	13.5/17.5
		EER (Nom.)	-	3.81	3.81	3.81	4.50	4.02	3.81

Johnson Controls-Hitachi Air Conditioning Spain, S.A.U.

Ronda Shimizu 1, P. I. Can Torrella
08233 Vacarisses, Barcelona (Spain)

EN-14825:2016

RAS-(2-3)WHVNP + RWD-(2.0-3.0)NW(S)E-(200/260)S(-K)(-W)

Model		HP	2.0 HP		2.5 HP		3.0 HP	
		Outdoor unit	RAS-2WHVNP		RAS-2.5WHVNP		RAS-3WHVNP	
		Indoor unit	RWD-2.0NW(S)E-(200/260)S(-K)(-W)		RWD-2.5NW(S)E-(200/260)S(-K)(-W)		RWD-3.0NW(S)E-(200/260)S(-K)(-W)	
Water outlet temperature			35°C	55°C	35°C	55°C	35°C	55°C
Product description	Air to water heat pump	-	Yes					
	Heat pump combination heater	-	No					
	Low temperature heat pump	-	No					
	Complementary heater	-	Yes					
Design capacity (P _{DESIGN})		kW	4.0	4.0	6.0	5.0	7.0	6.0
Nominal energy efficiency (η _g)		%	189 (194)	137 (140)	177 (180)	130 (132)	165 (167)	125 (127)
Nominal energy class		-	A+++	A++	A+++	A++	A++	A++
Data for Packaged Fiche:								
Energy efficiency with OTC control (η _g) (*)		%	191 (196)	139 (142)	179 (182)	132 (134)	167 (169)	127 (129)
Energy class with OTC control		-	A+++	A++	A+++	A++	A++	A++
Energy efficiency with thermostats/sensors (η _g) (*)		%	193 (198)	141 (144)	181 (184)	134 (136)	169 (171)	129 (131)
Energy class with thermostats		-	A+++	A++	A+++	A++	A++	A++
Supplementary capacity (P _{SUP})		kW	0.0	0.9	0.3	1.1	0.6	1.5
Type of energy used		-	Electricity					
Declared capacity (P _{d,h}) and coefficient of performance (COP _d) at partial load under the following outdoor temperatures:								
Outdoor temperature (T _j) = -7°C	P _{d,h}	kW	3.54	3.50	4.95	4.42	5.90	5.10
	COP _d	-	3.20	2.30	2.70	1.85	2.50	1.84
Outdoor temperature (T _j) = +2°C	P _{d,h}	kW	2.15	2.10	3.01	2.69	3.59	3.10
	COP _d	-	5.20	3.73	4.60	3.45	4.40	3.20
Outdoor temperature (T _j) = +7°C	P _{d,h}	kW	1.70	1.60	1.90	1.84	2.31	2.00
	COP _d	-	6.05	4.40	6.00	4.20	5.35	4.45
Outdoor temperature (T _j) = +12°C	P _{d,h}	kW	1.75	1.60	1.80	2.06	2.10	2.30
	COP _d	-	6.25	5.00	7.20	6.90	6.15	5.96
Outdoor temperature (T _j) = Bivalent temperature (T _{bi})	P _{d,h}	kW	3.54	3.50	4.95	4.42	5.90	5.10
	COP _d	-	3.20	2.30	2.70	1.85	2.50	1.84
Outdoor temperature (T _j) = Limit operation temperature (TOL)	P _{d,h}	kW	4.00	3.10	5.30	3.90	6.40	4.30
	COP _d	-	2.75	1.90	2.50	1.80	2.30	1.65
Bivalent temperature (T _{bi})		°C	-7	-7	-7	-7	-7	-7
Limit operation temperature (TOL)		°C	-10	-10	-10	-15	-10	-15
Water limit operation temperature (WTOL)		°C	55	55	55	55	55	55
Degradation coefficient (C _{d,h})		-	0.9	0.9	0.9	0.9	0.9	0.9
Annual energy consumption (Q _{HE})		kW·h	1719 (1675)	2358 (2314)	2569 (2525)	3114 (3070)	3286 (3242)	3724 (3690)

Johnson Controls-Hitachi Air Conditioning Spain, S.A.U.

