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Summary of	JAMA Star-60	Reg. No.	012-SC0671-18
Certificate Holder			
Name	Kaukora		
Address	Tuotekatu 11	Zip	FI-21200
City	Raisio	Country	Finland
Certification Body	RISE CERT		
Subtype title	JAMA Star-60		
Heat Pump Type	Brine/Water		
Refrigerant	R407c		
Mass of Refrigerant	3.4 kg		

## Model: Star-60

Configure model	
Model name	Star-60
Application	Heating (medium temp)
Units	Indoor
Climate Zone	Colder Climate
Reversibility	No
Cooling mode application (optional)	n/a

General Data	
Power supply	3x400V 50Hz

### Heating

EN 14511-2		
	Low temperature	Medium temperature
Heat output	59.22 kW	54.20 kW
El input	13.72 kW	17.90 kW
COP	4.32	3.02

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

### Average Climate

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### EN 12102-1

	Low temperature	Medium temperature
Sound power level indoor	47 dB(A)	47 dB(A)

### EN 14825

	Low temperature	Medium temperature
$\eta_s$	176 %	138 %
Prated	67.00 kW	67.00 kW
SCOP	4.60	3.65
Tbiv	-7 °C	-5 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	59.50 kW	54.80 kW
COP Tj = -7°C	4.42	3.17
Pdh Tj = +2°C	60.10 kW	56.60 kW
COP Tj = +2°C	4.59	3.62
Pdh Tj = +7°C	30.50 kW	29.20 kW
COP Tj = +7°C	4.87	4.06
Pdh Tj = 12°C	30.80 kW	29.80 kW
COP Tj = 12°C	4.91	4.31
Pdh Tj = Tbiv	59.50 kW	55.20 kW
COP Tj = Tbiv	4.42	3.26

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$P_{dh} T_j = TOL$ or $P_{dh} T_j = T_{designh}$ if $TOL < T_{designh}$	59.20 kW	24.10 kW
$COP T_j = TOL$ or $COP T_j = T_{designh}$ if $TOL < T_{designh}$	4.31	3.03
$C_{dh} T_j = TOL$ or $P_{dh} T_j = T_{designh}$ if $TOL < T_{designh}$	0.99	0.99
WTOL	65 °C	65 °C
Poff	2 W	2 W
PTO	120 W	120 W
PSB	7 W	7 W
PCK	80 W	80 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	7.80 kW	12.90 kW
Annual energy consumption $Q_{he}$	30169 kWh	38048 kWh

## Colder Climate

<b>EN 12102-1</b>		
	<b>Low temperature</b>	<b>Medium temperature</b>
Sound power level indoor	47 dB(A)	47 dB(A)

<b>EN 14825</b>		
	<b>Low temperature</b>	<b>Medium temperature</b>
$\eta_s$	181 %	142 %
Prated	67.00 kW	67.00 kW

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SCOP	4.73	3.75
Tbiv	-18 °C	-15 °C
TOL	-22 °C	-22 °C
Pdh Tj = -7°C	60.30 kW	56.20 kW
COP Tj = -7°C	4.62	3.53
Pdh Tj = +2°C	30.60 kW	29.10 kW
COP Tj = +2°C	4.90	4.01
Pdh Tj = +7°C	30.80 kW	29.70 kW
COP Tj = +7°C	5.00	4.29
Pdh Tj = 12°C	30.80 kW	30.10 kW
COP Tj = 12°C	4.80	4.46
Pdh Tj = Tbiv	59.60 kW	55.30 kW
COP Tj = Tbiv	4.45	3.28
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	59.20 kW	54.10 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	4.31	3.03
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.99	0.99
WTOL	65 °C	65 °C
Poff	2 W	2 W
PTO	100 W	100 W
PSB	7 W	7 W
PCK	80 W	80 W

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Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	7.80 kW	12.90 kW
Annual energy consumption Q <sub>he</sub>	34918 kWh	43924 kWh