

Technical Report No.: 64.181.21.02295.01 Rev.00**Date: 2021-06-16**

Client: Name: ATTACK, s.r.o.

Address: Dielenská Kružná 5020, 038 61 Vrútky, Slovak republic

Contact person: Mr. Ing. Martin Zifčák

Manufacturing place: Manufacturer's name: ATTACK, s.r.o.

Address: Dielenská Kružná 5020, 038 61 Vrútky, Slovak republic

Factory's name: Zhongshan Amitime Electric Co., LTD

Address: 5th Yandong Rd, Dayan Industrial Zone, Huangpu Town, Zhongshan City, Guangdong, PEOPLE'S REPUBLIC OF CHINA

Test subject: Product: DC Inverter Type Air To Water Unit

Type: ATTACK Tepelné čerpadlo, Inverter, R32, Vzduch/Voda 19 kW

Trade name: 

Test specification: ☒ EN 14825:2016

☒ EN 12102-1:2017

☒ (EU) No 813/2013

Purpose of examination: Test according to the test specification

☒ EU 2016/2282:2016-11-30

Test result: The test results show that the presented product is in compliance with the specified requirements

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1 Description of the test subject

1.1 Function

Manufacturer's specification for intended use:

The appliance is air to water heat pump.

Manufacturer's specification for predictive use:

According to user manual

1.2 Consideration of the foreseeable use

- ☐ Not applicable
- ☒ Covered through the applied standard
- ☐ Covered by the following comment
- ☐ Covered by attached risk analysis

1.3 Technical Data

Model :	ATTACK Tepelné čerpadlo, Inverter, R32, Vzduch/Voda 19 kW		
Rated Voltage (V) :	380-415, 3N~		
Rated Frequency (Hz) :	50		
Rated Power (kW) :	5510 for cooling, 4142 for heating		
Rated Current (A) :	N/A		
Protection Class :	Class I		
Protection Against Moisture :	IP X4		
Construction :	Stationary		
Supply connection :	☐ Non detachable cord		
	☒ Permanent connection to fixed wiring		
Operation mode:	☒ Continuous operation;		
	☐ Intermittent operation;		
	☐ Short time operation;		
Refrigerant/charge (g) :	R32 /2600		
Declared parameters :	☒ Average ☐ Warmer ☐ Colder		
Sound power level dB(A) :	N/A		
Series No :	WAJ0013-OD-1001		

2 Order

2.1 Date of Purchase Order, Customer's Reference

2020-01-14, 2020-04-10, 2021-05-08, Mr. Ing. Martin Zifčák

2.2 Receipt of Test Sample, Condition, Location

2020-02-10

For Energy test:

GZ-Lans Experimental Technology Co., Ltd. Laboratory

Address: No.16, Juncheng Road, Huangpu district, Guangzhou, China

2020-04-10

For Noise tests:

Vkan Certification & Testing Co., Ltd

Address: No.3, Tiantaiyi Road, Kaitai Avenue, Science City, Guangzhou, P.R.China

2.3 Date of Testing

For Energy test:

2020-02-15 to 2020-02-25

For Noise tests:

2020-04-10 to 2020-04-11

2.4 Location of Testing

Same as 2.2

2.5 Points of Non-compliance or Exceptions of the Test Procedure

N/A

3 Test Results

3.1 Positive Test Results

See Appendix I

4 Remark

N/A

4.1 The user manual has been examined according to the minimum requirements described in the product standard. The manufacturer is responsible for the accuracy of further particulars as well as of the composition and layout.

4.2 When the product is placed on the market, it must be accompanied with safety Instructions written in official language of the country. The instructions shall give information regarding safe operation, installation and maintenance.

5 Documentation

- Appendix I Test results
- Appendix II Marking plate
- Appendix III photo documentation
- Appendix IV Construction data form
- Appendix V Test equipment list

6 Summary

- 1) The appliance is DC Inverter Type Air To Water Unit , including a whole compression type refrigerant circuit to heat water in another circuit. The appliance was for cooling and heating water function, this report only for heating capacity test.
- 2) The main power is supplied by a 5-pole supply cable not with plug which not supply by manufactory.
- 3) Water enthalpy method was adopted in this report.
- 4) Standby mode power, off mode power and thermostat-off mode power were tested according to clause 9 of standard EN 14825:2016.
- 5) This test report 64.181.21.02295.01 Rev.00, dated 2021-06-16 is base on original test report 64.181.20.00269.02 Rev.00, dated 2020-04-22 to include the following changes and/or additions, which were considered technical modifications:
 - a) Changing trademark and applicant.
 - b) After evaluating, no additional test was needed.

TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch TÜV SÜD Group

Tested by: William Liang, Project Handler

printed name, function & signature

Approved by: Tony Xie, Designated Reviewer

printed name, function & signature



Appendix I Test results

Table 1.	Heating mode(Low temperature application):					P		
Model	ATTACK Tepelné čerpadlo, Inverter, R32, Vzduch/Voda 19 kW							
Product type	Air to Water	Heating season	☒	Average	☐	Warmer	☐	Colder
1. Test conditions:								
Condition	Part Load Ratio in %				Outdoor heat exchanger	Indoor heat exchanger		
	Formula	A	W		Inlet dry (wet) bulb temperature °C	Inlet/outlet water temperatures (°C)		
A	$(-7-16)/(T_{designh}-16)$	88	N/A	N/A	-7(-8)	a / 34		
B	$(+2-16)/(T_{designh}-16)$	54	N/A	N/A	2(1)	a / 30		
C	$(+7-16)/(T_{designh}-16)$	35	N/A	N/A	7(6)	a / 27		
D	$(+12-16)/(T_{designh}-16)$	15	N/A	N/A	12(11)	a / 24		
E	$(TOL-16)/(T_{designh}-16)$				TOL	a / 35.3		
F	$(T_{bivalent}-16)/(T_{designh}-16)$				Tbiv	a / 34		
G	$(-15-16)/(T_{designh}-16)$	N/A	N/A	N/A	-15	N/A		
Remark: a) With the water flow rate as determined at the standard rating conditions given in EN14511-2 at 30/35 conditions.								
2.Tested data/correction data(Average):								
General test conditions/ Part-Load	Unit	A(-7)/W34 (88%)	A2/W30 (54%)	A7/W27 (35%)	A12/W24 (15%)	A(-10)/W35.3 (100%)	A(-7)/W34 (88%)	
	--	A	B	C	D	E	F	
Data collection period	hh: min:sec	2:00:00	4:00:00	2:00:00	2:00:00	2:00:00	2:00:00	
The heat pump defrosts	--	No	Yes	No	No	No	No	
Complete Cycles	--	0	1	0	0	0	0	
Barometric pressure	kPa	101.02	101.02	101.02	101.02	101.02	101.02	
Voltage	V	395.6	396.6	397.6	396.8	395.5	395.6	
Current input of the unit	A	7.25	3.81	2.84	2.48	7.62	7.25	
Power input of the unit	kW	4.351	1.888	1.264	1.056	4.600	4.351	
Test conditions indoor unit								
Inlet Water temperature, DB	°C	28.70	26.36	23.90	20.32	30.05	28.70	
Outlet Water temperature, DB	°C	34.14	29.70	27.01	24.01	35.31	34.14	

Appendix I Test results

Test conditions outdoor unit							
Air inlet temperature, DB	°C	-7.00	2.01	7.01	12.02	-10.00	-7.00
Air inlet temperature, WB	°C	-7.36	1.04	5.98	10.94	-10.63	-7.36
Summary of the results							
Total heating capacity	kW	14.401	8.838	8.236	9.763	13.927	14.401
Effective power input	kW	4.402	1.938	1.315	1.106	4.651	4.402
Coefficient of performance (COP)	--	3.27	4.56	6.26	8.82	2.99	3.27
Compressor frequency	Hz	85	41	30	30	90	85
Water flow	m³/h	2.26	2.26	2.26	2.26	2.26	2.26
Remark: * In part condition, outlet temperature data is recorded by a full average complete cycle's data.							
3.Calculation/conclusion for SCOP(Average):							
Tdesignh(°C)	-10		Tbiv(°C)	-7			
Pdesignh(kW)	16.279		TOL(°C)	-10			
Test result A, B, C, D, E, F conditions:							
Condition	Part load	Measured capacity	COP at measured capacity	Cdh	CR	COP at part load	
E	16.279	13.927	2.99	0.00	1.00	2.99	
F	14.401	14.401	3.27	0.00	1.00	3.27	
A	14.401	14.401	3.27	0.00	1.00	3.27	
B	8.766	8.838	4.56	0.00	0.99	4.56	
C	5.635	8.236	6.26	0.99	0.68	6.24	
D	2.504	9.763	8.82	0.99	0.26	8.58	
CR: part load divided by capacity;							

