Testing Laboratory 1045.1 accredited by the Czech Accreditation Institute pursuant to
ČSN EN ISO/IEC 17025:2018
Strojírenský zkušební ústav, s.p. Zkušební laboratoř
(Engineering Test Institute, Public Enterprise, Testing Laboratory)
Hudcova 424/56b, Medlánky, 621 00 Brno

L 1045.1

TEST REPORT
39-17622/H

Product:	Outdoor Air/Water Heat pump - monobloc
Type designation:	**AirKompakt P1522**
Customer:	Kołton Spółka komandytowa ul. Sosnowa 2 34-480 Jabłonka POLAND
Manufacturer:	Kołton Spółka komandytowa ul. Sosnowa 2 34-480 Jabłonka POLAND
Report issue date:	2024-04-09
Distribution list:	1 copy to the Customer 1 copy to the Engineering Test Institute

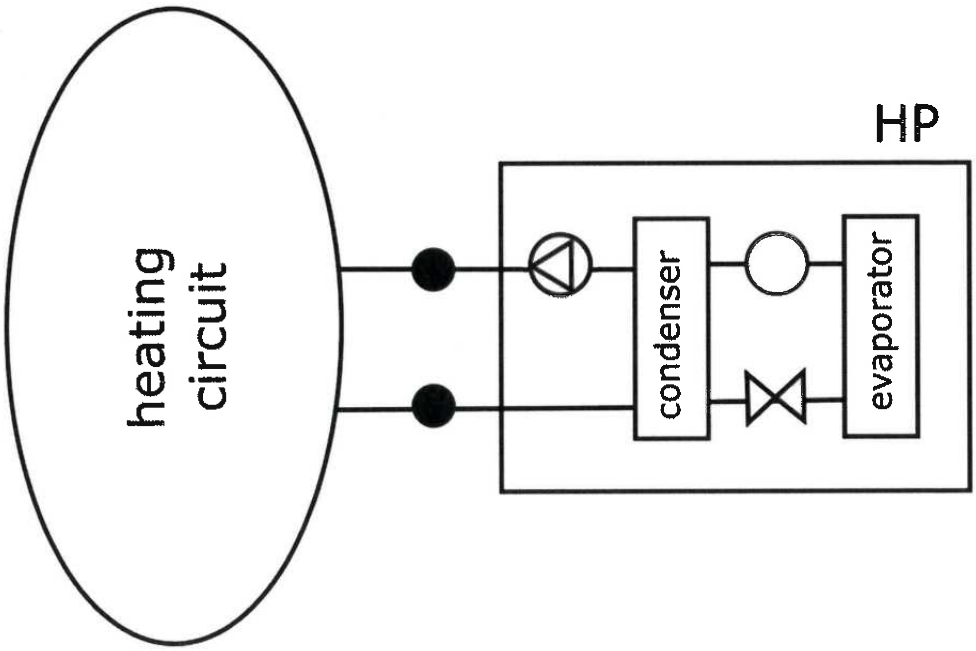
I. Description of product tested

The Heat pump **AirKompakt P1522** supplied by the company **Kołton Spółka komandytowa** is structurally adapted to operate in air/water system. Device is designed as monobloc placed outdoor and indoor display module. Refrigerant R290 is used with charge of 2.2 kg. Power supply is a three-phase. Heat pump is reversible and is working with variable flow rate.

Main components of the outdoor unit **AirKompakt P1522:**

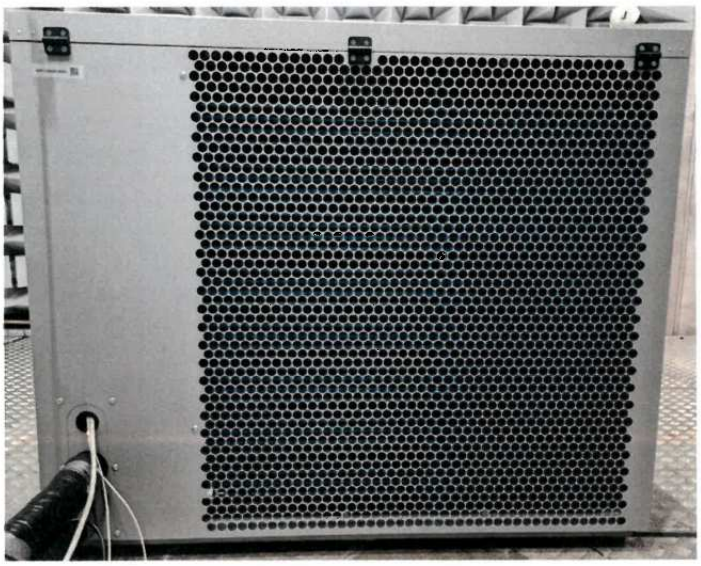
- Serial number 23PC15030010204
- Cubic shape with dimensions 1400 × 600 × 1190 mm (W × D × H)
- Frame and casing made of varnished steel sheets
- Cubic-shaped evaporator, 4 rows, dimensions 990 × 100 × 1070 mm (W × D × H), spacing 2.5 mm
- Plate condenser with dimensions 165 × 230 × 560 mm (W × D × H) including insulation
- Compressor Emerson Copeland Scroll ZH13KCU TFMN 524
- Refrigerant R290 (2.2 kg)
- Electric expansion valve Carel E²V
- 4-way reversing valve Sanhua International Europe, SHF-20D-47-O2 + coil
- Refrigerant accumulator
- Axial fan Ø57 cm, Ziehl-Abegg SE ZN063-6IL.BD.V5D8
- Pressure sensors
- Temperature sensors
- Refrigerant pipes
- Air vent
- Sightglass
- Safety valve
- Flow switch
- Biflow filter drier
- Electrical cabinet

Scheme:



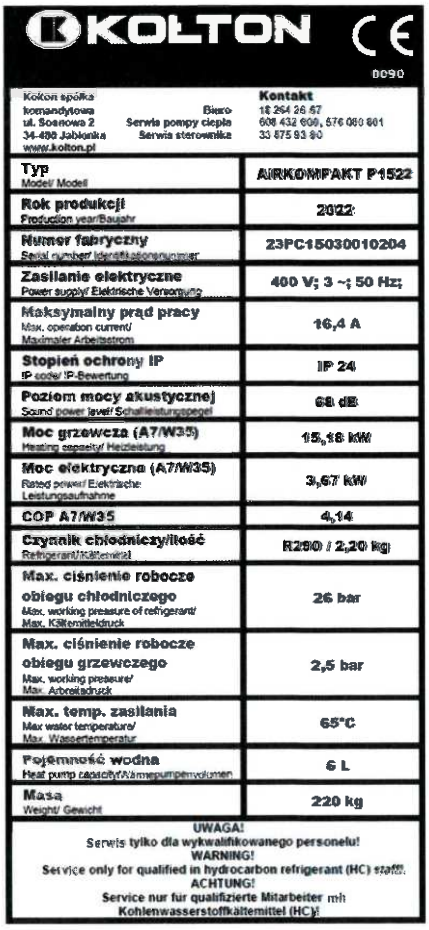
Photodocumentation:

Heat pump **AirKompakt P1522** – outdoor unit
– Front view –



Heat pump **AirKompakt P1522** – outdoor unit
– Back view –

– Not recognised –



KOŁTON CE
0090

Kołton spółka komandytowa
ul. Sosnowa 2
34-480 Jabłonka
www.kolton.pl

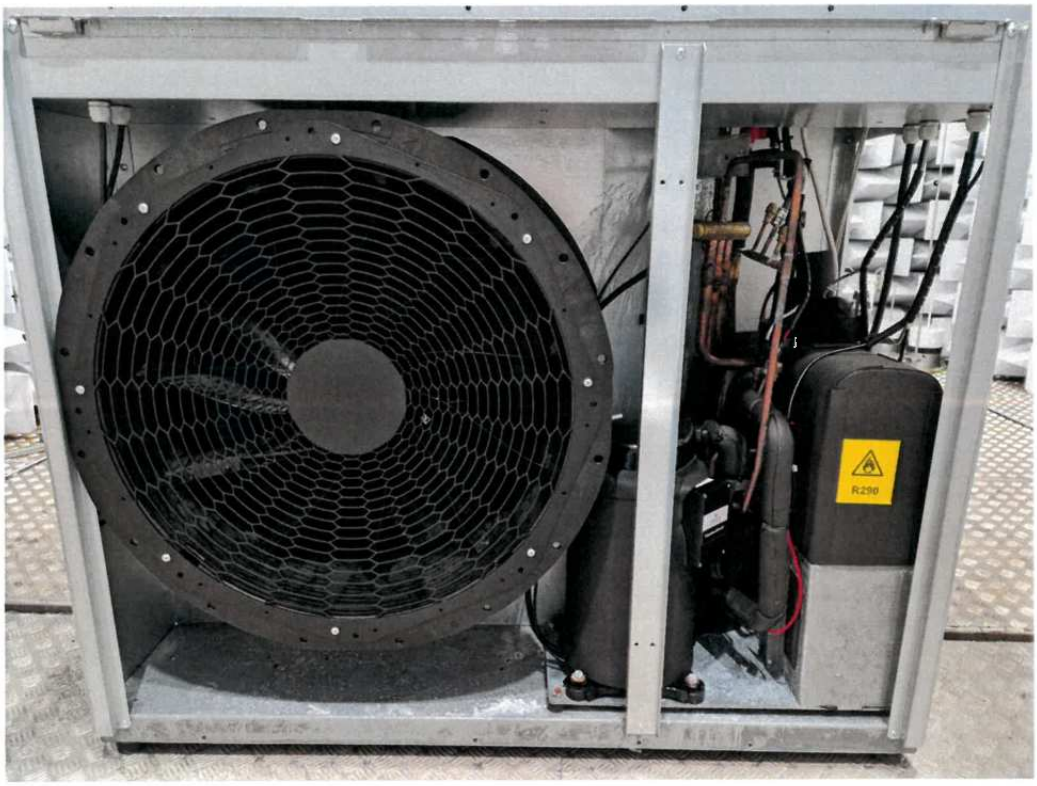
Kontakt
Biuro 18 264 26 67
Serwis pompy ciepła 606 432 606, 576 060 601
Serwis sterownika 33 875 93 80

Typ Model/ Modell	AIRKOMPAKT P1522
Rok produkcji Production year/Baujahr	2022
Numer fabryczny Serial number/ Identifikationsnummer	23PC15030010204
Zasilanie elektryczne Power supply/ Elektrische Versorgung	400 V; 3 ~; 50 Hz;
Maksymalny prąd pracy Max. operation current/ Maximaler Arbeitsstrom	16,4 A
Stopień ochrony IP IP code/ IP-Bewertung	IP 24
Poziom mocy akustycznej Sound power level/ Schallleistungspegel	68 dB
Moc grzewcza (A7/W35) Heating capacity/ Heizleistung	15,18 kW
Moc elektryczna (A7/W35) Rated power/ Elektrische Leistungsaufnahme	3,67 kW
COP A7/W35	4,14
Czynnik chłodniczy/ilość Refrigerant/Kältemittel	R290 / 2,20 kg
Max. ciśnienie robocze obiegu chłodniczego Max. working preasure of refrigerant/ Max. Kältemitteldruck	26 bar
Max. ciśnienie robocze obiegu grzewczego Max. working preasure/ Max. Arbeitsdruck	2,5 bar
Max. temp. zasilania Max water temperature/ Max. Wassertemperatur	65°C
Pojemność wodna Heat pump capacity/Wärmepumpenvolumen	6 L
Masa Weight/ Gewicht	220 kg

UWAGA!
Serwis tylko dla wykwalifikowanego personelu!
WARNING!
Service only for qualified in hydrocarbon refrigerant (HC) staff!
ACHTUNG!
Service nur für qualifizierte Mitarbeiter mit Kohlenwasserstoffkältemittel (HC)!

Heat pump **AirKompakt P1522** – outdoor unit
– Compressor label –

Heat pump **AirKompakt P1522** – outdoor unit
– Label –



Heat pump **AirKompakt P1522** – outdoor unit
– Without cover –

II. Sample tested

SZU reg. no.	Product name	Date of submission
1212.24.39742.001	**AirKompakt P1522**	2024-03-26

The visual inspection, tests and verification were carried out by Ing. Antonín Kolbábek, Ph.D. at the test station of SZU.
The tests were performed using measuring and testing equipment with valid calibration.

III. Measuring and test equipment:

No.	Description	Inventory number
1.	Electrical energy meter	E2.1
2.	Digital watt meter	1.2.2 ENERGIE ANALYZATOR_2
3.	Flow meter Krohne Optiflux	8.1.2 TECH_K2_V_DN15
4.	Barometer	2.3 MAR18_1_PB
5.	Differential pressure gauge	3.2 MAR18_2_dP
6.	Thermometers	3.4 MAR18_T
7.	Thermo-hydro meter 608-H1	117043
8.	Tape measure	ME 475
9.	Multi-analyser SINUS SoundBook MK2	000-000-000-875/1
10.	Microphone pair G.R.A.S. 40 AK, wind deflector	000-000-000-875/2
11.	Calibrator G.R.A.S. 42AG	000-000-000-875/3

IV. Methods, results of tests and verifications

No.	Test objective	Requirement	Method of test	Documentation	Test evaluation/ verification *
1.	Calculation of sound power level	Art. 9	**ČSN ISO 9614-2:1997**	Page No. 7-12	+
2.	Acoustic measurements – Sound power level	Art. 8	**ČSN EN 12102-1:2023**	Page No. 6-12	+

*) **Evaluation / statement of conformity:**

+..... Requirement fulfilled
-..... Requirement not fulfilled
0 .....Not applicable
x .....Not evaluated

Note:
The stated extended measurement uncertainties are calculated as a factor of the measurement uncertainty and the extension coefficient k=2, corresponding to the coverage certainty of 95% as regards standard classification.

If a statement of conformity is provided, the decision rule pursuant to ILAC-G8:09/2019, Art. 4.2.1 – binary statement for the simple acceptance rule shall apply.

Test objective:	Heating and cooling equipment
Exact name of the test procedure:	**2.136*** - Measurement of noise characteristics
Test method:	**ČSN EN 12102-1:2023; ČSN ISO 9614-2:1997**
Sample tested:	Air/Water Heat pump **AirKompakt P1522**
Measuring equipment used:	see Chapter III
Place of test:	Engineering Test Institute, Hudcova 424/56b, 621 00 Brno, CZ

Measurement uncertainty:

Measured quantity	**Unit**	**Uncertainty of measurement**	**Evaluation**
Liquid			
- temperature difference (dT)	[K]	± 0.15 K	fulfilled
- temperature inlet/outlet	[°C]	± 0.15 K	fulfilled
- volume flow	[m^3/s]	± 1 %	fulfilled
- static pressure difference	[kPa]	± 1 kPa (Δp ≤ 20 kPa) or ± 5 % (Δp > 20 kPa)	fulfilled
Air			
- dry bulb temperature	[°C]	± 0.2 K	fulfilled
- wet bulb temperature	[°C]	± 0.4 K	fulfilled
- volume flow	[m^3/s]	± 5 %	not applied
- static pressure difference	[Pa]	± 5 Pa (Δp ≤ 100 Pa) or ± 5 % (Δp > 100 Pa)	not applied
Refrigerant			
- pressure at compressor outlet	[kPa]	± 1 %	not applied
- temperature	[°C]	± 0.5 K	not applied
Concentration (in volume)			
- heat transfer medium	[%]	± 2	not applied
Electrical quantities			
- electric power	[W]	± 1 %	fulfilled
- voltage	[V]	± 0.5 %	fulfilled
- current	[A]	± 0.5 %	fulfilled
- electric energy	[kWh]	± 1 %	not applied
Compressor rotational speed	[min^{-1}]	± 0.5 %	not applied
The heating or cooling capacities measured on the liquid side shall be determined within a maximum uncertainty of 5 % independent of the individual uncertainties of measurement including the uncertainties on the properties of fluids.			fulfilled

Note:
Comment to abbreviated marking: e.g. A7/W55
A (air) 7 (input source air temperature in °C) / W (water), 55 (output heating water temperature in °C)

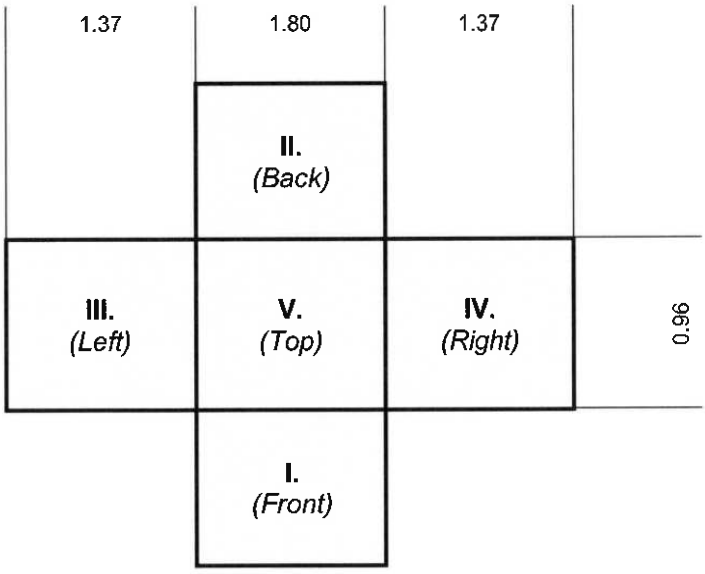
a) Measurement surface

Tested samples were surrounded by a cuboid-shape measuring surface set at the distance *d* [m].