Ronda Shimizu 1, P. I. Can Torrella
08233 Vacarisses, Barcelona (Spain)

RAS-(4-6)WHVNPE + RWD-(4.0-6.0)NW(S)E-(200/260)S(-K)(-W)

Model		HP		4.0 HP		5.0 HP		6.0 HP	
		Outdoor unit		RAS-4WHVNPE		RAS-5WHVNPE		RAS-6WHVNPE	
		Indoor unit		RWD-4.0NW(S)E-(200/260)S(-K)(-W)		RWD-5.0NW(S)E-(200/260)S(-K)(-W)		RWD-6.0NW(S)E-(200/260)S(-K)(-W)	
Water outlet temperature				35°C	55°C	35°C	55°C	35°C	55°C
Product description	Air to water heat pump	-		Yes					
	Heat pump combination heater	-		No					
	Low temperature heat pump	-		No					
	Complementary heater	-		Yes					
Design capacity (P _{DESIGN})		kW	11.0	10.0	14.0	12.0	16.0	14.0	
Nominal energy efficiency (η _s)		%	187 (189)	136 (137)	175 (176)	133 (134)	153 (153)	125 (126)	
Nominal energy class		-	A+++	A++	A+++	A++	A++	A++	
Data for Packaged Fiche:									
Energy efficiency with OTC control (η _s) (*)		%	189 (191)	138 (139)	177 (178)	135 (136)	155 (155)	127 (128)	
Energy class with OTC control		-	A+++	A++	A+++	A++	A++	A++	
Energy efficiency with thermostats/sensors (η _s) (*)		%	191 (193)	140 (141)	179 (180)	137 (138)	157 (157)	129 (130)	
Energy class with thermostats		-	A+++	A++	A+++	A++	A++	A++	
Supplementary capacity (P _{SUP})		kW	0.5	2.3	1.9	2.6	1.9	3.1	
Type of energy used		-	Electricity						
Declared capacity (P _d) and coefficient of performance (COP _d) at partial load under the following outdoor temperatures:									
Outdoor temperature (T _j) = -7°C	P _d	kW	9.60	8.60	12.00	10.25	13.80	11.20	
	COP _d	-	2.74	1.80	2.55	1.70	2.40	1.60	
Outdoor temperature (T _j) = +2°C	P _d	kW	5.84	5.23	7.30	6.24	8.40	6.82	
	COP _d	-	5.20	3.60	4.70	3.60	3.90	3.35	
Outdoor temperature (T _j) = +7°C	P _d	kW	3.76	3.52	4.70	4.01	5.40	4.38	
	COP _d	-	5.80	4.80	5.70	4.60	5.00	4.35	
Outdoor temperature (T _j) = +12°C	P _d	kW	3.70	3.60	3.50	3.50	3.50	3.60	
	COP _d	-	6.40	5.80	6.00	5.50	6.00	5.50	
Outdoor temperature (T _j) = Bivalent temperature (T _{bn})	P _d	kW	9.60	8.60	12.00	10.25	13.80	11.20	
	COP _d	-	2.74	1.80	2.55	1.70	2.40	1.60	
Outdoor temperature (T _j) = Limit operation temperature (TOL)	P _d	kW	10.50	7.40	12.10	9.00	14.10	10.5	
	COP _d	-	2.65	1.70	2.50	1.60	2.30	1.40	
Bivalent temperature (T _{bn})		°C	-7	-7	-7	-7	-7	-7	
Limit operation temperature (TOL)		°C	-10	-10	-10	-10	-10	-10	
Water limit operation temperature (WTOL)		°C	55	55	55	55	55	55	
Degradation coefficient (C _{dh})		-	0.9	0.9	0.9	0.9	0.9	0.9	
Annual energy consumption (Q _{HE})		kW-h	4714 (4666)	5815 (5767)	6313 (6265)	7066 (7018)	8287 (8239)	8780 (8732)	

