

Summary of	JAMA Star-12 inverter	Reg. No.	012-SC0665-18
Certificate Holder			
Name	Kaukora		
Address	Tuotekatu 11	Zip	FI-21200
City	Raisio	Country	Finland
Certification Body	RISE CERT	·	
Name of testing laboratory	AIT		
Subtype title	JAMA Star-12 inverter		
Heat Pump Type	Brine/Water and Water/Wa	iter	
Refrigerant	R407c		
Mass Of Refrigerant	2 kg		



Model: Star-12 inverter

General Data	
Power supply	3x400V 50Hz

Brine/Water Heat Pump

Heating

EN 14511-4	
Operating range outdoor exchanger/indoor exchanger upper limit/upper limit	passed
Operating range outdoor exchanger/indoor exchanger lower limit/lower limit	passed
Shutting off the heat transfer medium flow	passed
Complete power supply failure	passed

EN 14511-2		
	Low temperature	Medium temperature
Heat output	5.06 kW	4.46 kW
El input	1.04 kW	1.47 kW
СОР	4.87	3.02
Indoor water flow rate	2.00 m³/h	1.33 m³/h

Average Climate



EN 12102-1		
	Low temperature	Medium temperature
Sound power level indoor	44 dB(A)	44 dB(A)

EN 14825			
	Low temperature	Medium temperature	
η_{s}	201 %	157 %	
Prated	11.00 kW	12.40 kW	
SCOP	5.23	4.13	
Tbiv	-10 °C	-10 °C	
TOL	-10 °C	-10 °C	
Pdh Tj = -7°C	10.30 kW	11.10 kW	
COP Tj = -7°C	4.52	3.18	
Pdh Tj = +2°C	6.30 kW	6.30 kW	
COP Tj = +2°C	5.22	4.12	
Pdh Tj = +7°C	4.10 kW	4.40 kW	
COP Tj = +7°C	5.60	4.67	
Pdh Tj = 12°C	2.70 kW	2.60 kW	
COP Tj = 12°C	5.78	5.06	
Pdh Tj = Tbiv	11.50 kW	12.30 kW	
COP Tj = Tbiv	4.26	2.91	





Pdh Tj = TOL	11.50 kW	12.30 kW
COP Tj = TOL	4.26	2.91
Cdh	0.98	0.99
WTOL	65 °C	65 °C
Poff	5 W	5 W
РТО	20 W	15 W
PSB	7 W	7 W
PCK	o w	o w
Supplementary Heater: Type of energy input	electricity	electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	4582 kWh	6213 kWh

EN 12102-1		
	Low temperature	Medium temperature
Sound power level indoor	44 dB(A)	44 dB(A)

EN 14825		
	Low temperature	Medium temperature
η_{S}	208 %	162 %
Prated	11.60 kW	12.40 kW





This information was generated by the HP KEYMARK database on 17 Dec 2020				
SCOP	5.40	4.25		
Tbiv	-22 °C	-22 °C		
TOL	-22 °C	-22 °C		
Pdh Tj = -7°C	7.10 kW	7.60 kW		
$COP Tj = -7^{\circ}C$	5.26	3.94		
Pdh Tj = $+2$ °C	4.30 kW	4.70 kW		
COP Tj = +2°C	5.62	4.58		
Pdh Tj = $+7^{\circ}$ C	2.80 kW	3.00 kW		
$COPTj = +7^{\circ}C$	6.01	5.11		
Pdh Tj = 12°C	2.70 kW	2.60 kW		
COP Tj = 12°C	5.44	4.98		
Pdh Tj = Tbiv	11.50 kW	12.30 kW		
COP Tj = Tbiv	4.26	2.91		
Pdh Tj = TOL	11.50 kW	12.30 kW		
COP Tj = TOL	4.26	2.91		
Cdh	0.97	0.98		
WTOL	65 °C	65 °C		
Poff	5 W	5 W		
РТО	20 W	15 W		
PSB	7 W	7 W		
PCK	0 W	o w		





Supplementary Heater: Type of energy input	electricity	electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	5292 kWh	7173 kWh

Water/Water Heat Pump

Heating

EN 14511-4	
Operating range outdoor exchanger/indoor exchanger upper limit/upper limit	passed
Operating range outdoor exchanger/indoor exchanger lower limit/lower limit	passed
Shutting off the heat transfer medium flow	passed
Complete power supply failure	passed

EN 14511-2		
	Low temperature	Medium temperature
Heat output	6.33 kW	5.79 kW
El input	1.03 kW	1.54 kW
СОР	6.12	3.75
Indoor water flow rate	2.41 m³/h	1.51 m³/h

Average Climate



EN 12102-1		
	Low temperature	Medium temperature
Sound power level indoor	44 dB(A)	44 dB(A)