Test Sample: Air/Water Heat pump **AirKompakt P1522**			
Distance from the test sample	*d*	[m]	0.20
Height of measurement surface	*h*	[m]	1.37
Width of measurement surface	*w*	[m]	1.80
Depth of measurement surface	*l*	[m]	0.96
Total measurement surface area	*S*	[m²]	9.29
Minimal measuring time per surface	t_M	[s]	90.00

Sketch of measurement surface (not to scale):

Air/Water Heat pump **AirKompakt P1522**
– Outdoor unit –



b) Acoustic environment

The testing sample was placed inside a climate chamber (with dimensions shown below); sound absorbing panels were mounted on the walls and the ceiling of the chamber. The outdoor unit was placed in the middle of the chamber, at a sufficient distance from the surrounding walls, and was rotated by about 5÷10 °.

Climate-acoustic chamber *(corresponds to free field over a reflecting plane)*			
Width of testing room	l_1	[m]	6.95
Length of testing room	l_2	[m]	4.25
Height of testing room	l_3	[m]	4.50

c) Measured and calculated data – General overview:

Test sample			Air/Water Heat pump **AirKompakt P1522**
The measured values are in accordance with ČSN EN 12102-1:2023			YES
The measured values are in accordance with ČSN EN ISO 9614-2:1997			YES
Operation mode			Heating
Specification of the assessment condition			A7/W55*
Type of HP capacity regulation			FIXED
Fan speed settings			AUTO
Date of testing (YYYY-MM-DD)			2024-04-04
Reference air temperature	t_{amb}	[°C]	7.0
Relative humidity of air	RH	[%]	83.0
Ambient pressure	p_{amb}	[hPa]	984.2
Overall sound power level (linear)	L_W	[dB]	80.8 ± 1.5
Overall A-weighted sound power level	L_{WA}	**[dB(A)]**	**63.1 ± 1.5**
Accuracy class			**Engineering** (grade 2)

*) *Comment to abbreviated marking: i.e. A7/W55*
A (water), 7 (input source liquid temperature in °C) / W (water), 55 (outlet heating water temperature in °C)

1A) **Measurement results** – octave bands

Air/Water Heat pump **AirKompakt P1522;** Outdoor unit at A7/W55 */ ON/OFF /*	**Engineering (Grade 2)**

f_m [Hz]	Criterion 1 L_d	F_{pl}	$L_d > F_{pl}$	Criterion 2 $F_{+/-}$	$F_{+/-} \leq 3$	Criterion 3 $L_{W(1)}$-$L_{W(2)} \leq 5$	All criteria passed?	L_W [dB]	L_{WA} [dB(A)]	U [dB]	Evaluation
125	20.6	8.9	YES	0.9	YES	YES	YES	71.9	53.9	± 3.0	c
250	21.3	3.2	YES	0.0	YES	YES	YES	64.2	55.4	± 2.0	passed
500	22.2	3.5	YES	0.0	YES	YES	YES	61.0	57.6	± 1.5	passed
1000	**21.1**	**3.3**	**YES**	**0.0**	**YES**	**YES**	**YES**	**57.9**	**57.7**	**± 1.5**	**passed**
2000	21.0	3.2	YES	0.0	YES	YES	YES	52.1	53.2	± 1.5	c
4000	20.5	3.5	YES	0.0	YES	YES	YES	46.2	47.2	± 1.5	passed
8000**)	20.4	4.1	YES	0.0	YES	YES	YES	40.5	40.4	± 2.5	c
Total								**80.8**	**63.1**	**± 1.5**	

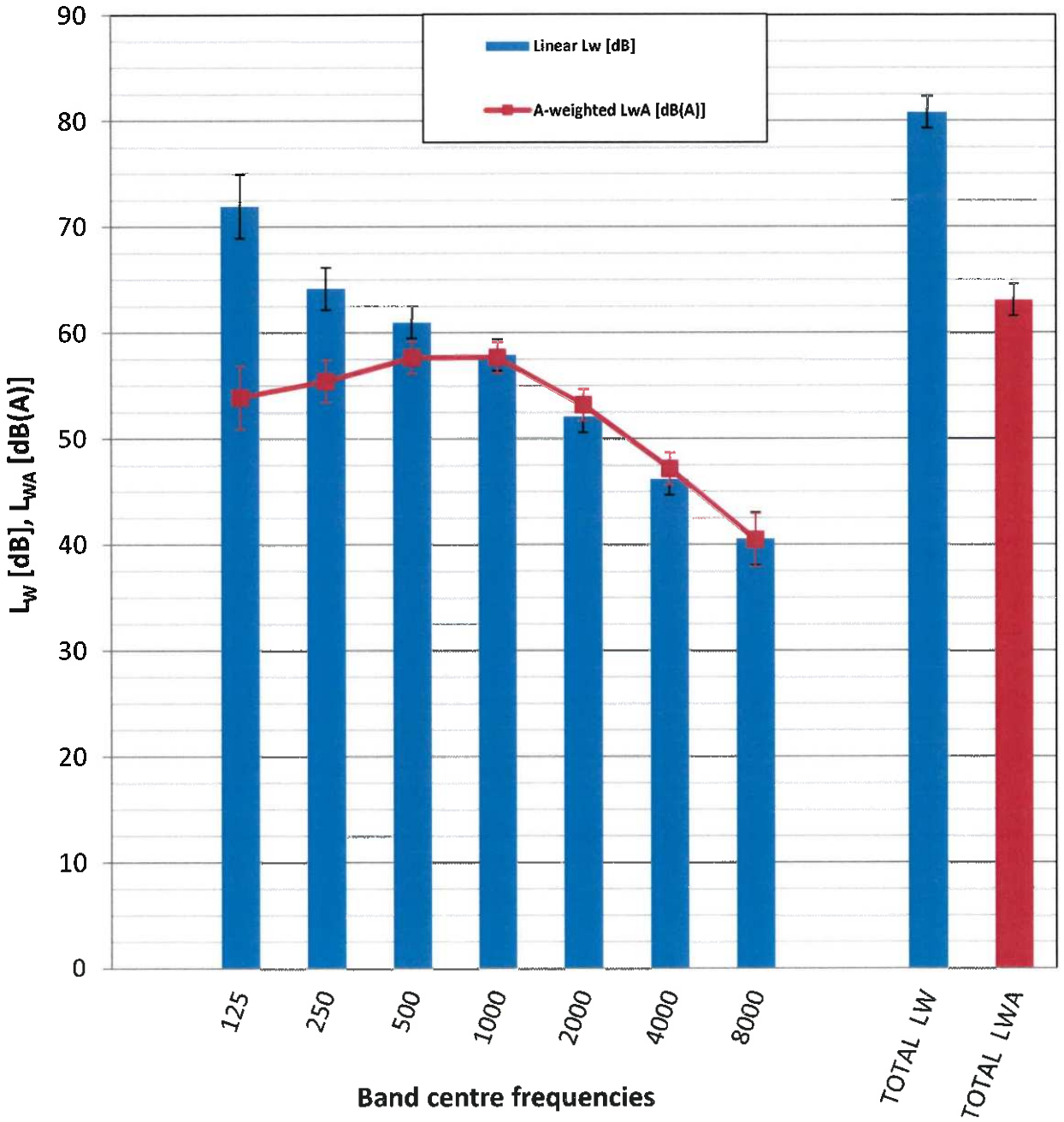
**) *Due to the sound intensity method limitations, the frequency of 6300 Hz was measured only.*

Legend:

passed	*Third frequency bands with this description are significant for calculation of A-weighted total sound power level L_{WA}. Required accuracy class is fulfilled in this band.*
not passed	*Third frequency bands with this description are significant for calculation of A-weighted total sound power level L_{WA}. Required accuracy class is not fulfilled in this band.*
c	*Third frequency bands with this description are not significant for calculating of A-weighted total sound power level L_{WA}. These bands are evaluated in calculating of L_{WA}.*
nc	*Third frequency bands with this description are not significant for calculating of A-weighted total sound power level L_{WA}. These bands are not evaluated in calculating of L_{WA}.*

Spectrum of Sound power level L_W – octave bands

Air/Water Heat pump **AirKompakt P1522;** Outdoor unit at A7/W55 */ ON/OFF /*	**Engineering (Grade 2)**



1B) **Measurement results** – one-third octave bands

Air/Water Heat pump **AirKompakt P1522;** Outdoor unit at A7/W55 */ ON/OFF /*	**Engineering (Grade 2)**

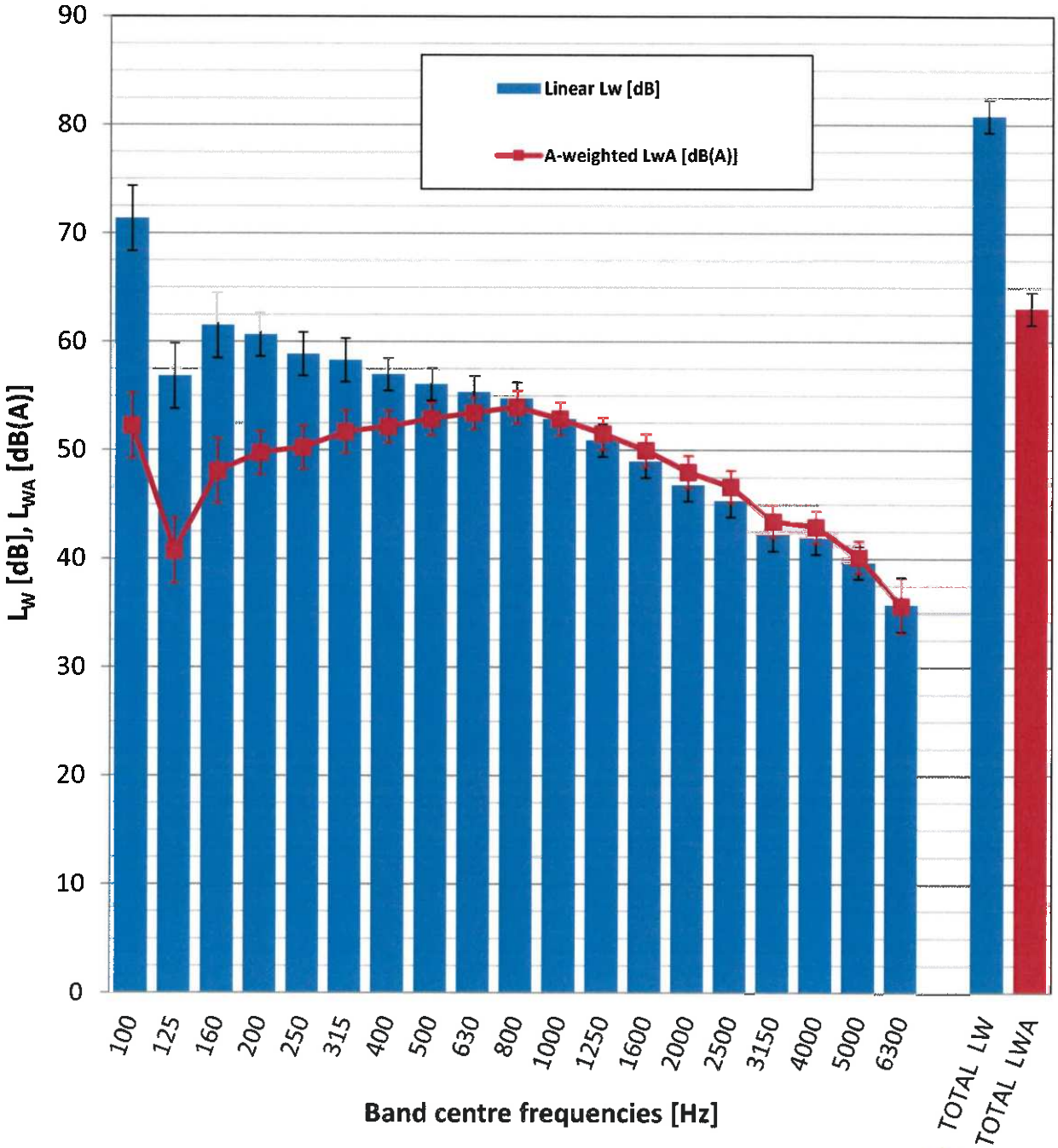
f_m	Criterion 1			Criterion 2		Criterion 3	All criteria passed?	L_W	L_{WA}	U	Evaluation
[Hz]	L_d	F_{pl}	$L_d > F_{pl}$	$F_{+/-}$	$F_{+/-} \leq 3$	$L_{W(1)}-L_{W(2)} \leq s$		[dB]	[dB(A)]	[dB]	
100	21.1	3.5	YES	0.0	YES	YES	YES	71.4	52.3	± 3.0	passed
125	20.6	8.9	YES	0.9	YES	YES	YES	56.8	40.7	± 3.0	c
160	21.3	3.6	YES	0.9	YES	YES	YES	61.5	48.1	± 3.0	passed
200	21.3	3.5	YES	0.0	YES	YES	YES	60.7	49.8	± 2.0	passed
250	21.3	3.2	YES	0.0	YES	YES	YES	58.9	50.3	± 2.0	passed
315	21.4	3.5	YES	0.0	YES	YES	YES	58.3	51.7	± 2.0	passed
400	21.9	3.5	YES	0.0	YES	YES	YES	57.0	52.2	± 1.5	passed
500	22.2	3.5	YES	0.0	YES	YES	YES	56.1	52.9	± 1.5	passed
630	21.8	3.4	YES	0.0	YES	YES	YES	55.4	53.5	± 1.5	passed
800	**21.5**	**3.4**	**YES**	**0.0**	**YES**	**YES**	**YES**	**54.8**	**54.0**	**± 1.5**	**passed**
1000	21.1	3.3	YES	0.0	YES	YES	YES	52.9	52.9	± 1.5	passed
1250	21.8	3.4	YES	0.0	YES	YES	YES	50.9	51.5	± 1.5	passed
1600	21.8	3.4	YES	0.0	YES	YES	YES	49.0	50.0	± 1.5	passed
2000	21.0	3.2	YES	0.0	YES	YES	YES	46.8	48.0	± 1.5	passed
2500	20.6	3.0	YES	0.0	YES	YES	YES	45.3	46.6	± 1.5	passed
3150	20.6	2.7	YES	0.0	YES	YES	YES	42.2	43.4	± 1.5	c
4000	20.5	3.5	YES	0.0	YES	YES	YES	41.9	42.9	± 1.5	c
5000	20.3	3.5	YES	0.0	YES	YES	YES	39.7	40.2	± 1.5	c
6300	20.4	4.1	YES	0.0	YES	YES	YES	35.8	35.7	± 2.5	c
Total								**80.8**	**63.1**	**± 1.5**	

Legend:

passed	*Third frequency bands with this description are significant for calculation of A-weighted total sound power level L_{WA}. Required accuracy class is fulfilled in this band.*
not passed	*Third frequency bands with this description are significant for calculation of A-weighted total sound power level L_{WA}. Required accuracy class is not fulfilled in this band.*
c	*Third frequency bands with this description are not significant for calculating of A-weighted total sound power level L_{WA}. These bands are evaluated in calculating of L_{WA}.*
nc	*Third frequency bands with this description are not significant for calculating of A-weighted total sound power level L_{WA}. These bands are not evaluated in calculating of L_{WA}.*

Spectrum of Sound power level L_W – one-third octave bands

Air/Water Heat pump **AirKompakt P1522;** Outdoor unit at A7/W55 */ ON/OFF /*	**Engineering (Grade 2)**



Tested by: Ing. Antonín Kolbábek, Ph.D. Date: 2024-04-04 Signed:

Reviewed and approved by: Ing. Petr Lindovský Date: 2024-04-09 Signed:

V. A list of referenced documents

- Order of 2024-03-20 (Order reg. no. B-81825, received on 2024-03-20)
- Contract B-81825/39

- ČSN EN 12102-1:2023 - Air conditioners, liquid chilling packages, heat pumps, process chillers and dehumidifiers with electrically driven compressors - Determination of the sound power level - Part 1: Air conditioners, liquid chilling packages, heat pumps for space heating and cooling, dehumidifiers and process chillers
- ČSN EN 14511-2:2023 - Air conditioners, liquid chilling packages and heat pumps for space heating and cooling and process chillers, with electrically driven compressors - Part 2: Test conditions
- ČSN EN 14511-3:2023 - Air conditioners, liquid chilling packages and heat pumps for space heating and cooling and process chillers, with electrically driven compressors - Part 3: Test methods
- ČSN EN 14825:2023 - Air conditioners, liquid chilling packages and heat pumps, with electrically driven compressors, for space heating and cooling, commercial and process cooling - Testing and rating at part load conditions and calculation of seasonal performance

- Background of the SZU task no. 39-17622
- Record measurement file 39-17622-H.zip

Test Report compiled by: Ing. Ondrej Bilkovič

Test Report approved by: Ing. Antonín Kolbábek, Ph.D.
Hydraulic and Pressure Equipment Manager

– End of Test Report –

L 1045.1

TEST REPORT
39-17622/T

Product:	Outdoor Air/Water Heat pump - monobloc
Type designation:	**AirKompakt P1522**
Customer:	Kołton Spółka komandytowa ul. Sosnowa 2 34-480 Jabłonka POLAND
Manufacturer:	Kołton Spółka komandytowa ul. Sosnowa 2 34-480 Jabłonka POLAND
Report issue date:	2024-04-09
Distribution list:	1 copy to the Customer 1 copy to the Engineering Test Institute

I. Description of product tested

The Heat pump **AirKompakt P1522** supplied by the company **Kołton Spółka komandytowa** is structurally adapted to operate in air/water system. Device is designed as monobloc placed outdoor and indoor display module. Refrigerant R290 is used with charge of 2.2 kg. Power supply is a three-phase. Heat pump is reversible and is working with variable flow rate.