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Appendix I Test results

Electric power consumptions	Unit	Value
Thermostat-off mode [P_{TO}]	kW	0.015
Standby mode [P_{SB}]	kW	0.015
Crankcase heater [P_{CK}]	kW	0.035
Off mode [P_{OFF}]	kW	0.015

Conclusions:	Unit	Value
SCOP _{on} :	kWh/kWh	4.84
SCOP:	kWh/kWh	4.84
Q_H :	kWh/year	33632
Q_{HE} :	kWh/year	6953
$\eta_{s,h}$	%	190.5
Seasonal space heating energy efficiency classes: (According (EU) No 811/2013 Table 2)	--	A+++

Appendix I Test results

Table 2.	Sound power level measurement (Low temperature application)		P
Model	ATTACK Tepelné čerpadlo, Inverter, R32, Vzduch/Voda 19 kW		
	Product type :	Air to Water	
	Outdoor heat exchanger, Air temperature DB/WB (°C):	7.0 /6.0	
	Indoor heat exchanger, Water inlet/outlet temperature (°C):	30.0 /35.0	
	Voltage (V):	230	
	Frequency (Hz):	50	
	Working condition class :	Class A	
	Acoustical environment :	Hemi-anechoic room	
	Windshield type :	Sponge	
	Measured position amount :	20	
	Water flow (m³/h):	2.26	
Measured quantity		L_{WA,indoors} (dB(A))	L_{WA,outdoors} (dB(A))
Sound pressure level $\hat{L}_{p(ST)}$ ****		-	46
Spheres radius d *		-	1.0m
Sound power level L _{WA} ****		-	61
Setting of controls: according to user manual.			
Duct connection:--			
Rounding to: *) 1 decimal places; **) 2 decimal places; ***) 3 decimal places; ****) nearest integer			
Fan speed: 520 r/min, Compressor frequency: 52Hz			

Appendix II Marking plate

Nameplate	
Model: <u>ATTACK Tepelné čerpadlo, Inverter, R32, Vzduch/Voda 19 kW</u>	
DC Inverter Air to Water Heat Pump Unit	
O:AL0057	
ATTACK Tepelné čerpadlo, Inverter, R32, Vzduch/Voda 19 kW	
Model Number:	Inverter, R32, Vzduch/Voda 19 kW
Input Voltage:	380-415V/3N~, 50Hz
Input Power-Cooling:	5510 W
Input Power-Heating:	4142 W
Min.Circuit Am pacity:	3 A
Circuit Breaker:	35 A
Cooling Capacity:	5500-16000 W
Heating Capacity:	9200-18500 W
Max.Operation pressure of low side:	1.2 MPa
Max.Operation pressure of high side:	4.2 MPa
Maximum allowable pressure:	4.2 MPa
Refrigerant: 	R32/ 2600 g
Max EER Cooling:	3.2 W/W
Max COP Heating:	5.0 W/W
Net Weight:	140 kg
Dielenská Kružná 5020, 038 61 Vrútky,	
Slovak republi	
ATTACK, s.r.o.	
 	
Serial Nr:	TCO21160190001
	

Appendix III photo documentaiton

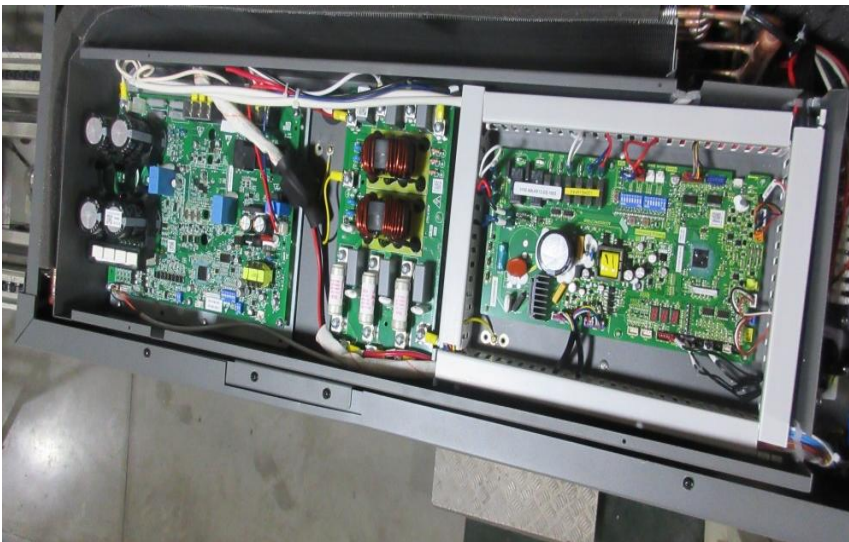
Details of:	Overall view
View: ☐ General ☐ Front ☐ Rear ☐ Right ☐ Left ☐ Top ☐ Bottom	

