This information was generated by the HP KEYMARK database on 17 Dec 2020

Summary of	LW 180	Reg. No.	041-K001-39
Certificate Holder			
Name	ait-deutschland GmbH		
Address	Industriestr. 3	Zip	95359
City	Kasendorf	Country	Germany
Certification Body	BRE Energy & Communications Division		
Name of testing laboratory	HLK Stuttgart		
Subtype title	LW 180		
Heat Pump Type	Outdoor Air/Water		
Refrigerant	R407c		
Mass Of Refrigerant	6.8 kg		
Certification Date	08.10.2019		
Testing basis	HP Keymark Scheme Rules Rev 07		

Model: LW 180 (L)

General Data	
Power supply	3x400V 50Hz

Heating

EN 14511-4	
Shutting off the heat transfer medium flow	passed
Complete power supply failure	passed
Starting and operating test	passed

EN 14511-2		
	Low temperature	**Medium temperature**
Heat output	20.84 kW	22.00 kW
El input	5.71 kW	8.38 kW
COP	3.65	2.63
Indoor water flow rate	4.00 m³/h	4.00 m³/h

Average Climate

EN 12102-1		
	Low temperature	**Medium temperature**
Sound power level indoor	59 dB(A)	59 dB(A)

EN 14825

	Low temperature	Medium temperature
η_s	158 %	118 %
Prated	20.03 kW	18.50 kW
SCOP	4.03	3.02
Tbiv	-4 °C	-4 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	14.28 kW	12.78 kW
COP Tj = -7°C	2.94	1.94
Cdh	1.00	1.00
Pdh Tj = +2°C	17.48 kW	16.92 kW
COP Tj = +2°C	3.94	2.93
Cdh	1.00	1.00
Pdh Tj = +7°C	10.09 kW	10.08 kW
COP Tj = +7°C	5.38	4.21
Cdh	1.00	1.00
Pdh Tj = 12°C	12.90 kW	12.86 kW
COP Tj = 12°C	5.96	5.39
Cdh	1.00	1.00
Pdh Tj = Tbiv	15.41 kW	14.23 kW
COP Tj = Tbiv	3.30	2.23

Pdh Tj = TOL	13.17 kW	11.30 kW
COP Tj = TOL	2.65	1.68
WTOL	60 °C	60 °C
Poff	10 W	10 W
PTO	10 W	10 W
PSB	10 W	10 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	electricity	electricity
Supplementary Heater: PSUP	6.86 kW	7.20 kW
Annual energy consumption Qhe	10262 kWh	12643 kWh

Warmer Climate

EN 14825		
	Low temperature	**Medium temperature**
η_s	200 %	150 %
Prated	17.30 kW	16.23 kW
SCOP	5.08	3.82
Tbiv	4 °C	4 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	17.30 kW	16.23 kW
COP Tj = +2°C	3.56	2.18

Cdh	1.00	1.00
Pdh Tj = +7°C	10.08 kW	10.08 kW
COP Tj = +7°C	4.90	3.34
Cdh	1.00	1.00
Pdh Tj = 12°C	12.88 kW	12.82 kW
COP Tj = 12°C	5.74	4.89
Cdh	1.00	1.00
Pdh Tj = Tbiv	14.46 kW	13.88 kW
COP Tj = Tbiv	3.93	2.51
Pdh Tj = TOL	17.30 kW	16.23 kW
COP Tj = TOL	3.56	2.18
WTOL	60 °C	60 °C
Poff	10 W	10 W
PTO	10 W	10 W
PSB	10 W	10 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	4546 kWh	5671 kWh

Colder Climate

EN 14825

	Low temperature	Medium temperature
η_s	139 %	107 %
Prated	17.39 kW	15.21 kW
SCOP	3.54	2.76
Tbiv	-12 °C	-12 °C
TOL	-20 °C	-20 °C
Pdh Tj = -7°C	14.53 kW	13.45 kW
COP Tj = -7°C	3.18	2.31
Cdh	1.00	1.00
Pdh Tj = +2°C	17.59 kW	17.19 kW
COP Tj = +2°C	4.17	3.35
Cdh	1.00	1.00
Pdh Tj = +7°C	10.09 kW	10.08 kW
COP Tj = +7°C	5.60	4.68
Cdh	0.99	1.00
Pdh Tj = 12°C	12.90 kW	12.88 kW
COP Tj = 12°C	5.83	5.61
Cdh	1.00	1.00
Pdh Tj = Tbiv	12.81 kW	12.21 kW
COP Tj = Tbiv	2.71	1.87

Pdh Tj = TOL	9.81 kW	8.36 kW
COP Tj = TOL	1.95	1.38
WTOL	60 °C	60 °C
Poff	10 W	10 W
PTO	10 W	10 W
PSB	10 W	10 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	electricity	electricity
Supplementary Heater: PSUP	17.39 kW	15.21 kW
Annual energy consumption Qhe	12110 kWh	13578 kWh
Pdh Tj = -15°C (if TOL<-20°C)	11.70	9.81
COP Tj = -15°C (if TOL<-20°C)	2.40	1.62
Cdh	1.00	1.00