Main components of the outdoor unit **AirKompakt P1522:**

- Serial number 23PC15030010204
- Cubic shape with dimensions 1400 × 600 × 1190 mm (W × D × H)
- Frame and casing made of varnished steel sheets
- Cubic-shaped evaporator, 4 rows, dimensions 990 × 100 × 1070 mm (W × D × H), spacing 2.5 mm
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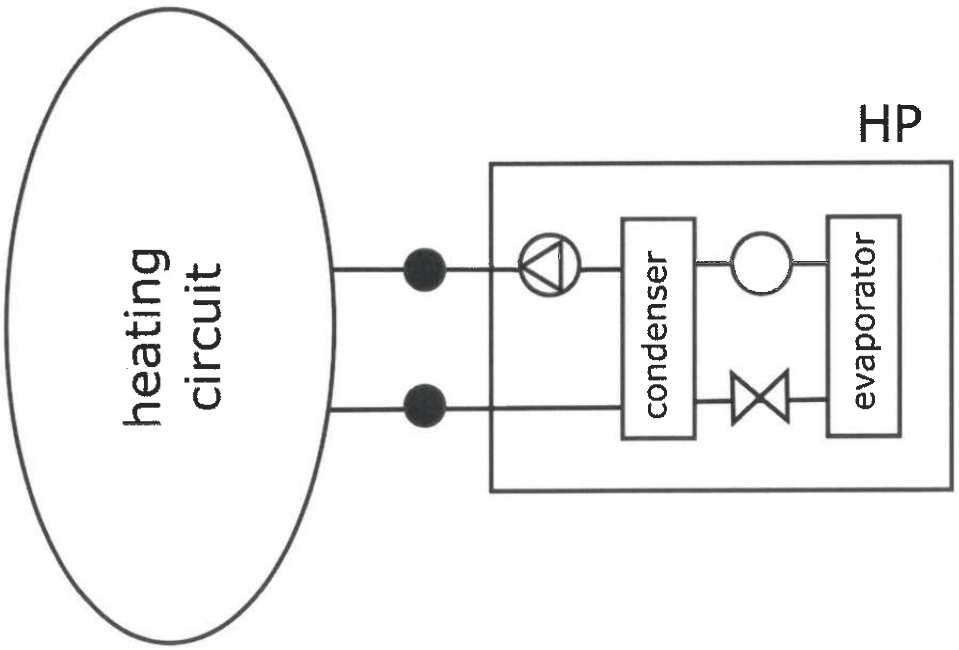
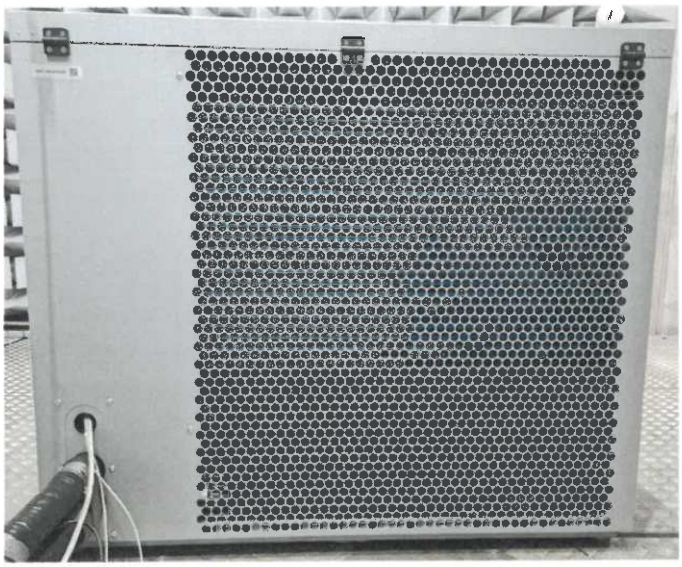
- Compressor Emerson Copeland Scroll ZH13KCU TFMN 524
- Refrigerant R290 (2.2 kg)
- Electric expansion valve Carel E^2V
- 4-way reversing valve Sanhua International Europe, SHF-20D-47-O2 + coil
- Refrigerant accumulator
- Axial fan Ø57 cm, Ziehl-Abegg SE ZN063-6IL.BD.V5D8
- Pressure sensors
- Temperature sensors
- Refrigerant pipes
- Air vent
- Sightglass
- Safety valve
- Flow switch
- Biflow filter drier
- Electrical cabinet

Scheme:



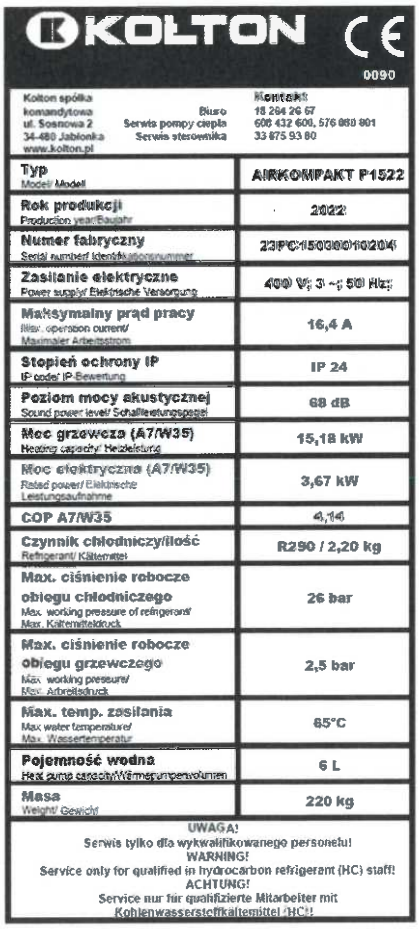
Photodocumentation:

Heat pump **AirKompakt P1522** – outdoor unit
– Front view –



Heat pump **AirKompakt P1522** – outdoor unit
– Back view –

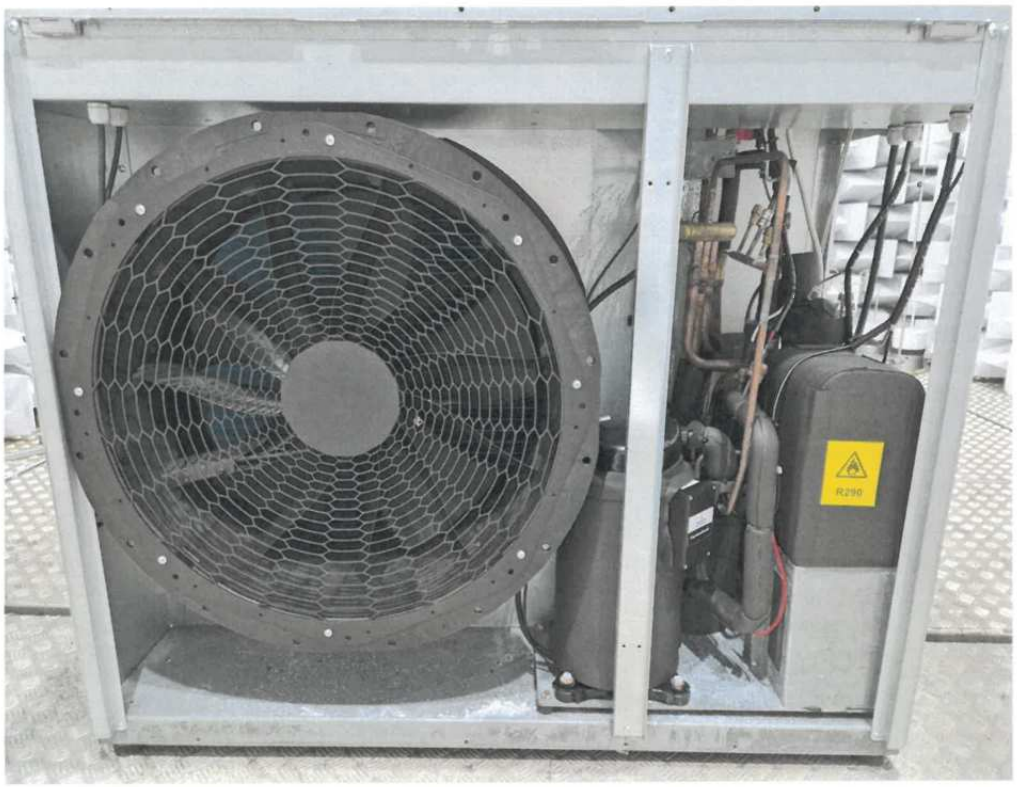
– Not recognised –



KOLTON CE 0090	
Kolton spółka komandytowa ul. Sosnowa 2 34-480 Jabłonka www.kolton.pl	Kontakt: Biuro 18 264 26 67 Serwis pompy ciepła 606 432 606, 576 060 801 Serwis sterownika 33 875 93 80
Typ Model/ Modell	**AIRKOMPAKT P1522**
Rok produkcji Production year/Baujahr	2022
Numer fabryczny Serial number/ Identifikationsnummer	22PC150000010204
Zasilanie elektryczne Power supply/ Elektrische Versorgung	400 V; 3 ~; 50 Hz;
Maksymalny prąd pracy Max. operation current/ Maximaler Arbeitsstrom	16,4 A
Stopień ochrony IP IP code/ IP-Bewertung	IP 24
Poziom mocy akustycznej Sound power level/ Schallleistungspegel	68 dB
Moc grzewcza (A7/W35) Heating capacity/ Heizleistung	15,18 kW
Moc elektryczna (A7/W35) Rated power/ Elektrische Leistungsaufnahme	3,67 kW
COP A7/W35	4,14
Czynnik chłodniczy/ilość Refrigerant/ Kältemittel	R290 / 2,20 kg
Max. ciśnienie robocze obiegu chłodniczego Max. working pressure of refrigerant/ Max. Kältemitteldruck	26 bar
Max. ciśnienie robocze obiegu grzewczego Max. working pressure/ Max. Arbeitsdruck	2,5 bar
Max. temp. zasilania Max water temperature/ Max. Wassertemperatur	65°C
Pojemność wodna Heat pump capacity/Wärmepumpenvolumen	6 L
Masa Weight/ Gewicht	220 kg
UWAGA! Serwis tylko dla wykwalifikowanego personelu! WARNING! Service only for qualified in hydrocarbon refrigerant (HC) staff! ACHTUNG! Service nur für qualifizierte Mitarbeiter mit Kohlenwasserstoffkältemittel (HC)!	

Heat pump **AirKompakt P1522** – outdoor unit
– Compressor label –

Heat pump **AirKompakt P1522** – outdoor unit
– Label –



Heat pump **AirKompakt P1522** – outdoor unit
– Without cover –

II. Sample tested

SZU reg. no.	Product name	Date of submission
1212.24.39742.001	**AirKompakt P1522**	2024-03-26

The visual inspection, tests and verification were carried out by Ing. Tomáš Sedláček at the test station of SZU. The tests were performed using measuring and testing equipment with valid calibration.

III. Measuring and test equipment:

No.	Description:	Inventory number:
1.	Electrical energy meter	E3.1
2.	Digital watt meter	1.2.3 ENERGIE ANALYZATOR_3
3.	Flow meter Krohne Optiflux	8.1.6 TECH_K3_V_DN50_SEK
4.	Barometer	2.4 MAR18_1_PB
5.	Differential pressure gauge	14.2.2 MAR18_3_dP_2
6.	Temperature-humidity meter HF532	14.1.1 K3_VLHKOST_1
7.	Temperature-humidity meter HF532	14.1.3 K3_VLHKOST_2
8.	Thermometers	14.4 MAR18_T

IV. Methods, results of tests and verifications

No.	Test objective	Requirement	Method of test	Documentation	Test evaluation/ verification *
1.	Rating conditions	–	ČSN EN 14511-2:2023 ČSN EN 14511-3:2023	Page No. 7	x
2.	Seasonal performance tests and SCOP calculation – Low temperature application	–	ČSN EN 14511-3:2023 ČSN EN 14825:2023	Page No. 8-14	x
3.	Seasonal performance tests and SCOP calculation – Medium temperature application	–	ČSN EN 14511-3:2023 ČSN EN 14825:2023	Page No. 15-21	x

***) Evaluation / statement of conformity:**

+..... Requirement fulfilled
-..... Requirement not fulfilled
0 .....Not applicable
x .....Not evaluated

Measured quantity	Unit	Uncertainty of measurement	Evaluation
Liquid			
- temperature difference (dT)	[K]	± 0.15 K	fulfilled
- temperature inlet/outlet	[°C]	± 0.15 K	fulfilled
- volume flow	[m3/s]	± 1 %	fulfilled
- static pressure difference	[kPa]	± 1 kPa (Δp ≤ 20 kPa) or ± 5 % (Δp > 20 kPa)	fulfilled
Air			
- dry bulb temperature	[°C]	± 0.2 K	fulfilled
- wet bulb temperature	[°C]	± 0.4 K	fulfilled
- volume flow	[m3/s]	± 5 %	not applied
- static pressure difference	[Pa]	± 5 Pa (Δp ≤ 100 Pa) or ± 5 % (Δp > 100 Pa)	not applied
Refrigerant			
- pressure at compressor outlet	[kPa]	± 1 %	not applied
- temperature	[°C]	± 0.5 K	not applied
Concentration (in volume)			
- heat transfer medium	[%]	± 2	not related
Electrical quantities			
- electric power	[W]	± 1 %	fulfilled
- voltage	[V]	± 0.5 %	fulfilled
- current	[A]	± 0.5 %	fulfilled
- electric energy	[kWh]	± 1 %	not applied
Compressor rotational speed	[min-1]	± 0.5 %	not applied
The heating or cooling capacities measured on the liquid side shall be determined within a maximum uncertainty of 5 % independent of the individual uncertainties of measurement including the uncertainties on the properties of fluids.			fulfilled

Note:
The stated extended measurement uncertainties are calculated as a factor of the measurement uncertainty and the extension coefficient k=2, corresponding to the coverage certainty of 95% as regards standard classification.

If a statement of conformity is provided, the decision rule pursuant to ILAC-G8:09/2019, Art. 4.2.1 - binary statement for the simple acceptance rule shall apply.