EN 14825		
	Low temperature	Medium temperature
η_{s}	253 %	197 %
Prated	14.00 kW	14.00 kW
SCOP	6.52	5.12
Tbiv	-10 °C	-10 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	12.50 kW	12.40 kW
COP Tj = -7°C	5.46	3.84
Pdh Tj = +2°C	7.60 kW	7.60 kW
COP Tj = +2°C	6.56	5.12
Pdh Tj = +7°C	4.90 kW	4.90 kW
COP Tj = +7°C	7.14	5.90
Pdh Tj = 12°C	3.30 kW	3.20 kW
COP Tj = 12°C	7.65	6.52
Pdh Tj = Tbiv	14.00 kW	14.00 kW
COP Tj = Tbiv	5.08	3.48





Pdh Tj = TOL	14.00 kW	14.00 kW
COP Tj = TOL	5.08	3.48
Cdh	0.97	0.98
WTOL	65 °C	65 °C
Poff	5 W	5 W
РТО	30 W	25 W
PSB	10 W	7 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	electricity	electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	4433 kWh	5657 kWh

EN 12102-1		
	Low temperature	Medium temperature
Sound power level indoor	44 dB(A)	44 dB(A)

EN 14825		
	Low temperature	Medium temperature
η_{s}	263 %	204 %
Prated	14.00 kW	14.00 kW





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SCOP	6.77	5.30
Tbiv	-22 °C	-22 °C
TOL	-22 °C	-22 °C
Pdh Tj = -7°C	8.60 kW	8.60 kW
COP Tj = -7°C	6.50	4.85
Pdh Tj = +2°C	5.20 kW	2.20 kW
COP Tj = +2°C	7.13	5.76
Pdh Tj = +7°C	3.40 kW	3.40 kW
COP Tj = +7°C	7.84	6.65
Pdh Tj = 12°C	3.30 kW	3.20 kW
COP Tj = 12°C	7.39	6.58
Pdh Tj = Tbiv	14.00 kW	14.00 kW
COP Tj = Tbiv	5.08	3.48
Pdh Tj = TOL	14.00 kW	14.00 kW
COP Tj = TOL	5.08	3.48
Cdh	0.96	0.97
WTOL	65 °C	65 °C
Poff	5 W	5 W
РТО	30 W	25 W
PSB	10 W	7 W
PCK	0 W	o w



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Supplementary Heater: Type of energy input	electricity	electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	5091 kWh	6497 kWh



Model: Star-12 RST inverter

General Data		
Power supply	3x400V 50Hz	
Off-peak product	No	

Brine/Water Heat Pump

Heating

EN 14511-4		
Operating range outdoor exchanger/indoor exchanger upper limit/upper limit	passed	
Operating range outdoor exchanger/indoor exchanger lower limit/lower limit	passed	
Shutting off the heat transfer medium flow	passed	
Complete power supply failure	passed	

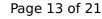
EN 14511-2		
	Low temperature	Medium temperature
Heat output	5.06 kW	4.46 kW
El input	1.04 kW	1.47 kW
СОР	4.87	3.02
Indoor water flow rate	2.00 m³/h	1.33 m³/h

Average Climate



EN 12102-1		
	Low temperature	Medium temperature
Sound power level indoor	44 dB(A)	44 dB(A)

EN 14825		
	Low temperature	Medium temperature
η_{s}	201 %	157 %
Prated	11.00 kW	12.40 kW
SCOP	5.23	4.13
Tbiv	-10 °C	-10 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	10.30 kW	11.10 kW
COP Tj = -7°C	4.52	3.18
Pdh Tj = +2°C	6.30 kW	6.30 kW
COP Tj = +2°C	5.22	4.12
Pdh Tj = +7°C	4.10 kW	4.40 kW
COP Tj = +7°C	5.60	4.67
Pdh Tj = 12°C	2.70 kW	2.60 kW
COP Tj = 12°C	5.78	5.06
Pdh Tj = Tbiv	11.50 kW	12.30 kW
COP Tj = Tbiv	4.26	2.91

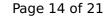




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Pdh Tj = TOL	11.50 kW	12.30 kW
COP Tj = TOL	4.26	2.91
Cdh	0.98	0.99
WTOL	65 °C	65 °C
Poff	5 W	5 W
РТО	20 W	15 W
PSB	7 W	7 W
PCK	o w	0 W
Supplementary Heater: Type of energy input	electricity	electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	4582 kWh	6213 kWh

EN 12102-1		
	Low temperature	Medium temperature
Sound power level indoor	44 dB(A)	44 dB(A)

EN 14825		
	Low temperature	Medium temperature
η_{S}	208 %	162 %
Prated	11.60 kW	12.40 kW





