	Volan 18	Reg. No.	011-1W0533
Certificate Holder			
	THERMAGEN sp. z o.o.		
	Ul. Warszawska 50		82-100
	Nowy Dwór Gdański		Poland
Certification Body	DIN CERTCO Gesellschaft für Konformitätsbewertung mbH		
Subtype title	Volan 18		
Heat Pump Type	Outdoor Air/Water		
Refrigerant	R290		
Mass of Refrigerant	1.37 kg		
Certification Date	01.06.2022		
Testing basis	Europäisches Zertifizierungsprogramm Wärmepumpen KEYMARK Version8 (Stand: 2020-09)		

Model: Volan 18 400V

Configure model	
Model name	Volan 18 400V
Application	Heating (medium temp)
Units	Indoor + Outdoor
Climate Zone	Colder Climate + Warmer Climate
Reversibility	Yes
Cooling mode application (optional)	n/a

General Data	
Power supply	3x400V 50Hz

Heating

EN 14511-2		
	Low temperature	**Medium temperature**
Heat output	7.53 kW	8.48 kW
El input	1.50 kW	2.53 kW
COP	5.02	3.35

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

Warmer Climate

EN 12102-1

	Low temperature	Medium temperature
Sound power level indoor	0 dB(A)	0 dB(A)
Sound power level outdoor	57 dB(A)	57 dB(A)

EN 14825

	Low temperature	Medium temperature
η_s	236 %	188 %
Prated	11.70 kW	11.00 kW
SCOP	5.98	4.77
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	11.69 kW	10.96 kW
COP Tj = +2°C	3.04	2.19
Cdh Tj = +2 °C	1.000	1.000
Pdh Tj = +7°C	8.22 kW	7.47 kW
COP Tj = +7°C	5.70	4.25
Cdh Tj = +7 °C	0.990	0.990
Pdh Tj = 12°C	6.99 kW	7.27 kW
COP Tj = 12°C	7.27	6.27
Cdh Tj = +12 °C	0.990	0.990

Pdh Tj = Tbiv	11.69 kW	10.96 kW
COP Tj = Tbiv	3.04	2.19
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	11.69 kW	10.96 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.04	2.19
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.000	1.000
WTOL	70 °C	70 °C
Poff	0 W	0 W
PTO	9 W	9 W
PSB	8 W	8 W
PCK	9 W	9 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	2613 kWh	3079 kWh

Colder Climate

EN 12102-1		
	Low temperature	**Medium temperature**
Sound power level indoor	0 dB(A)	0 dB(A)
Sound power level outdoor	57 dB(A)	57 dB(A)

EN 14825

	Low temperature	**Medium temperature**
η_s	145 %	124 %
Prated	10.00 kW	10.00 kW
SCOP	3.70	3.16
Tbiv	-15 °C	-15 °C
TOL	-15 °C	-15 °C
Pdh Tj = -7°C	5.95 kW	6.04 kW
COP Tj = -7°C	3.73	3.16
Cdh Tj = -7 °C	0.990	1.000
Pdh Tj = +2°C	4.47 kW	4.64 kW
COP Tj = +2°C	4.26	3.47
Cdh Tj = +2 °C	0.990	0.990
Pdh Tj = +7°C	7.64 kW	6.48 kW
COP Tj = +7°C	6.50	5.65
Cdh Tj = +7 °C	0.990	0.990
Pdh Tj = 12°C	4.80 kW	6.46 kW
COP Tj = 12°C	7.22	6.96
Cdh Tj = +12 °C	0.990	0.990
Pdh Tj = Tbiv	8.16 kW	8.15 kW
COP Tj = Tbiv	3.11	2.40
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	8.16 kW	8.15 kW

COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.11	2.40
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.000	1.000
WTOL	70 °C	70 °C
Poff	0 W	0 W
PTO	9 W	9 W
PSB	8 W	8 W
PCK	9 W	9 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	10.00 kW	10.00 kW
Annual energy consumption Qhe	6661 kWh	7795 kWh
Pdh Tj = -15°C (if TOL<-20°C)		
COP Tj = -15°C (if TOL<-20°C)		
Cdh Tj = -15 °C		

Average Climate

EN 12102-1		
	Low temperature	**Medium temperature**
Sound power level indoor	0 dB(A)	0 dB(A)
Sound power level outdoor	57 dB(A)	57 dB(A)

EN 14825

	Low temperature	**Medium temperature**
η_s	175 %	138 %
Prated	10.60 kW	10.50 kW
SCOP	4.46	3.53
Tbiv	-10 °C	-10 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	9.44 kW	9.26 kW
COP Tj = -7°C	3.30	2.40
Cdh Tj = -7 °C	1.000	1.000
Pdh Tj = +2°C	5.76 kW	5.63 kW
COP Tj = +2°C	3.97	3.13
Cdh Tj = +2 °C	0.990	0.990
Pdh Tj = +7°C	6.56 kW	6.18 kW
COP Tj = +7°C	6.27	5.18
Cdh Tj = +7 °C	0.990	0.990
Pdh Tj = 12°C	4.25 kW	6.14 kW
COP Tj = 12°C	7.00	6.65
Cdh Tj = +12 °C	0.980	0.990
Pdh Tj = Tbiv	10.55 kW	10.47 kW
COP Tj = Tbiv	3.14	2.22
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	10.55 kW	10.47 kW

COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.14	2.22
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.000	1.000
WTOL	70 °C	70 °C
Poff	0 W	0 W
PTO	9 W	9 W
PSB	8 W	8 W
PCK	9 W	9 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	4914 kWh	6144 kWh

Model: Volan 18

Configure model	
Model name	Volan 18
Application	Heating (medium temp)
Units	Indoor + Outdoor
Climate Zone	Colder Climate + Warmer Climate
Reversibility	Yes
Cooling mode application (optional)	n/a

General Data	
Power supply	1x230V 50Hz

Heating

EN 14511-2		
	Low temperature	**Medium temperature**
Heat output	7.53 kW	8.48 kW
El input	1.50 kW	2.53 kW
COP	5.02	3.35

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

Warmer Climate

EN 12102-1

	Low temperature	Medium temperature
Sound power level indoor	0 dB(A)	0 dB(A)
Sound power level outdoor	57 dB(A)	57 dB(A)

EN 14825

	Low temperature	Medium temperature
η_s	236 %	188 %
Prated	11.70 kW	11.00 kW
SCOP	5.98	4.77
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	11.69 kW	10.96 kW
COP Tj = +2°C	3.04	2.19
Cdh Tj = +2 °C	1.000	1.000
Pdh Tj = +7°C	8.22 kW	7.47 kW
COP Tj = +7°C	5.70	4.25
Cdh Tj = +7 °C	0.990	0.990
Pdh Tj = 12°C	6.99 kW	7.27 kW
COP Tj = 12°C	7.27	6.27
Cdh Tj = +12 °C	0.990	0.990

Pdh Tj = Tbiv	11.69 kW	10.96 kW
COP Tj = Tbiv	3.04	2.19
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	11.69 kW	10.96 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.04	2.19
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.000	1.000
WTOL	70 °C	70 °C
Poff	0 W	0 W
PTO	9 W	9 W
PSB	8 W	8 W
PCK	9 W	9 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	2613 kWh	3079 kWh

Colder Climate

EN 12102-1		
	Low temperature	**Medium temperature**
Sound power level indoor	0 dB(A)	0 dB(A)
Sound power level outdoor	57 dB(A)	57 dB(A)

EN 14825

	Low temperature	**Medium temperature**
η_s	145 %	124 %
Prated	10.00 kW	10.00 kW
SCOP	3.70	3.16
Tbiv	-15 °C	-15 °C
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Pdh Tj = -7°C	5.95 kW	6.04 kW
COP Tj = -7°C	3.73	3.16
Cdh Tj = -7 °C	0.990	1.000
Pdh Tj = +2°C	4.47 kW	4.64 kW
COP Tj = +2°C	4.26	3.47
Cdh Tj = +2 °C	0.990	0.990
Pdh Tj = +7°C	7.64 kW	6.48 kW
COP Tj = +7°C	6.50	5.65
Cdh Tj = +7 °C	0.990	0.990
Pdh Tj = 12°C	4.80 kW	6.46 kW
COP Tj = 12°C	7.22	6.96
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COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.11	2.40
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.000	1.000
WTOL	70 °C	70 °C
Poff	0 W	0 W
PTO	9 W	9 W
PSB	8 W	8 W
PCK	9 W	9 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	10.00 kW	10.00 kW
Annual energy consumption Qhe	6661 kWh	7795 kWh
Pdh Tj = -15°C (if TOL<-20°C)		
COP Tj = -15°C (if TOL<-20°C)		
Cdh Tj = -15 °C		

Average Climate

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EN 14825

	Low temperature	**Medium temperature**
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SCOP	4.46	3.53
Tbiv	-10 °C	-10 °C
TOL	-10 °C	-10 °C
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COP Tj = -7°C	3.30	2.40
Cdh Tj = -7 °C	1.000	1.000
Pdh Tj = +2°C	5.76 kW	5.63 kW
COP Tj = +2°C	3.97	3.13
Cdh Tj = +2 °C	0.990	0.990
Pdh Tj = +7°C	6.56 kW	6.18 kW
COP Tj = +7°C	6.27	5.18
Cdh Tj = +7 °C	0.990	0.990
Pdh Tj = 12°C	4.25 kW	6.14 kW
COP Tj = 12°C	7.00	6.65
Cdh Tj = +12 °C	0.980	0.990
Pdh Tj = Tbiv	10.55 kW	10.47 kW
COP Tj = Tbiv	3.14	2.22
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	10.55 kW	10.47 kW

COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.14	2.22
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.000	1.000
WTOL	70 °C	70 °C
Poff	0 W	0 W
PTO	9 W	9 W
PSB	8 W	8 W
PCK	9 W	9 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	4914 kWh	6144 kWh