Comment to abbreviated marking: e.g. A7/W35
A (air) 7 (input air, dry-bulb temperature in °C) / W (water), 35 (output heating water temperature in °C)

Test objective:	Rating conditions
Exact name of the test procedure:	**1.37* - Tests of leakage, pressure resistance, thermal and technical parameters, combustion efficiency, safety functions**
Test method:	ČSN EN 14511-2:2023, ČSN EN 14511-3:2023
Sample tested:	Heat pump **AirKompakt P1522**
Measuring equipment used:	see Chapter III

Specification of the assessment condition		**A7/W35**	**A7/W55**
Date of testing		**2024-03-26**	**2024-03-27**
Transient test procedure	YES / NO	NO	NO
Average defrost time of 1 cycle	[min]	–	–
Average time of 1 cycle	[min]	–	–
Calculation time	[min]	70.0	70.0
Output heating water – temperature calculation	[°C]	35.00	54.98
Input heating water – temperature calculation	[°C]	30.01	47.01
Output heating water temperature	[°C]	35.00	54.98
Input heating water temperature	[°C]	30.01	47.01
Air temperature – dry bulb temperature	[°C]	7.00	7.00
Air temperature – wet bulb temperature	[°C]	6.01	6.00
Relative humidity	[%]	87.02	87.00
Barometric pressure	[kPa]	96.965	96.468
Ambient temperature	[°C]	7.02	7.02
Secondary circuit pressure difference	[kPa]	-20.251	-6.997
Efficiency of the secondary liquid pump	[–]	0.275	0.154
Volume flow rate of heating water	[$m^3 \cdot h^{-1}$]	2.7941	1.6780
Density of heating water	[$kg \cdot m^{-3}$]	993.9	985.8
Specific heat capacity of heating water	[$kJ \cdot kg^{-1} \cdot K^{-1}$]	4.175	4.178
Voltage	[V]	402.48	401.14
Total current	[A]	21.44	25.60
Overall power input	[kW]	3.416	4.753
Capacity correction of sec. liquid pump	[W]	-41.337	-17.891
Power input correction of sec. liquid pump	[W]	-57.06	-21.15
Heating capacity – heating water	[kW]	16.076	15.314
Corrected heating capacity – heating water	**[kW]**	**16.117**	**15.332**
Uncertainty of corrected heating capacity	[kW]	± 0.281	± 0.175
Effective electric power input	**[kW]**	**3.473**	**4.775**
COP	**[–]**	**4.640**	**3.211**
Uncertainty of COP	[–]	± 0.082	± 0.037
Control settings	**[–]**	**–**	**–**
Circulation pump settings – heating water	[–]	–	–

Test objective:	Seasonal performance tests and SCOP calculation – Low temperature application
Exact name of the test procedure:	**1.37* - Tests of leakage, pressure resistance, thermal and technical parameters, combustion efficiency, safety functions**
Test method:	ČSN EN 14511-3:2023, ČSN EN 14825:2023
Sample tested:	Heat pump **AirKompakt P1522**
Measuring equipment used:	see Chapter III

Design			Air / water – monobloc		
Conditions specification according to ČSN EN 14825:2023	Temperature application			**Low** (ref. water temperature 35 °C)	
	Reference heating season			**Average**	
	Outlet water temperature - indoor heat exchanger			Variable	
	Compressor speed control			Fixed	
	Water flow rate – primary circuit			–	
	Water flow rate – secondary circuit			Variable	
Seasonal space heating energy efficiency	Heating	Average	η_s	**<u>161.6</u>**	%
		Warmer	η_s	–	%
		Colder	η_s	–	%
Seasonal efficiency according to ČSN EN 14825:2023	Heating	Average	**SCOP**	**<u>4.12</u>**	–
		Warmer	SCOP	–	–
		Colder	SCOP	–	–

Function	Cooling			Yes	
	Heating	Yes	Reference heating season	Average	Yes
				Warmer	–
				Colder	–

Full heating load	Cooling		$P_{designc}$	–	kW
	Heating	Average	$P_{designh}$	**<u>12.45</u>**	kW
		Warmer	$P_{designh}$	–	kW
		Colder	$P_{designh}$	–	kW

Bivalent temperatures	Heating	Average	$T_{bivalent}$	-7	°C
		Warmer	$T_{bivalent}$	–	°C
		Colder	$T_{bivalent}$	–	°C

Operation limit temperatures	Heating	Average	TOL	-10	°C
		Warmer	TOL	–	°C
		Colder	TOL	–	°C

Seasonal power consumption according to ČSN EN 14825:2023	Cooling		Q_{CE}	–	kWh
	Heating	Average	Q_{HE}	6252	kWh
		Warmer	Q_{HE}	–	kWh
		Colder	Q_{HE}	–	kWh
Modes other than „active mode“	Off mode		P_{OFF}	17.7	W
	Thermostat off mode		P_{TO}	17.7	W
	Standby mode		P_{SB}	17.7	W
	Crankcase heater mode		P_{CK}	0.0	W

Calculation of SCOP according to ČSN EN 14825:2023:

Number of hours used for calculation of reference SCOP (Annex B – Table B. 2, B. 3)

- For reversible heat pumps and reference heating season „A" = average

H_{HE}	2066	[h]
H_{TO}	178	[h]
H_{SB}	0	[h]
H_{CK}	178	[h]
H_{OFF}	0	[h]

Measured data:

P_{TO}	0.0177	[kW]
P_{SB}	0.0177	[kW]
P_{CK}	0.0000	[kW]
P_{OFF}	0.0177	[kW]
$P_{designh}$	12.45	[kW]
$SCOP_{ON}$	4.12	[–]

Coefficient and correction:

F(1)	3	[%]
F(2)	0	[%]
CC	2.5	[–]

Calculation of SCOP:

7.3 Calculation of the reference annual heating demand (Q_H)

$Q_H = P_{designh} \cdot H_{HE}$ [kWh]

$Q_H = 12.45 \cdot 2066 = 25730$ [kWh]

7.4 Calculation of the annual electricity consumption (Q_{HE})

$Q_{HE} = Q_H / SCOP_{on} + H_{TO} \cdot P_{TO} + H_{SB} \cdot P_{SB} + H_{CK} \cdot P_{CK} + H_{OFF} \cdot P_{OFF}$ [kWh]

$Q_{HE} = 25730 / 4.12 + 178 \cdot 0.0177 + 0 \cdot 0.0177 + 178 \cdot 0 + 0 \cdot 0.0177 = 6252$ [kWh]

7.2 General formula for calculation of reference SCOP

$SCOP = Q_H / Q_{HE}$ [–]

$SCOP = 25730 / 6252 = 4.12$ [–]

7.1 Calculation of the seasonal space heating efficiency η_s

$\Sigma F(i) = F(1) + F(2)$ [–]

$\Sigma F = 0.03 + 0 = 0.03$ [–]

$\eta_s = 1 / CC \cdot SCOP - \Sigma F(i)$ [–]

$\eta_s / A = (1 / 2.5) \cdot 4.12 - 0.03 =$ **1.616** [–]

Temperature level		Low (reference water temperature 35 °C)		
Reference heating season		„A" = average ($T_{designh}$ = -10 °C)		
Assessment condition		**A, Tbiv (F)**	**B**	**C**
Specification of the assessment condition		**A-7/W34**	**A2/W32.38**	**A7/W30.69**
Date of testing		**2024-03-27**	**2024-04-02**	**2024-04-03**
Transient test procedure	YES / NO	NO	YES	NO
Average defrost time of 1 cycle	[min]	–	3.8	–
Average time of 1 cycle	[min]	–	76.9	–
Calculation time	[min]	70.0	153.9	70.0
Output heating water – temperature calculation	[°C]	34.04	31.80	30.67
Input heating water – temperature calculation	[°C]	29.06	27.39	25.71
Output heating water temperature	[°C]	34.04	32.35	30.67
Input heating water temperature	[°C]	29.06	27.39	25.71
Air temperature – dry bulb temperature	[°C]	-6.98	2.01	7.00
Air temperature – wet bulb temperature	[°C]	-8.01	0.99	6.01
Relative humidity	[%]	74.83	83.59	86.98
Barometric pressure	[kPa]	96.202	97.617	97.895
Ambient temperature	[°C]	-7.02	2.02	7.02
Secondary circuit pressure difference	[kPa]	-13.574	-16.047	-21.918
Efficiency of the secondary liquid pump	[–]	0.202	0.240	0.286
Volume flow rate of heating water	[$m^3 \cdot h^{-1}$]	1.9111	2.4802	2.8745
Density of heating water	[$kg \cdot m^{-3}$]	994.3	994.9	995.3
Specific heat capacity of heating water	[$kJ \cdot kg^{-1} \cdot K^{-1}$]	4.175	4.176	4.177
Voltage	[V]	400.03	401.49	398.83
Total current	[A]	21.05	20.90	20.57
Overall power input	[kW]	3.321	3.241	3.169
Capacity correction of sec. liquid pump	[W]	-28.508	-35.007	-43.605
Power input correction of sec. liquid pump	[W]	-35.71	-46.07	-61.11
Heating capacity – heating water	[kW]	10.989	12.702	16.470
Corrected heating capacity – heating water	**[kW]**	**11.017**	**12.737**	**16.513**
Uncertainty of corrected heating capacity	[kW]	± 0.193	± 0.249	± 0.290
Effective electric power input	**[kW]**	**3.356**	**3.287**	**3.230**
COP	**[–]**	**3.283**	**3.875**	**5.112**
Uncertainty of COP	[–]	± 0.058	± 0.076	± 0.091
Control settings	**[–]**	**–**	**–**	**–**
Circulation pump settings – heating water	[–]	–	–	–

Temperature level		Low (reference water temperature 35 °C)	
Reference heating season		„A" = average ($T_{designh}$ = -10 °C)	
Assessment condition		**D**	**TOL (E)**
Specification of the assessment condition		**A12/W28.5**	**A-10/W35**
Date of testing		**2024-04-03**	**2024-03-28**
Transient test procedure	YES / NO	NO	NO
Average defrost time of 1 cycle	[min]	–	–
Average time of 1 cycle	[min]	–	–
Calculation time	[min]	70.0	70.0
Output heating water – temperature calculation	[°C]	28.44	34.99
Input heating water – temperature calculation	[°C]	23.49	30.01
Output heating water temperature	[°C]	28.44	34.99
Input heating water temperature	[°C]	23.49	30.01
Air temperature – dry bulb temperature	[°C]	12.00	-10.00
Air temperature – wet bulb temperature	[°C]	11.00	-11.03
Relative humidity	[%]	88.99	69.34
Barometric pressure	[kPa]	98.020	96.386
Ambient temperature	[°C]	12.02	-10.01
Secondary circuit pressure difference	[kPa]	-29.410	-7.819
Efficiency of the secondary liquid pump	[–]	0.329	0.160
Volume flow rate of heating water	$[m^3 \cdot h^{-1}]$	3.3440	1.7308
Density of heating water	$[kg \cdot m^{-3}]$	995.9	994.0
Specific heat capacity of heating water	$[kJ \cdot kg^{-1} \cdot K^{-1}]$	4.178	4.175
Voltage	[V]	401.72	401.85
Total current	[A]	20.44	21.10
Overall power input	[kW]	3.086	3.321
Capacity correction of sec. liquid pump	[W]	-55.755	-19.655
Power input correction of sec. liquid pump	[W]	-83.07	-23.42
Heating capacity – heating water	[kW]	19.139	9.937
Corrected heating capacity – heating water	**[kW]**	**19.195**	**9.956**
Uncertainty of corrected heating capacity	[kW]	± 0.338	± 0.174
Effective electric power input	**[kW]**	**3.169**	**3.344**
COP	**[–]**	**6.058**	**2.977**
Uncertainty of COP	[–]	± 0.108	± 0.052
Control settings	**[–]**	–	–
Circulation pump settings – heating water	[–]	–	–

Data for SCOP calculation

- Low temperature application (reference water temperature 35 °C)
- Reference heating season „A" – average

	Outdoor heat exchanger / Outdoor air inlet	Indoor heat exchanger / Outlet water temperature	Part load ratio	Part load	DC Declared capacity	COPd at declared capacity	Cdh degradation coefficient	CR	COPbin (Tj)	Eff. power input of compressor off state
	[°C]	[°C]	[%]	[kW]	[kW]	[–]	[–]	[–]	[–]	[kW]
A	-7	34.00	88.46	11.02	11.017	3.283	0.900	1.00	3.283	–
B	2	32.37	53.85	6.71	12.737	3.875	0.995	0.53	3.856	0.0177
C	7	30.69	34.62	4.31	16.513	5.112	0.995	0.26	5.034	0.0177
D	12	28.50	15.38	1.92	19.195	6.058	0.994	0.10	5.767	0.0177
TOL (E)	-10	35.00	100.00	12.45	9.956	2.977	0.900	1.25	2.977	–
Tbiv (F)	-7	34.00	88.46	11.02	11.017	3.283	0.900	1.00	3.283	–

Adaption of water temperature – according to ČSN EN 14825:2023, Annex E

- Low temperature application (reference water temperature 35 °C)
- Reference season „A"– average
- Condition D
- Variable water flow rate – secondary circuit

General formulas and derivation:

$t_{outlet,\,average} = t_{inlet,\,capacity\,test} + (t_{outlet,\,capacity\,test} - t_{inlet,\,capacity\,test}) \cdot CR$ [°C]

$t_{outlet,\,average} = t_{inlet,\,capacity\,test} + (\Delta t) \cdot CR$ [°C]

$t_{outlet,\,average} = t_{outlet,\,capacity\,test} - \Delta t + \Delta t \cdot CR$ [°C]

$t_{outlet,\,capacity\,test} = t_{outlet,\,average} + \Delta t - \Delta t \cdot CR$ [°C]

For variable flow:

$\Delta t = 5$

$CR \cdot \Delta t$ = Part load / Declared capacity · 5

$t_{outlet,\,capacity\,test,\,variable\,flow} = t_{outlet,\,average} + 5$ - Part load / Declared capacity · 5

Measured data:

$t_{outlet,\,average}$	24.00	[°C]
Declared capacity	19.195	[kW]
Declared capacity standard rating condition A7/W35	-	[kW]
Part load	1.92	[kW]

Calculation of water temperature

$t_{outlet,\,capacity\,test,\,variable\,flow} = 24 + 5 - 1.92 / 19.195 \cdot 5 =$ **28.5** [°C]

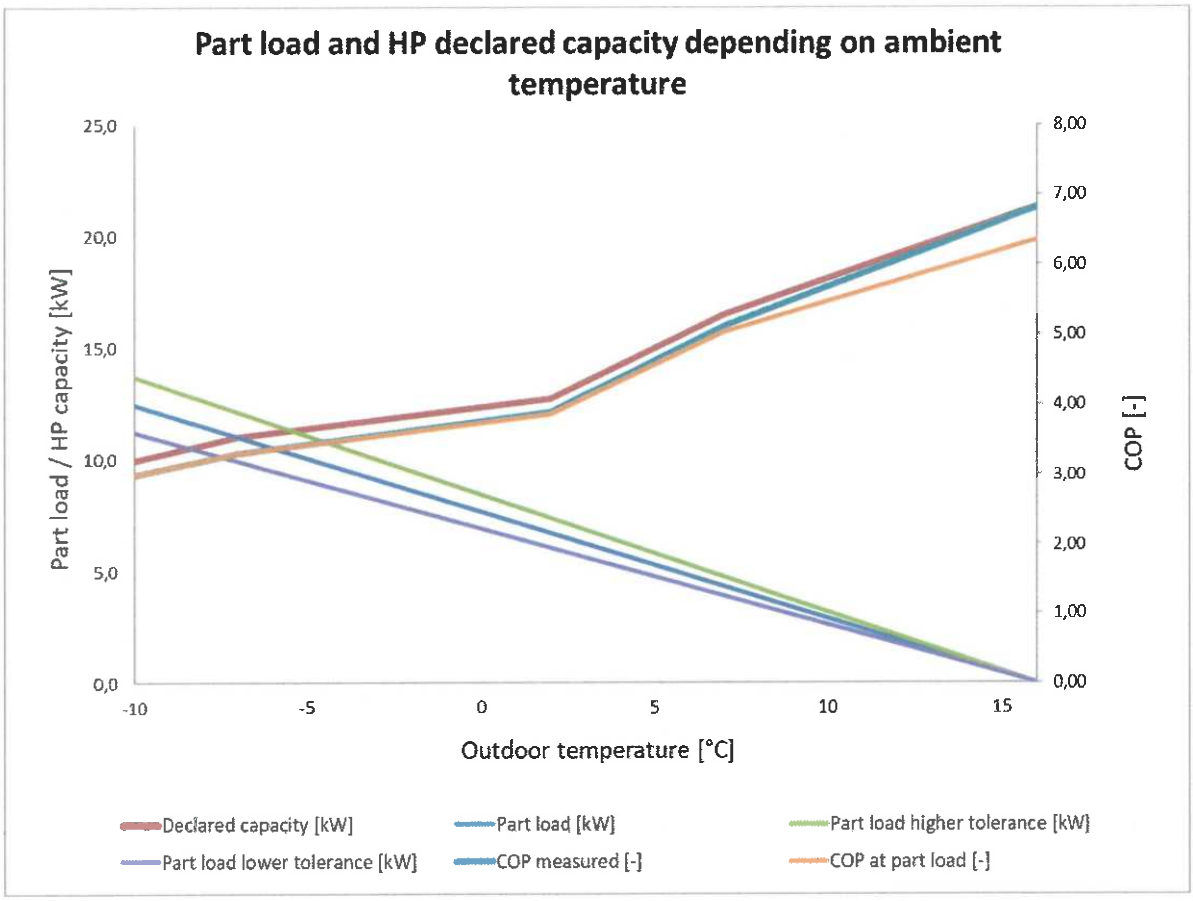
Calculation SCOP, $SCOP_{on}$, $SCOP_{net}$