RAS-(4-6)WHNPE + RWD-(4.0-6.0)NW(S)E-(200/260)S(-K)(-W)

Model	HP		4.0 HP		5.0 HP		6.0 HP	
	Outdoor unit		RAS-4WHNPE		RAS-5WHNPE		RAS-6WHNPE	
	Indoor unit		RWD-4.0NW(S)E-(200/260)S(-K)(-W)		RWD-5.0NW(S)E-(200/260)S(-K)(-W)		RWD-6.0NW(S)E-(200/260)S(-K)(-W)	
Water outlet temperature			35°C	55°C	35°C	55°C	35°C	55°C
Product description	Air to water heat pump		-	Yes				
	Heat pump combination heater		-	No				
	Low temperature heat pump		-	No				
	Complementary heater		-	Yes				
Design capacity (P _{DESIGN})		kW	11.0	10.0	14.0	12.0	16.0	14.0
Nominal energy efficiency (η _g)		%	186(189)	135(137)	174(176)	133(134)	152(153)	125(126)
Nominal energy class		-	A+++	A++	A++ (A+++)	A++	A++	A++
Data for Packaged Fiche:								
Energy efficiency with OTC control (η _g) (*)		%	188(191)	137(139)	176(178)	135(136)	154(155)	127(128)
Energy class with OTC control		-	A+++	A++	A+++	A++	A++	A++
Energy efficiency with thermostats/sensors (η _g) (*)		%	190(193)	139(141)	178(180)	137(138)	156(157)	129(130)
Energy class with thermostats		-	A+++	A++	A+++	A++	A++	A++
Supplementary capacity (P _{SUP})		kW	0.5	2.3	1.9	2.6	1.9	3.1
Type of energy used		-	Electricity					
Declared capacity (P _{dh}) and coefficient of performance (COP _d) at partial load under the following outdoor temperatures:								
Outdoor temperature (T _j) = -7°C	P _{dh}	kW	9.60	8.60	12.00	10.25	13.80	11.20
	COP _d	-	2.74	1.80	2.55	1.70	2.40	1.60
Outdoor temperature (T _j) = +2°C	P _{dh}	kW	5.84	5.23	7.30	6.24	8.40	6.82
	COP _d	-	5.20	3.60	4.70	3.60	3.90	3.35
Outdoor temperature (T _j) = +7°C	P _{dh}	kW	3.76	3.52	4.70	4.01	5.40	4.38
	COP _d	-	5.80	4.80	5.70	4.60	5.00	4.35
Outdoor temperature (T _j) = +12°C	P _{dh}	kW	3.70	3.60	3.50	3.50	3.50	3.60
	COP _d	-	6.40	5.80	6.00	5.50	6.00	5.50
Outdoor temperature (T _j) = Bivalent temperature (T _{biv})	P _{dh}	kW	9.60	8.60	12.00	10.25	13.80	11.20
	COP _d	-	2.74	1.80	2.55	1.70	2.40	1.60
Outdoor temperature (T _j) = Limit operation temperature (TOL)	P _{dh}	kW	10.50	7.40	12.10	9.00	14.10	10.50
	COP _d	-	2.65	1.70	2.50	1.60	2.30	1.40
Bivalent temperature (T _{biv})		°C	-7	-7	-7	-7	-7	-7
Limit operation temperature (TOL)		°C	-10	-10	-10	-10	-10	-10
Water limit operation temperature (WTOL)		°C	55	55	55	55	55	55
Degradation coefficient (C _{dh})		-	0.9	0.9	0.9	0.9	0.9	0.9
Annual energy consumption (Q _{HE})		kW·h	4736 (4666)	5837 (5767)	6335 (6265)	7088 (7018)	8309 (8239)	8802 (8732)

Domestic Hot Water (DHW) Performance

EN-16147:2017

RAS-(2-3)WHVNP + RWD-(2.0-3.0)NW(S)E-(200/260)S(-K)(-W)