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COP Tj = -7°C	5.26	3.94	
Pdh Tj = +2°C	4.30 kW	4.70 kW	
COP Tj = +2°C	5.62	4.58	
Pdh Tj = $+7^{\circ}$ C	2.80 kW	3.00 kW	
$COPTj = +7^{\circ}C$	6.01	5.11	
Pdh Tj = 12°C	2.70 kW	2.60 kW	
COP Tj = 12°C	5.44	4.98	
Pdh Tj = Tbiv	11.50 kW	12.30 kW	
COP Tj = Tbiv	4.26	2.91	
Pdh Tj = TOL	11.50 kW	12.30 kW	
COP Tj = TOL	4.26	2.91	
Cdh	0.97	0.98	
WTOL	65 °C	65 °C	
Poff	5 W	5 W	
РТО	20 W	15 W	
PSB	7 W	7 W	
PCK	o w	0 W	



Supplementary Heater: Type of energy input electricity electricity Supplementary Heater: PSUP 0.00 kW 0.00 kW Annual energy consumption Qhe 5292 kWh 7173 kWh

Domestic Hot Water (DHW)

Average Climate

EN 16147		
Declared load profile	XL	
Efficiency ηDHW	98 %	
СОР	2.45	
Heating up time	01:42 h:min	
Standby power input	50.0 W	
Reference hot water temperature	50.0 °C	
Mixed water at 40°C	240 I	



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EN 16147		
Declared load profile	XL	
Efficiency ηDHW	98 %	
СОР	2.45	
Heating up time	01:42 h:min	
Standby power input	50.0 W	
Reference hot water temperature	50.0 °C	
Mixed water at 40°C	240	

Water/Water Heat Pump

Heating

EN 14511-4	
Operating range outdoor exchanger/indoor exchanger upper limit/upper limit	passed
Operating range outdoor exchanger/indoor exchanger lower limit/lower limit	passed
Shutting off the heat transfer medium flow	passed
Complete power supply failure	passed

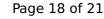


EN 14511-2			
	Low temperature	Medium temperature	
Heat output	6.33 kW	5.79 kW	
El input	1.03 kW	1.54 kW	
СОР	6.12	3.75	
Indoor water flow rate	2.41 m³/h	1.51 m³/h	

Average Climate

EN 12102-1		
	Low temperature	Medium temperature
Sound power level indoor	44 dB(A)	44 dB(A)

	Low temperature Medium temper	
η_{S}	253 %	197 %
Prated	14.00 kW	14.00 kW
SCOP	6.52	5.12
Tbiv	-10 °C	-10 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	12.50 kW	12.40 kW
COP Tj = -7°C	5.46	3.84



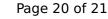


	,	
Pdh Tj = +2°C	7.60 kW	7.60 kW
$COP Tj = +2^{\circ}C$	6.56	5.12
Pdh Tj = $+7^{\circ}$ C	4.90 kW	4.90 kW
$COP Tj = +7^{\circ}C$	7.14	5.90
Pdh Tj = 12°C	3.30 kW	3.20 kW
COP Tj = 12°C	7.65	6.52
Pdh Tj = Tbiv	14.00 kW	14.00 kW
COP Tj = Tbiv	5.08	3.48
Pdh Tj = TOL	14.00 kW	14.00 kW
COP Tj = TOL	5.08	3.48
Cdh	0.97	0.98
WTOL	65 °C	65 °C
Poff	5 W	5 W
РТО	30 W	25 W
PSB	10 W	7 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	electricity	electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	4433 kWh	5657 kWh



	EN 12102-1		
	Low temperature	Medium temperature	
Sound power level indoor	44 dB(A)	44 dB(A)	

	EN 14825	
	Low temperature	Medium temperature
η_{s}	263 %	204 %
Prated	14.00 kW	14.00 kW
SCOP	6.77	5.30
Tbiv	-22 °C	-22 °C
TOL	-22 °C	-22 °C
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Pdh Tj = Tbiv	14.00 kW	14.00 kW
COP Tj = Tbiv	5.08	3.48





Pdh Tj = TOL	14.00 kW	14.00 kW
COP Tj = TOL	5.08	3.48
Cdh	0.96	0.97
WTOL	65 °C	65 °C
Poff	5 W	5 W
РТО	30 W	25 W
PSB	10 W	7 W
PCK	0 W	o w
Supplementary Heater: Type of energy input	electricity	electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	5091 kWh	6497 kWh

Domestic Hot Water (DHW)

Average Climate



 $$\operatorname{\textit{Page}}\xspace$ 21 of 21 This information was generated by the HP KEYMARK database on 17 Dec 2020

EN 16147		
Declared load profile	XL	
Efficiency ηDHW	113 %	
СОР	2.82	
Heating up time	01:32 h:min	
Standby power input	45.0 W	
Reference hot water temperature	49.0 °C	
Mixed water at 40°C	235 I	

EN 16147		
Declared load profile	XL	
Efficiency ηDHW	113 %	
СОР	2.82	
Heating up time	01:32 h:min	
Standby power input	45.0 W	
Reference hot water temperature	49.0 °C	
Mixed water at 40°C	235 I	