- Low temperature application (reference water temperature 35 °C)
- Reference heating season „A" – average

	Bin	Outdoor temp. (dry bulb)	Hours	Part load ratio	Heat load	Capacity of HP	Heat load covered by heat pump	Resistive heat elbu (Tj)	Annual resistive heat	COPbin (Tj)	Annual heating demand	Annual power input including electric back up heating	Net annual heating capacity	Net annual power input without electric back up heating
	j	Tj	hj		Ph(Tj)			elbu(Tj)	hj x elbu(Tj)	COPbin (Tj)	hj x Ph(Tj)		hj x (P h(Tj) - elbu(Tj))	
	[–]	[°C]	[h]	[%]	[kW]	[kW]	[kW]	[kW]	[kWh]	[–]	[kWh]	[kWh]	[kWh]	[kWh]
TOL (E)	**21**	**-10**	**1**	**100.00**	**12.45**	**9.96**	**9.96**	**2.50**	**2.50**	**2.98**	**12**	**6**	**10**	**3**
	22	-9	25	96.15	11.98	10.31	10.31	1.67	41.63	3.08	299	125	258	84
	23	-8	23	92.31	11.50	10.66	10.66	0.83	19.15	3.18	264	96	245	77
A, Tbiv (F)	**24**	**-7**	**24**	**88.46**	**11.02**	**11.02**	**11.02**	**0.00**	**0.00**	**3.28**	**264**	**81**	**264**	**81**
	25	-6	27	84.62	10.54	11.21	10.54	0.00	0.00	3.35	285	85	285	85
	26	-5	68	80.77	10.06	11.40	10.06	0.00	0.00	3.41	684	201	684	201
	27	-4	91	76.92	9.58	11.59	9.58	0.00	0.00	3.47	872	251	872	251
	28	-3	89	73.08	9.10	11.78	9.10	0.00	0.00	3.54	810	229	810	229
	29	-2	165	69.23	8.62	11.97	8.62	0.00	0.00	3.60	1423	395	1423	395
	30	-1	173	65.38	8.14	12.16	8.14	0.00	0.00	3.67	1409	384	1409	384
	31	0	240	61.54	7.66	12.35	7.66	0.00	0.00	3.73	1839	493	1839	493
	32	1	280	57.69	7.19	12.55	7.19	0.00	0.00	3.79	2012	530	2012	530
B	**33**	**2**	**320**	**53.85**	**6.71**	**12.74**	**6.71**	**0.00**	**0.00**	**3.86**	**2146**	**556**	**2146**	**556**
	34	3	357	50.00	6.23	13.49	6.23	0.00	0.00	4.09	2223	543	2223	543
	35	4	356	46.15	5.75	14.25	5.75	0.00	0.00	4.33	2046	473	2046	473
	36	5	303	42.31	5.27	15.00	5.27	0.00	0.00	4.56	1597	350	1597	350
	37	6	330	38.46	4.79	15.76	4.79	0.00	0.00	4.80	1581	329	1581	329
C	**38**	**7**	**326**	**34.62**	**4.31**	**16.51**	**4.31**	**0.00**	**0.00**	**5.03**	**1405**	**279**	**1405**	**279**
	39	8	348	30.77	3.83	17.05	3.83	0.00	0.00	5.18	1334	257	1334	257
	40	9	335	26.92	3.35	17.59	3.35	0.00	0.00	5.33	1123	211	1123	211
	41	10	315	23.08	2.87	18.12	2.87	0.00	0.00	5.47	905	165	905	165
	42	11	215	19.23	2.40	18.66	2.40	0.00	0.00	5.62	515	92	515	92
D	**43**	**12**	**169**	**15.38**	**1.92**	**19.20**	**1.92**	**0.00**	**0.00**	**5.77**	**324**	**56**	**324**	**56**
	44	13	151	11.54	1.44	19.73	1.44	0.00	0.00	5.91	217	37	217	37
	45	14	105	7.69	0.96	20.27	0.96	0.00	0.00	6.06	101	17	101	17
	46	15	74	3.85	0.48	20.80	0.48	0.00	0.00	6.21	35	6	35	6
		Σ	4910							Σ	25725	6248	25662	6185

SCOPon	4.12	SCOPnet	4.15
		SCOP	**4.12**

Part load performance diagram
- Low temperature application (reference water temperature 35 °C)
- Reference heating season „A" – average



Test objective:	Seasonal performance tests and SCOP calculation – Medium temperature application
Exact name of the test procedure:	**1.37* - Tests of leakage, pressure resistance, thermal and technical parameters, combustion efficiency, safety functions**
Test method:	ČSN EN 14511-3:2023, ČSN EN 14825:2023
Sample tested:	Heat pump **AirKompakt P1522**
Measuring equipment used:	see Chapter III

Design				Air / water – monobloc		
Conditions specification according to ČSN EN 14825:2023	Temperature application				**Medium** (ref. water temperature 55 °C)	
	Reference heating season				**Average**	
	Outlet water temperature - indoor heat exchanger				Variable	
	Compressor speed control				Fixed	
	Water flow rate – primary circuit				–	
	Water flow rate – secondary circuit				Variable	
Seasonal space heating energy efficiency	Heating	Average	η_s		**128.4**	%
		Warmer	η_s		–	%
		Colder	η_s		–	%
Seasonal efficiency according to ČSN EN 14825:2023	Heating	Average	**SCOP**		**3.28**	–
		Warmer	SCOP		–	–
		Colder	SCOP		–	–

Function	Cooling			Yes	
	Heating	Yes	Reference heating season	Average	Yes
				Warmer	–
				Colder	–

Full heating load	Cooling		$P_{designc}$	–	kW
	Heating	Average	$P_{designh}$	**11.96**	kW
		Warmer	$P_{designh}$	–	kW
		Colder	$P_{designh}$	–	kW

Bivalent temperatures	Heating	Average	$T_{bivalent}$	-7	°C
		Warmer	$T_{bivalent}$	–	°C
		Colder	$T_{bivalent}$	–	°C

Operation limit temperatures	Heating	Average	TOL	-10	°C
		Warmer	TOL	–	°C
		Colder	TOL	–	°C

Seasonal power consumption according to ČSN EN 14825:2023	Cooling		Q_{CE}		–	kWh
	Heating	Average	Q_{HE}		7521	kWh
		Warmer	Q_{HE}		–	kWh
		Colder	Q_{HE}		–	kWh
Modes other than „active mode“	Off mode			P_{OFF}	17.7	W
	Thermostat off mode			P_{TO}	17.7	W
	Standby mode			P_{SB}	17.7	W
	Crankcase heater mode			P_{CK}	0.0	W

Calculation of SCOP according to ČSN EN 14825:2023:

Number of hours used for calculation of reference SCOP (Annex B – Table B. 2, B. 3)

- For reversible heat pumps and reference heating season „A" = average

H_{HE}	2066	[h]
H_{TO}	178	[h]
H_{SB}	0	[h]
H_{CK}	178	[h]
H_{OFF}	0	[h]

Measured data:

P_{TO}	0.0177	[kW]
P_{SB}	0.0177	[kW]
P_{CK}	0.0000	[kW]
P_{OFF}	0.0177	[kW]
$P_{designh}$	11.96	[kW]
$SCOP_{ON}$	3.29	[–]

Coefficient and correction:

F(1)	3	[%]
F(2)	0	[%]
CC	2.5	[–]

Calculation of SCOP:

7.3 Calculation of the reference annual heating demand (Q_H)

$Q_H = P_{designh} \cdot H_{HE}$ [kWh]

$Q_H = 11.96 \cdot 2066 = 24700$ [kWh]

7.4 Calculation of the annual electricity consumption (Q_{HE})

$Q_{HE} = Q_H / SCOP_{on} + H_{TO} \cdot P_{TO} + H_{SB} \cdot P_{SB} + H_{CK} \cdot P_{CK} + H_{OFF} \cdot P_{OFF}$ [kWh]

$Q_{HE} = 24700 / 3.29 + 178 \cdot 0.0177 + 0 \cdot 0.0177 + 178 \cdot 0 + 0 \cdot 0.0177 = 7521$ [kWh]

7.2 General formula for calculation of reference SCOP

$SCOP = Q_H / Q_{HE}$ [–]

$SCOP = 24700 / 7521 = 3.28$ [–]

7.1 Calculation of the seasonal space heating efficiency η_s

$\Sigma F(i) = F(1) + F(2)$ [–]

$\Sigma F = 0.03 + 0 = 0.03$ [–]

$\eta_s = 1 / CC \cdot SCOP - \Sigma F(i)$ [–]

$\eta_s / A = (1 / 2.5) \cdot 3.28 - 0.03 =$ **1.284** [–]

Temperature level		Medium (reference water temperature 55 °C)		
Reference heating season		„A" = average ($T_{designh}$ = -10 °C)		
Assessment condition		**A, Tbiv (F)**	**B**	**C**
Specification of the assessment condition		**A-7/W52**	**A2/W45.79**	**A7/W41.96**
Date of testing		**2024-03-27**	**2024-03-28**	**2024-04-02**
Transient test procedure	YES / NO	NO	YES	NO
Average defrost time of 1 cycle	[min]	–	4.1	–
Average time of 1 cycle	[min]	–	86.0	–
Calculation time	[min]	70.0	86.0	70.0
Output heating water – temperature calculation	[°C]	51.99	45.01	41.98
Input heating water – temperature calculation	[°C]	44.01	37.91	33.99
Output heating water temperature	[°C]	51.99	45.81	41.98
Input heating water temperature	[°C]	44.01	37.84	33.99
Air temperature – dry bulb temperature	[°C]	-7.01	2.02	7.00
Air temperature – wet bulb temperature	[°C]	-8.03	0.99	6.01
Relative humidity	[%]	74.84	83.61	87.11
Barometric pressure	[kPa]	96.295	96.605	97.741
Ambient temperature	[°C]	-7.02	2.02	7.02
Secondary circuit pressure difference	[kPa]	-3.054	-14.339	-7.978
Efficiency of the secondary liquid pump	[–]	0.125	0.187	0.163
Volume flow rate of heating water	[$m^3 \cdot h^{-1}$]	1.1550	1.4933	1.7691
Density of heating water	[$kg \cdot m^{-3}$]	987.3	990.2	991.5
Specific heat capacity of heating water	[$kJ \cdot kg^{-1} \cdot K^{-1}$]	4.177	4.175	4.175
Voltage	[V]	401.62	398.74	402.34
Total current	[A]	24.00	23.05	22.66
Overall power input	[kW]	4.273	3.984	3.827
Capacity correction of sec. liquid pump	[W]	-6.870	-23.421	-20.201
Power input correction of sec. liquid pump	[W]	-7.85	-29.45	-24.12
Heating capacity – heating water	[kW]	10.569	12.208	16.244
Corrected heating capacity – heating water	**[kW]**	**10.576**	**12.231**	**16.264**
Uncertainty of corrected heating capacity	[kW]	± 0.121	± 0.154	± 0.185
Effective electric power input	**[kW]**	**4.281**	**4.013**	**3.851**
COP	**[–]**	**2.470**	**3.047**	**4.223**
Uncertainty of COP	[–]	± 0.028	± 0.039	± 0.048
Control settings	**[–]**	**–**	**–**	**–**
Circulation pump settings – heating water	[–]	–	–	–

Temperature level		Medium (reference water temperature 55 °C)	
Reference heating season		„A" = average ($T_{designh}$ = -10 °C)	
Assessment condition		**D**	**TOL (E)**
Specification of the assessment condition		**A12/W37.22**	**A-10/W55**
Date of testing		**2024-04-02**	**2024-03-28**
Transient test procedure	YES / NO	NO	NO
Average defrost time of 1 cycle	[min]	–	–
Average time of 1 cycle	[min]	–	–
Calculation time	[min]	70.0	70.0
Output heating water – temperature calculation	[°C]	37.25	55.01
Input heating water – temperature calculation	[°C]	29.24	47.01
Output heating water temperature	[°C]	37.25	55.01
Input heating water temperature	[°C]	29.24	47.01
Air temperature – dry bulb temperature	[°C]	12.00	-10.00
Air temperature – wet bulb temperature	[°C]	11.00	-11.03
Relative humidity	[%]	88.97	69.06
Barometric pressure	[kPa]	97.801	96.510
Ambient temperature	[°C]	12.02	-10.01
Secondary circuit pressure difference	[kPa]	-10.840	-4.988
Efficiency of the secondary liquid pump	[–]	0.189	0.131
Volume flow rate of heating water	[$m^3 \cdot h^{-1}$]	2.0346	1.0676
Density of heating water	[$kg \cdot m^{-3}$]	993.2	985.9
Specific heat capacity of heating water	[$kJ \cdot kg^{-1} \cdot K^{-1}$]	4.175	4.178
Voltage	[V]	402.98	401.71
Total current	[A]	21.73	24.30
Overall power input	[kW]	3.521	4.362
Capacity correction of sec. liquid pump	[W]	-26.230	-9.791
Power input correction of sec. liquid pump	[W]	-32.36	-11.27
Heating capacity – heating water	[kW]	18.756	9.775
Corrected heating capacity – heating water	**[kW]**	**18.782**	**9.785**
Uncertainty of corrected heating capacity	[kW]	± 0.214	± 0.111
Effective electric power input	**[kW]**	**3.553**	**4.373**
COP	**[–]**	**5.286**	**2.238**
Uncertainty of COP	[–]	± 0.061	± 0.026
Control settings	**[–]**	**–**	**–**
Circulation pump settings – heating water	[–]	–	–

Data for SCOP calculation

- Medium temperature application (reference water temperature 55 °C)
- Reference heating season „A" – average

	Outdoor heat exchanger Outdoor air inlet	Indoor heat exchanger Outlet water temperature	Part load ratio	Part load	DC Declared capacity	COPd at declared capacity	Cdh degradation coefficient	CR	COPbin (Tj)	Eff. power input of compressor off state
	[°C]	[°C]	[%]	[kW]	[kW]	[–]	[–]	[–]	[–]	[kW]
A	-7	52.00	88.46	10.58	10.576	2.470	0.900	1.00	2.470	–
B	2	45.79	53.85	6.44	12.231	3.047	0.996	0.53	3.035	0.0177
C	7	41.96	34.62	4.14	16.264	4.223	0.995	0.25	4.167	0.0177
D	12	37.22	15.38	1.84	18.782	5.286	0.995	0.10	5.054	0.0177
TOL (E)	-10	55.00	100.00	11.96	9.785	2.238	0.900	1.22	2.238	–
Tbiv (F)	-7	52.00	88.46	10.58	10.576	2.470	0.900	1.00	2.470	–

Adaption of water temperature – according to ČSN EN 14825:2023, Annex E

- Medium temperature application (reference water temperature 55 °C)
- Reference season „A"– average
- Condition D
- Variable water flow rate – secondary circuit

General formulas and derivation:

$t_{outlet,\,average} = t_{inlet,\,capacity\,test} + (t_{outlet,\,capacity\,test} - t_{inlet,\,capacity\,test}) \cdot CR$ [°C]

$t_{outlet,\,average} = t_{inlet,\,capacity\,test} + (\Delta t) \cdot CR$ [°C]

$t_{outlet,\,average} = t_{outlet,\,capacity\,test} - \Delta t + \Delta t \cdot CR$ [°C]

$t_{outlet,\,capacity\,test} = t_{outlet,\,average} + \Delta t - \Delta t \cdot CR$ [°C]

For variable flow:

$\Delta t = 8$

$CR \cdot \Delta t$ = Part load / Declared capacity · 8

$t_{outlet,\,capacity\,test,\,variable\,flow} = t_{outlet,\,average} + 8$ - Part load / Declared capacity · 8

Measured data:

$t_{outlet,\,average}$	30.00	[°C]
Declared capacity	18.782	[kW]
Declared capacity $_{standard\,rating\,condition\,A7/W55}$	-	[kW]
Part load	1.84	[kW]