Details of:	Compressor
View: ☐ General ☐ Front ☐ Rear ☐ Right ☐ Left ☐ Top ☐ Bottom	

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Appendix III photo documentaiton

Details of:	Fan Motor
View: ☐ General ☐ Front ☐ Rear ☐ Right ☐ Left ☐ Top ☐ Bottom	

Details of:	Main Control Board
View: ☐ General ☐ Front ☐ Rear ☐ Right ☐ Left ☐ Top ☐ Bottom	

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Appendix IV Construction data form

Part		Technical data
1. Compressor		
	Manufacture:	Mitsubishi Electric (Guangzhou) Compressor Co., Ltd.
	Type:	MVB42FCBMC-L
	Rated capacity:	51-200V; 30-360Hz; R32
	Serial-number:	N/A
2. Condenser		
	Manufacture:	SWEP Technology(Suzhou)Co.,Ltd
	Type:	F85H×50/1P-SC-M
	Heat exchanger:	Plate heat exchanger
	Dimension:	526(L)mmX119(H)mmX96(D)mm
3. Evaporator		
	Manufacture:	Foshan Huize Heat Exchange Equipment Co. LTD
	Type:	PAVH-19V4FBA
	Heat exchanger:	Finned-coil heat exchanger
	Dimension:	1386mm×1050×Φ7×21 ×2,0
4. Fan motor		
	Manufacture:	NIDEC SHIBAURA (ZHEJIANG) CORP.
	Type:	SIC-65FV-F162-1
	Fan type:	3 blade
5. Main control board		
	Manufacture:	Ruking Emerson Climate Technologies (Shanghai) Co., Ltd
	Type:	AC13I37.WC.V003
	Specification:	220-240V; 50Hz

Appendix V Equipment List

No.	Type	Manufacture	Model	Equipment ID	Calibration Due Date
1	R&A performance measuring system	GEI	20kW	-	2020-08-03
2	Temperature and humidity meter	VAISALA	HMD42	H5110021	2020-08-03
3	Platinum resistance	YINUO	Pt100	7430F	2020-05-22
4	Platinum resistance	YINUO	Pt100	7434F	2020-05-22
5	Flowmeter	YOKOGAWA	AXF015G	S5M201965	2020-05-22
6	Flowmeter	YOKOGAWA	AXF040G	S5M805005	2020-05-22
7	Pressure transmitter	MICRO	MPM489	240502	2020-08-04
8	Pressure transmitter	MICRO	MPM489	240503	2020-08-04
9	Water pressure difference transmitter	MICRO	MDM3051	291459	2020-08-04
10	AC source Supply	YANGHONG	YF-3600	-	2021-01-02
11	Water pressure difference transmitter	MICRO	MDM3051	291459	2020-08-04
12	AC source Supply	YANGHONG	YF-3600	-	2021-01-02
13	Temperature and humidity meter	H5110021	HMD42	VAISALA	2020-08-04
14	Anechoic rooms (indoor side: hemi-anechoic rooms)	NC-036-2	-	Guangzhou Kinte	2023-10-07
15	Anechoic rooms (outdoor side: hemi-anechoic rooms)	NC-036-2	-	Guangzhou Kinte	2023-10-07
16	Microphone	HJ-000123	4189	B & K	2020-06-25
17	Microphone	HJ-000110	4189	B & K	2020-06-25
18	Microphone	HJ-000122	4189	B & K	2020-06-25
19	Microphone	HJ-000107	4189	B & K	2020-06-25
20	Microphone	HJ-000119	4189	B & K	2020-06-25
21	Calibrator	HJ-000095	4231	B & K	2020-06-11
22	PULSE system	VGDY-0184	3660C	B & K	2021-04-09
23	Windscreen	-	WS002-5	BSWA TECH	-
24	Three-phase power supply	-	AFC-33030TS	VGDS-0637	2020-11-07
25	Long steel tape	HJ-000062	5m	-	2020-09-02

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26	Temperature measurement system	NC-036-1	-	-	2020-06-24
27	Atmospheric pressure meter	HQ-000257	-	-	2020-09-23
28	Constant temperature water system	-	-	VGDS-0448	2021-04-18

-- End of Report --