	Symbol	Unit	RWD-2/2.5/3.0NW(S)E- 200S(-K)(-W)	RWD-2/2.5/3.0NW(S)E- 260S(-K)(-W)
Declared load profile	-	-	L	XL
Efficiency	η_{wh}	%	132	136
Energy Class	-	-	A+	A+
Coefficient of performance	COP_{DHW}	-	3.30	3.40
Heating up time	t_h	H:min	1:43	2.10
Standby power input	P_{es}	W	37	41
Reference hot water temperature	Θ_{WH}	°C	54.0	54.0
Volume of DHW accounted for in test	V_{40}	L	263	350
Nominal tank volume	-	L	200	260
Net tank volume	-	L	190	250

RAS-(4-6)WH(V)NPE + RWD-(4.0-6.0)NW(S)E-(200/260)S(-K)(-W)

	Symbol	Unit	RWD-4.0NW(S)E- 200S(-K)(-W) 1~(3~)	RWD-4.0NW(S)E- 260S(-K)(-W) 1~(3~)
Declared load profile	-	-	L	XL
Efficiency	η_{wh}	%	130	134
Energy Class	-	-	A+	A+
Coefficient of performance	COP_{DHW}	-	3.25	3.35
Heating up time	t_h	H:min	1:23	1:44
Standby power input	P_{es}	W	42 (49)	44 (51)
Reference hot water temperature	Θ_{WH}	°C	54.0	54.0
Volume of DHW accounted for in test	V_{40}	L	263	350
Nominal tank volume	-	L	200	260
Net tank volume	-	L	190	250

Johnson Controls-Hitachi Air Conditioning Spain, S.A.U.

Ronda Shimizu 1, P. I. Can Torrella
08233 Vacarisses, Barcelona (Spain)

	Symbol	Unit	RWD-5.0NW(S)E- 200S(-K)(-W) 1~ (3~)	RWD-5.0NW(S)E- 260S(-K)(-W) 1~ (3~)
Declared load profile	-	-	L	XL
Efficiency	η_{wh}	%	130	134
Energy Class	-	-	A+	A+
Coefficient of performance	COP_{DHW}	-	3.25	3.35
Heating up time	t_h	H:min	1:10	1:25
Standby power input	P_{es}	W	42 (49)	44 (51)
Reference hot water temperature	Θ_{WH}	°C	54.0	54.0
Volume of DHW accounted for in test	V_{40}	L	263	350
Nominal tank volume	-	L	200	260
Net tank volume	-	L	190	250

	Symbol	Unit	RWD-6.0NW(S)E- 200S(-K)(-W) 1~ (3~)	RWD-6.0NW(S)E- 260S(-K)(-W) 1~ (3~)
Declared load profile	-	-	L	XL
Efficiency	η_{wh}	%	130	134
Energy Class	-	-	A+	A+
Coefficient of performance	COP_{DHW}	-	3.25	3.35
Heating up time	t_h	H:min	1:10	1:25
Standby power input	P_{es}	W	42 (49)	44 (51)
Reference hot water temperature	Θ_{WH}	°C	54.0	54.0
Volume of DHW accounted for in test	V_{40}	L	263	350
Nominal tank volume	-	L	200	260
Net tank volume	-	L	190	250

Domestic Hot Water (DHW) Standing Heat Loss

(NOT INCLUDED) in HP Keymark certified, Ecodesign directive 2009/125/EC (813/2013) and Energy labelling directive 2010/30/EU (811/2013))

EN-12897:2017

RWD-(2.0-6.0)NW(S)E-(200/260)S(-K)(-W)

	Symbol	Unit	RWD-2.0~6.0NW(S)E-200S(-K)(-W)	RWD-2.0~6.0NW(S)E-260S(-K)(-W)
Stand-by heat loss	-	kWh/day	1.75	1.85

Within the policy of continuous improvement of its products, Johnson Controls Hitachi Air Conditioning Spain reserves the right to make changes at any time without prior notification and without being compelled to introducing them into products subsequently sold. This document may therefore have been subject to amendments during the life of the product.

Date and signature of the official representative



Mr. Toni Badia – General Manager

28/08/2020