Calculation of water temperature

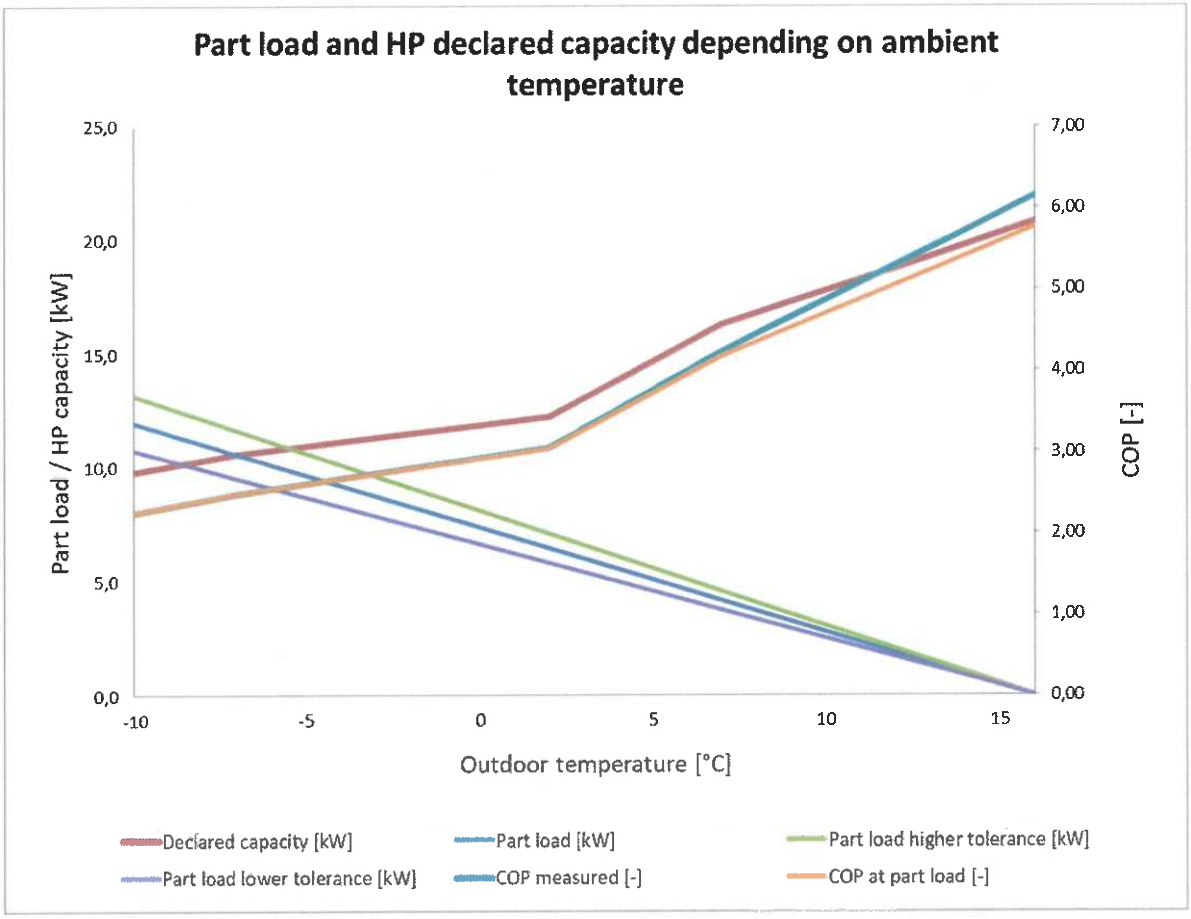
$t_{outlet,\,capacity\,test,\,variable\,flow} = 30 + 8 - 1.84 / 18.782 \cdot 8 =$ **37.22** [°C]

Calculation SCOP, $SCOP_{on}$, $SCOP_{net}$
- Medium temperature application (reference water temperature 55 °C)
- Reference heating season „A" – average

	Bin	Outdoor temp. (dry bulb)	Hours	Part load ratio	Heat load	Capacity of HP	Heat load covered by heat pump	Resistive heat elbu (Tj)	Annual resistive heat	COPbin (Tj)	Annual heating demand	Annual power input including electric back up heating	Net annual heating capacity	Net annual power input without electric back up heating
	j	Tj	hj		Ph(Tj)			elbu(Tj)	hj x elbu(Tj)	COPbin (Tj)	hj x Ph(Tj)		hj x (Ph(Tj) - elbu(Tj))	
	[–]	[°C]	[h]	[%]	[kW]	[kW]	[kW]	[kW]	[kWh]	[–]	[kWh]	[kWh]	[kWh]	[kWh]
TOL (E)	**21**	**-10**	**1**	**1**	**100.00**	**11.96**	**9.79**	**9.79**	**2.17**	**2.17**	**2.24**	**12**	**7**	**10**
	22	-9	25	25	96.15	11.50	10.05	10.05	1.45	36.17	2.32	287	145	251
	23	-8	23	23	92.31	11.04	10.31	10.31	0.72	16.64	2.39	254	116	237
A, Tbiv (F)	**24**	**-7**	**24**	**24**	**88.46**	**10.58**	**10.58**	**10.58**	**0.00**	**0.00**	**2.47**	**254**	**103**	**254**
	25	-6	27	27	84.62	10.12	10.76	10.12	0.00	0.00	2.53	273	108	273
	26	-5	68	68	80.77	9.66	10.94	9.66	0.00	0.00	2.60	657	253	657
	27	-4	91	91	76.92	9.20	11.13	9.20	0.00	0.00	2.66	837	315	837
	28	-3	89	89	73.08	8.74	11.31	8.74	0.00	0.00	2.72	778	286	778
	29	-2	165	165	69.23	8.28	11.50	8.28	0.00	0.00	2.78	1366	491	1366
	30	-1	173	173	65.38	7.82	11.68	7.82	0.00	0.00	2.85	1352	475	1352
	31	0	240	240	61.54	7.36	11.86	7.36	0.00	0.00	2.91	1766	607	1766
	32	1	280	280	57.69	6.90	12.05	6.90	0.00	0.00	2.97	1931	650	1931
B	**33**	**2**	**320**	**320**	**53.85**	**6.44**	**12.23**	**6.44**	**0.00**	**0.00**	**3.03**	**2060**	**679**	**2060**
	34	3	357	357	50.00	5.98	13.04	5.98	0.00	0.00	3.26	2134	654	2134
	35	4	356	356	46.15	5.52	13.84	5.52	0.00	0.00	3.49	1964	563	1964
	36	5	303	303	42.31	5.06	14.65	5.06	0.00	0.00	3.71	1533	413	1533
	37	6	330	330	38.46	4.60	15.46	4.60	0.00	0.00	3.94	1517	385	1517
C	**38**	**7**	**326**	**326**	**34.62**	**4.14**	**16.26**	**4.14**	**0.00**	**0.00**	**4.17**	**1349**	**324**	**1349**
	39	8	348	348	30.77	3.68	16.77	3.68	0.00	0.00	4.34	1280	295	1280
	40	9	335	335	26.92	3.22	17.27	3.22	0.00	0.00	4.52	1078	238	1078
	41	10	315	315	23.08	2.76	17.77	2.76	0.00	0.00	4.70	869	185	869
	42	11	215	215	19.23	2.30	18.28	2.30	0.00	0.00	4.88	494	101	494
D	**43**	**12**	**169**	**169**	**15.38**	**1.84**	**18.78**	**1.84**	**0.00**	**0.00**	**5.05**	**311**	**62**	**311**
	44	13	151	151	11.54	1.38	19.29	1.38	0.00	0.00	5.23	208	40	208
	45	14	105	105	7.69	0.92	19.79	0.92	0.00	0.00	5.41	97	18	97
	46	15	74	74	3.85	0.46	20.29	0.46	0.00	0.00	5.59	34	6	34
		Σ	4910							Σ	24695	7516	24640	7461

SCOPon	3.29	SCOPnet	3.30
		SCOP	**3.28**

Part load performance diagram
- Medium temperature application (reference water temperature 55 °C)
- Reference heating season „A" – average

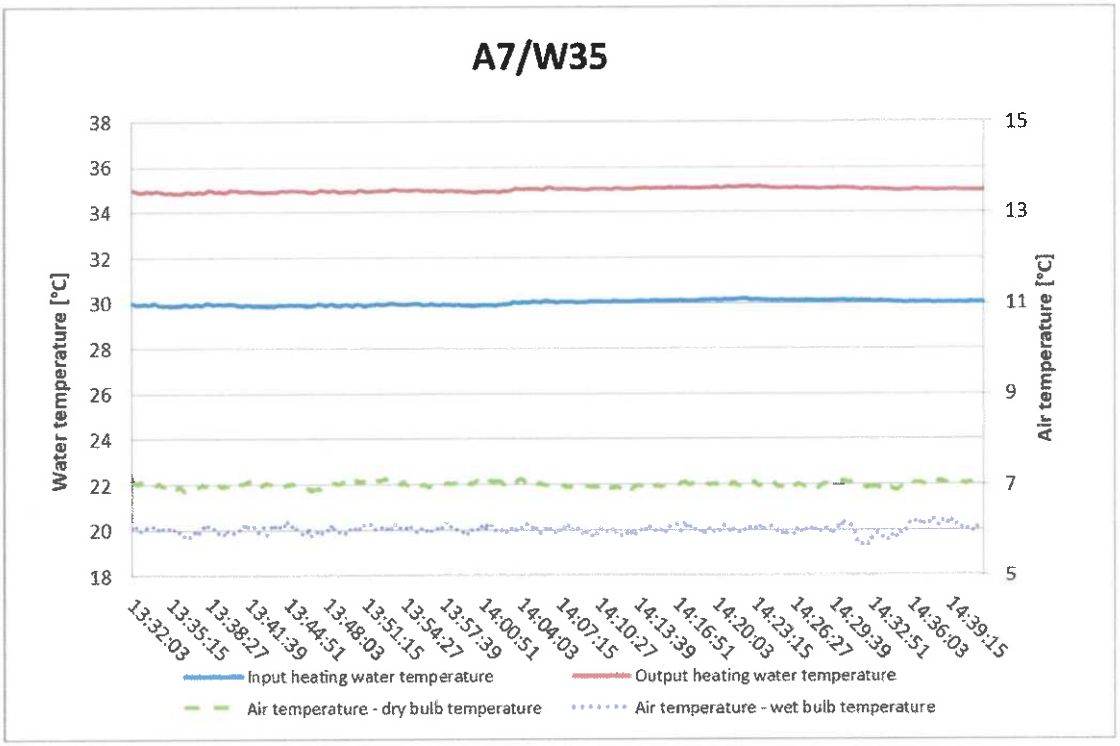


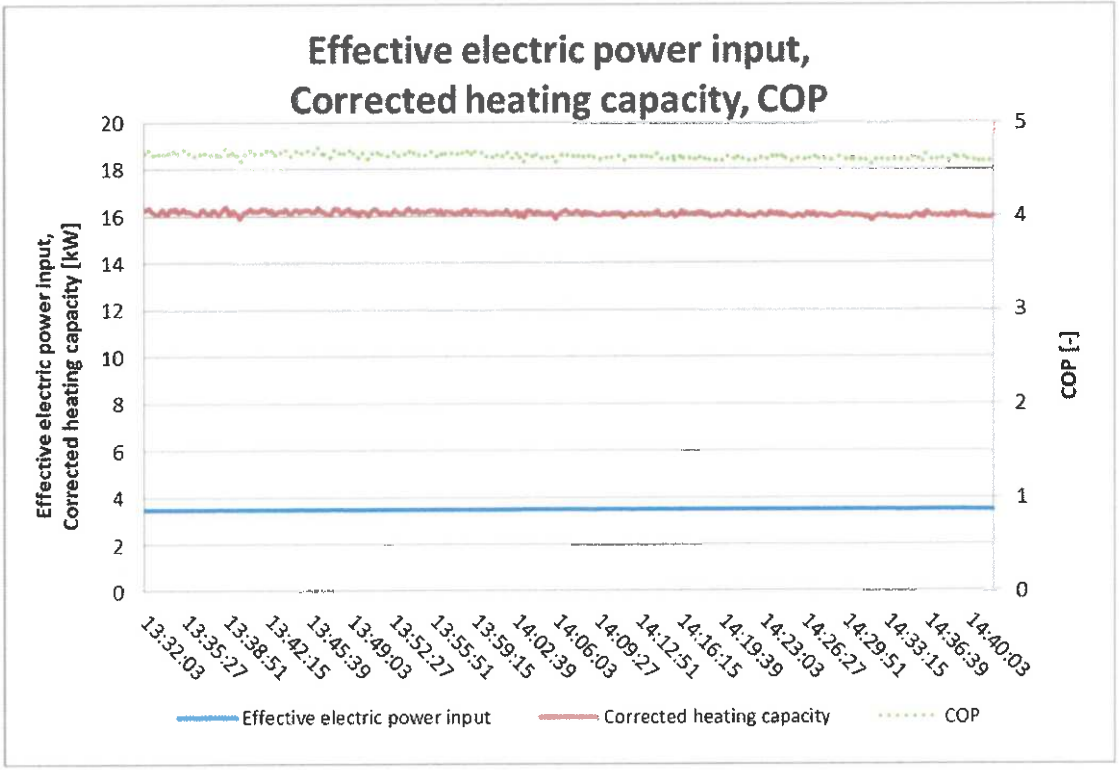
Tested by:	Ing. Tomáš Sedláček	Date:	2024-04-09	Signed:	
Reviewed and approved by:	Ing. Michal Faltýnek	Date:	2024-04-09	Signed:	