Model: LW 180A

General Data	
Power supply	3x400V 50Hz

Heating

EN 14511-4	
Shutting off the heat transfer medium flow	passed
Complete power supply failure	passed
Starting and operating test	passed

EN 14511-2		
	Low temperature	**Medium temperature**
Heat output	20.84 kW	22.00 kW
El input	5.71 kW	8.38 kW
COP	3.65	2.63
Indoor water flow rate	4.00 m³/h	4.00 m³/h

Average Climate

EN 12102-1		
	Low temperature	**Medium temperature**
Sound power level indoor	59 dB(A)	59 dB(A)
Sound power level outdoor	57 dB(A)	57 dB(A)

EN 14825		
	Low temperature	**Medium temperature**
η_s	158 %	118 %
Prated	20.03 kW	18.50 kW
SCOP	4.03	3.02
Tbiv	-4 °C	-4 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	14.28 kW	12.78 kW
COP Tj = -7°C	2.94	1.94
Cdh	1.00	1.00
Pdh Tj = +2°C	17.48 kW	16.92 kW
COP Tj = +2°C	3.94	2.93
Cdh	1.00	1.00
Pdh Tj = +7°C	10.09 kW	10.08 kW
COP Tj = +7°C	5.38	4.21
Cdh	1.00	1.00

Pdh Tj = 12°C	12.90 kW	12.86 kW
COP Tj = 12°C	5.96	5.39
Cdh	1.00	1.00
Pdh Tj = Tbiv	15.41 kW	14.23 kW
COP Tj = Tbiv	3.30	2.23
Pdh Tj = TOL	13.17 kW	11.30 kW
COP Tj = TOL	2.65	1.68
WTOL	60 °C	60 °C
Poff	10 W	10 W
PTO	10 W	10 W
PSB	10 W	10 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	electricity	electricity
Supplementary Heater: PSUP	6.86 kW	7.20 kW
Annual energy consumption Qhe	10262 kWh	12643 kWh

Warmer Climate

EN 14825		
	Low temperature	**Medium temperature**
η_s	200 %	150 %
Prated	17.30 kW	16.23 kW

SCOP	5.08	3.82
Tbiv	4 °C	4 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	17.30 kW	16.23 kW
COP Tj = +2°C	3.56	2.18
Cdh	1.00	1.00
Pdh Tj = +7°C	10.08 kW	10.08 kW
COP Tj = +7°C	4.90	3.34
Cdh	1.00	1.00
Pdh Tj = 12°C	12.88 kW	12.82 kW
COP Tj = 12°C	5.74	4.89
Cdh	1.00	1.00
Pdh Tj = Tbiv	14.46 kW	13.88 kW
COP Tj = Tbiv	3.93	2.51
Pdh Tj = TOL	17.30 kW	16.23 kW
COP Tj = TOL	3.56	2.18
WTOL	60 °C	60 °C
Poff	10 W	10 W
PTO	10 W	10 W
PSB	10 W	10 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	4546 kWh	5671 kWh

Colder Climate

EN 14825		
	Low temperature	**Medium temperature**
η_s	139 %	107 %
Prated	17.39 kW	15.21 kW
SCOP	3.54	2.76
Tbiv	-12 °C	-12 °C
TOL	-20 °C	-20 °C
Pdh Tj = -7°C	14.53 kW	13.45 kW
COP Tj = -7°C	3.18	2.31
Cdh	1.00	1.00
Pdh Tj = +2°C	17.59 kW	17.19 kW
COP Tj = +2°C	4.17	3.35
Cdh	1.00	1.00
Pdh Tj = +7°C	10.09 kW	10.08 kW
COP Tj = +7°C	5.60	4.68
Cdh	0.99	1.00

Pdh Tj = 12°C	12.90 kW	12.88 kW
COP Tj = 12°C	5.83	5.61
Cdh	1.00	1.00
Pdh Tj = Tbiv	12.81 kW	12.21 kW
COP Tj = Tbiv	2.71	1.87
Pdh Tj = TOL	9.81 kW	8.36 kW
COP Tj = TOL	1.95	1.38
WTOL	60 °C	60 °C
Poff	10 W	10 W
PTO	10 W	10 W
PSB	10 W	10 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	electricity	electricity
Supplementary Heater: PSUP	17.39 kW	15.21 kW
Annual energy consumption Qhe	12110 kWh	13578 kWh
Pdh Tj = -15°C (if TOL<-20°C)	11.70	9.81
COP Tj = -15°C (if TOL<-20°C)	2.40	1.62
Cdh	1.00	1.00