V. Graphs

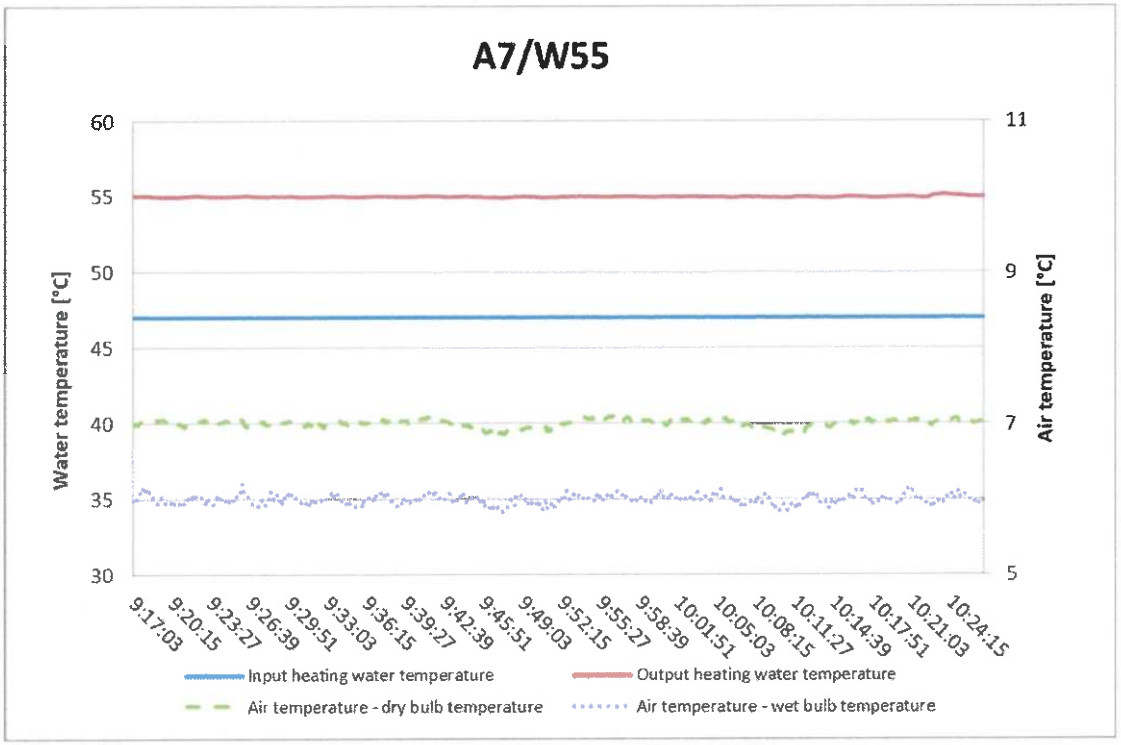
1. Rating conditions

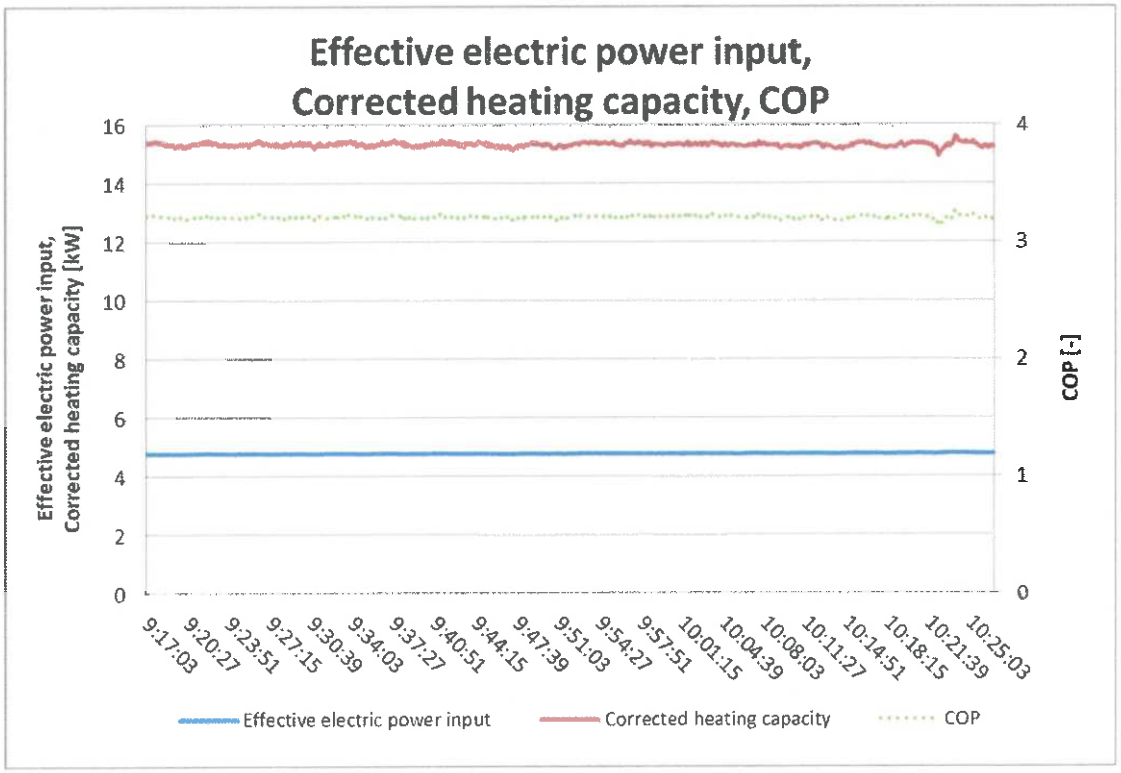
A7/W35





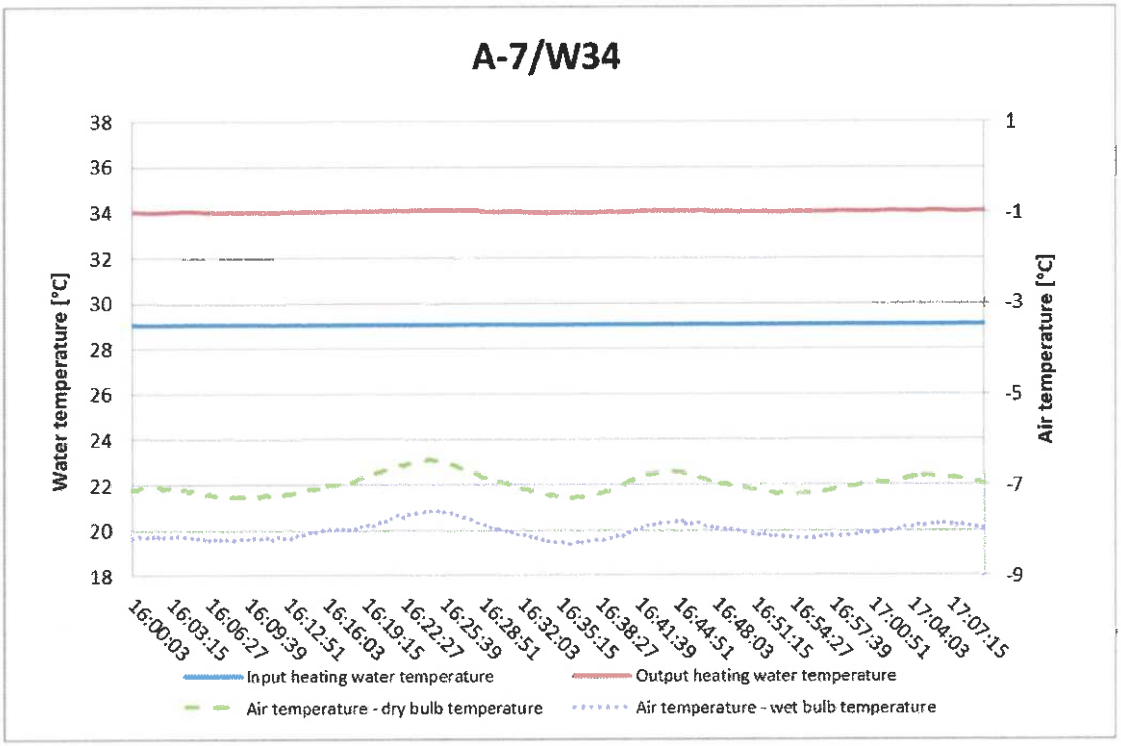
A7/W55

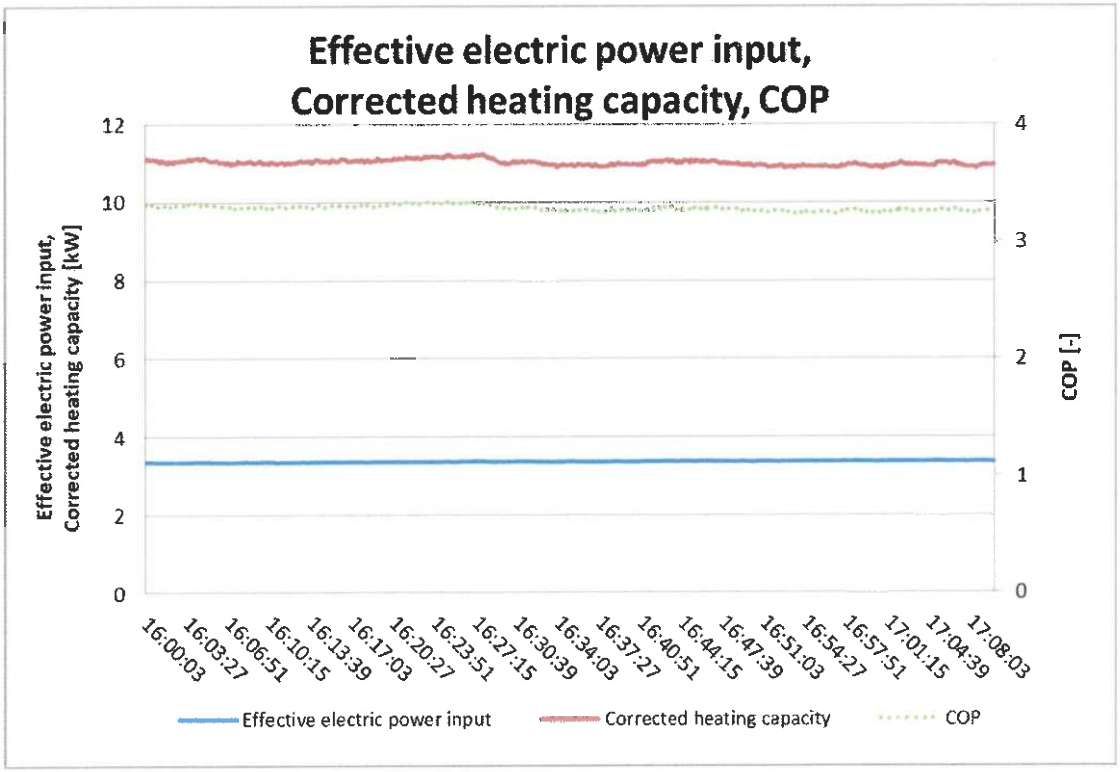

A7/W55
Water temperature [°C]
Air temperature [°C]
60
55
50
45
40
35
30
11
9
7
5
9:17:03
9:20:15
9:23:27
9:26:39
9:29:51
9:33:03
9:36:15
9:39:27
9:42:39
9:45:51
9:49:03
9:52:15
9:55:27
9:58:39
10:01:51
10:05:03
10:08:15
10:11:27
10:14:39
10:17:51
10:21:03
10:24:15
Input heating water temperature
Output heating water temperature
Air temperature - dry bulb temperature
Air temperature - wet bulb temperature


Effective electric power input,
Corrected heating capacity, COP
Effective electric power input, Corrected heating capacity [kW]
COP [-]
16
14
12
10
8
6
4
2
0
4
3
2
1
0
9:17:03
9:20:27
9:23:51
9:27:15
9:30:39
9:34:03
9:37:27
9:40:51
9:44:15
9:47:39
9:51:03
9:54:27
9:57:51
10:01:15
10:04:39
10:08:03
10:11:27
10:14:51
10:18:15
10:21:39
10:25:03
Effective electric power input
Corrected heating capacity
COP

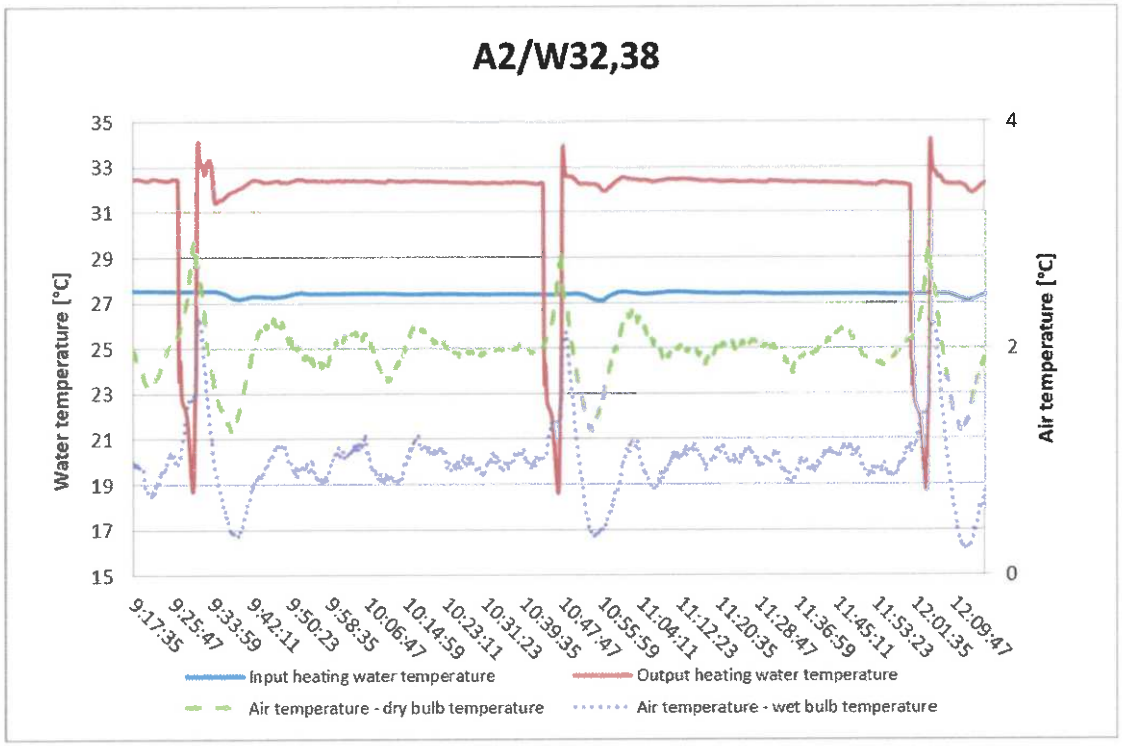
2. Seasonal performance tests and SCOP calculation – Low temperature application

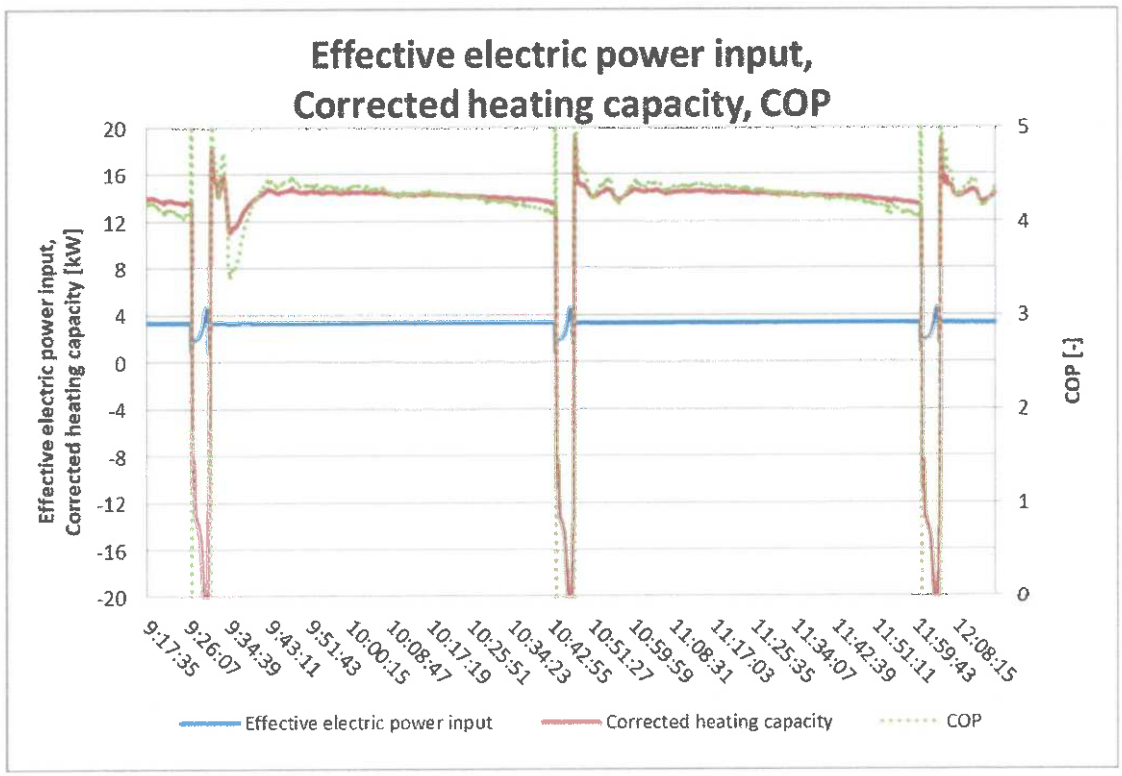
A-7/W34



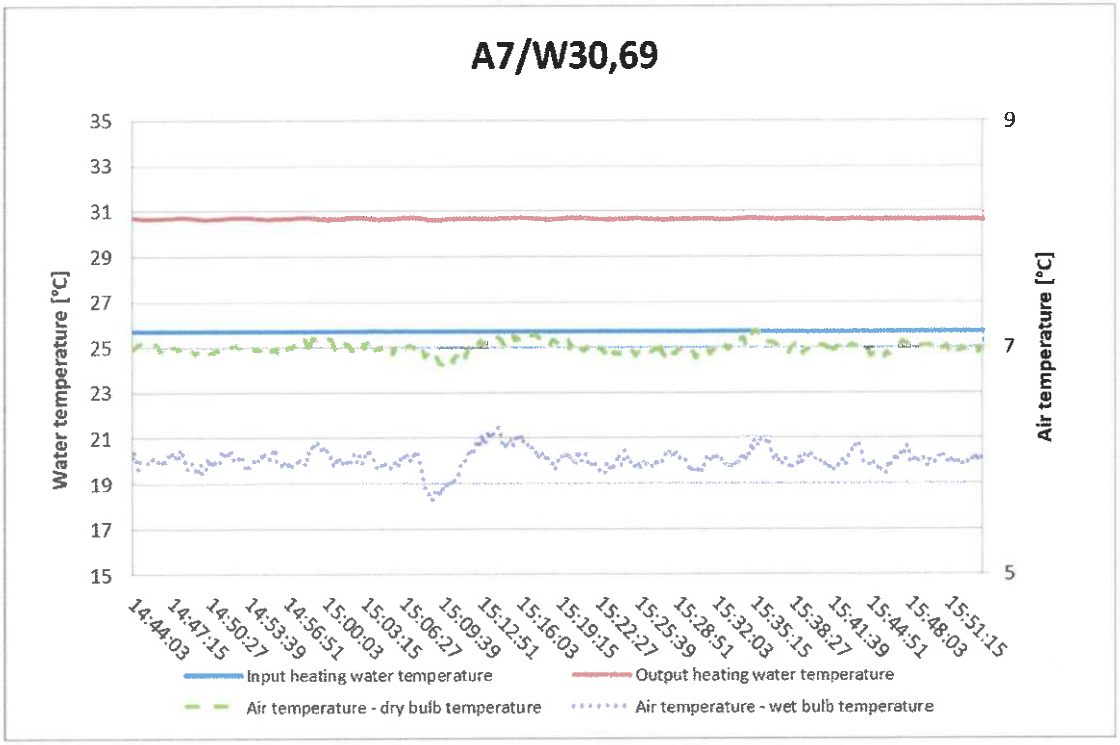


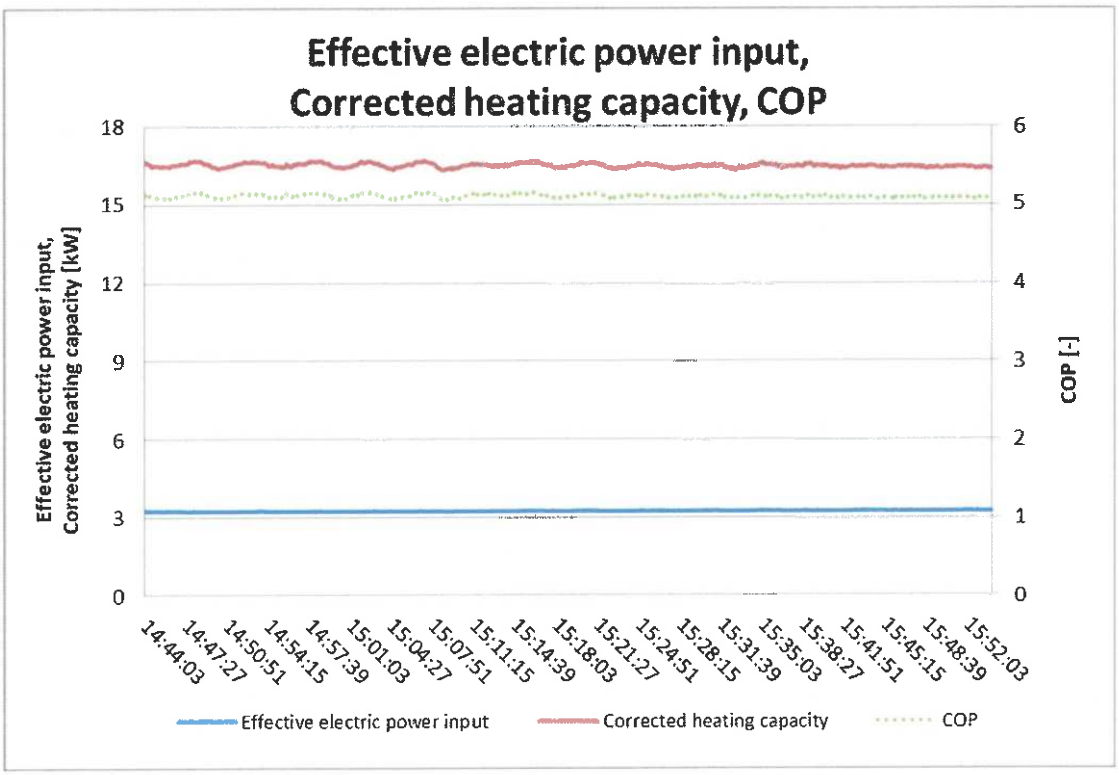
A2/W32.28


A2/W32,38
Water temperature [°C]
Air temperature [°C]
35
33
31
29
27
25
23
21
19
17
15
4
2
0
9:17:35
9:25:47
9:33:59
9:42:11
9:50:23
9:58:35
10:06:47
10:14:59
10:23:11
10:31:23
10:39:35
10:47:47
10:55:59
11:04:11
11:12:23
11:20:35
11:28:47
11:36:59
11:45:11
11:53:23
12:01:35
12:09:47
Input heating water temperature
Output heating water temperature
Air temperature - dry bulb temperature
Air temperature - wet bulb temperature

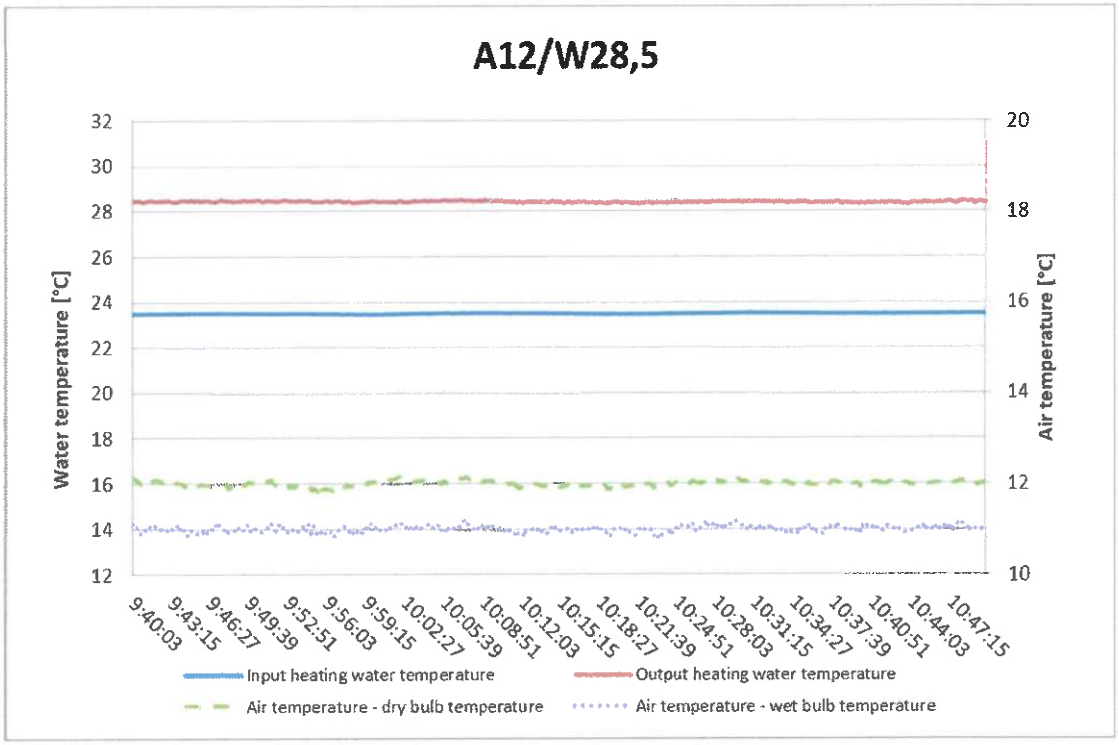

Effective electric power input,
Corrected heating capacity, COP
Effective electric power input, Corrected heating capacity [kW]
COP [-]
20
16
12
8
4
0
-4
-8
-12
-16
-20
5
4
3
2
1
0
9:17:35
9:26:07
9:34:39
9:43:11
9:51:43
10:00:15
10:08:47
10:17:19
10:25:51
10:34:23
10:42:55
10:51:27
10:59:59
11:08:31
11:17:03
11:25:35
11:34:07
11:42:39
11:51:11
11:59:43
12:08:15
Effective electric power input
Corrected heating capacity
COP

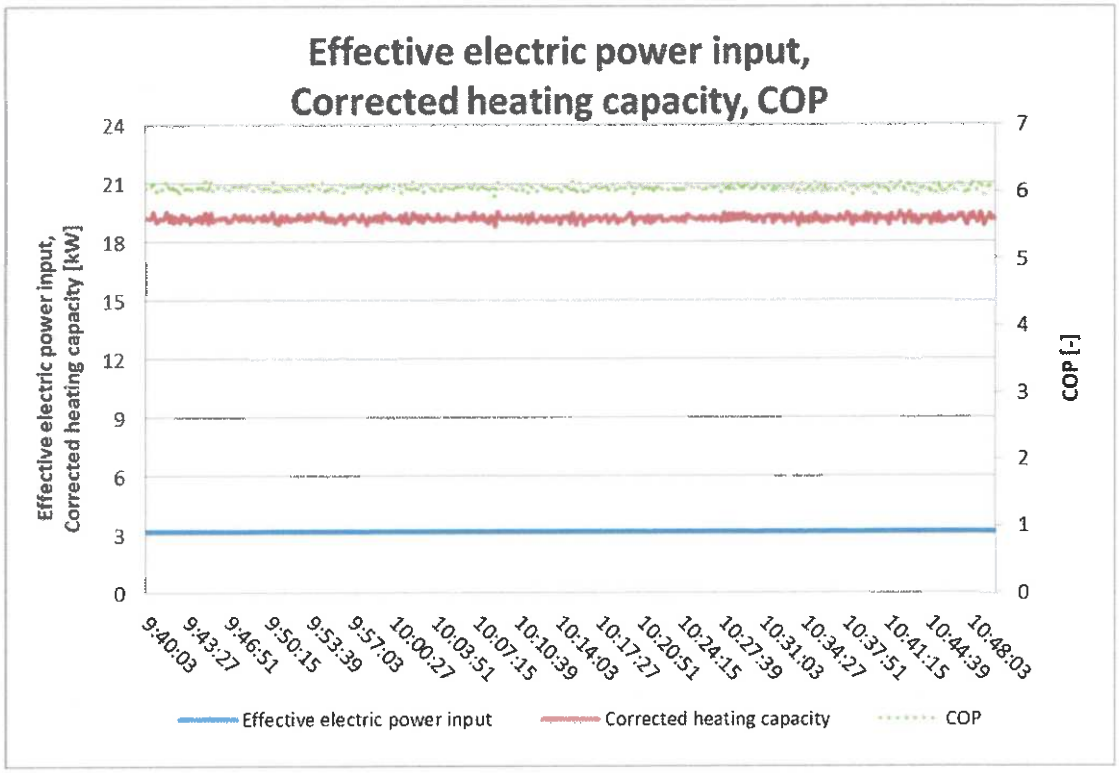
A7/W30.69


A7/W30,69
Water temperature [°C]
Air temperature [°C]
35
33
31
29
27
25
23
21
19
17
15
9
7
5
14:44:03
14:47:15
14:50:27
14:53:39
14:56:51
15:00:03
15:03:15
15:06:27
15:09:39
15:12:51
15:16:03
15:19:15
15:22:27
15:25:39
15:28:51
15:32:03
15:35:15
15:38:27
15:41:39
15:44:51
15:48:03
15:51:15
Input heating water temperature
Output heating water temperature
Air temperature - dry bulb temperature
Air temperature - wet bulb temperature

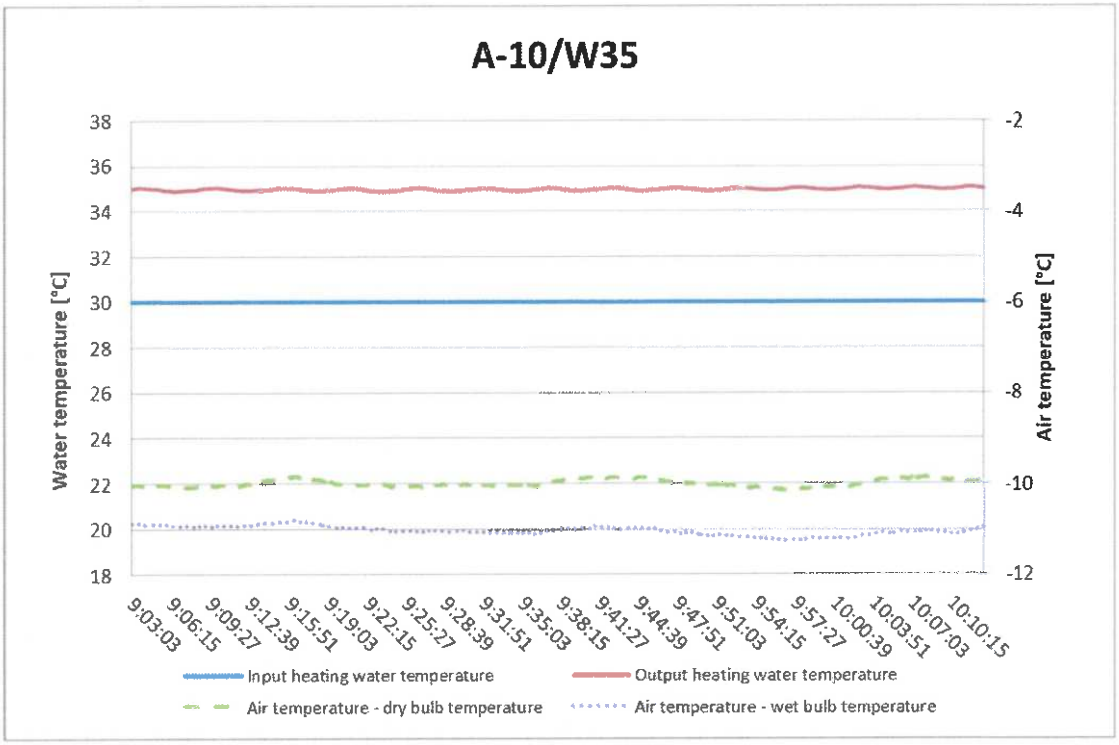

Effective electric power input,
Corrected heating capacity, COP
Effective electric power input, Corrected heating capacity [kW]
COP [-]
18
15
12
9
6
3
0
6
5
4
3
2
1
0
14:44:03
14:47:27
14:50:51
14:54:15
14:57:39
15:01:03
15:04:27
15:07:51
15:11:15
15:14:39
15:18:03
15:21:27
15:24:51
15:28:15
15:31:39
15:35:03
15:38:27
15:41:51
15:45:15
15:48:39
15:52:03
Effective electric power input
Corrected heating capacity
COP

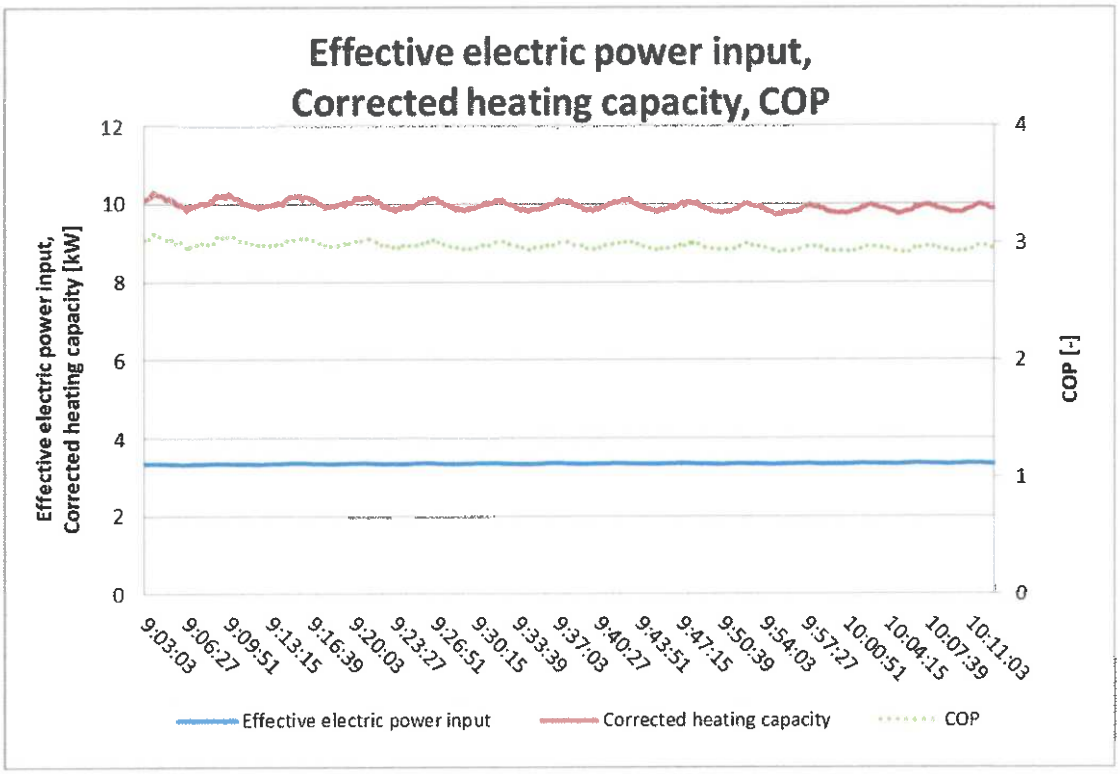
A12/W28.5


A12/W28,5
Water temperature [°C]
Air temperature [°C]
32
30
28
26
24
22
20
18
16
14
12
20
18
16
14
12
10
9:40:03
9:43:15
9:46:27
9:49:39
9:52:51
9:56:03
9:59:15
10:02:27
10:05:39
10:08:51
10:12:03
10:15:15
10:18:27
10:21:39
10:24:51
10:28:03
10:31:15
10:34:27
10:37:39
10:40:51
10:44:03
10:47:15
Input heating water temperature
Output heating water temperature
Air temperature - dry bulb temperature
Air temperature - wet bulb temperature


Effective electric power input,
Corrected heating capacity, COP
Effective electric power input, Corrected heating capacity [kW]
COP [-]
24
21
18
15
12
9
6
3
0
7
6
5
4
3
2
1
0
9:40:03
9:43:27
9:46:51
9:50:15
9:53:39
9:57:03
10:00:27
10:03:51
10:07:15
10:10:39
10:14:03
10:17:27
10:20:51
10:24:15
10:27:39
10:31:03
10:34:27
10:37:51
10:41:15
10:44:39
10:48:03
Effective electric power input
Corrected heating capacity
COP

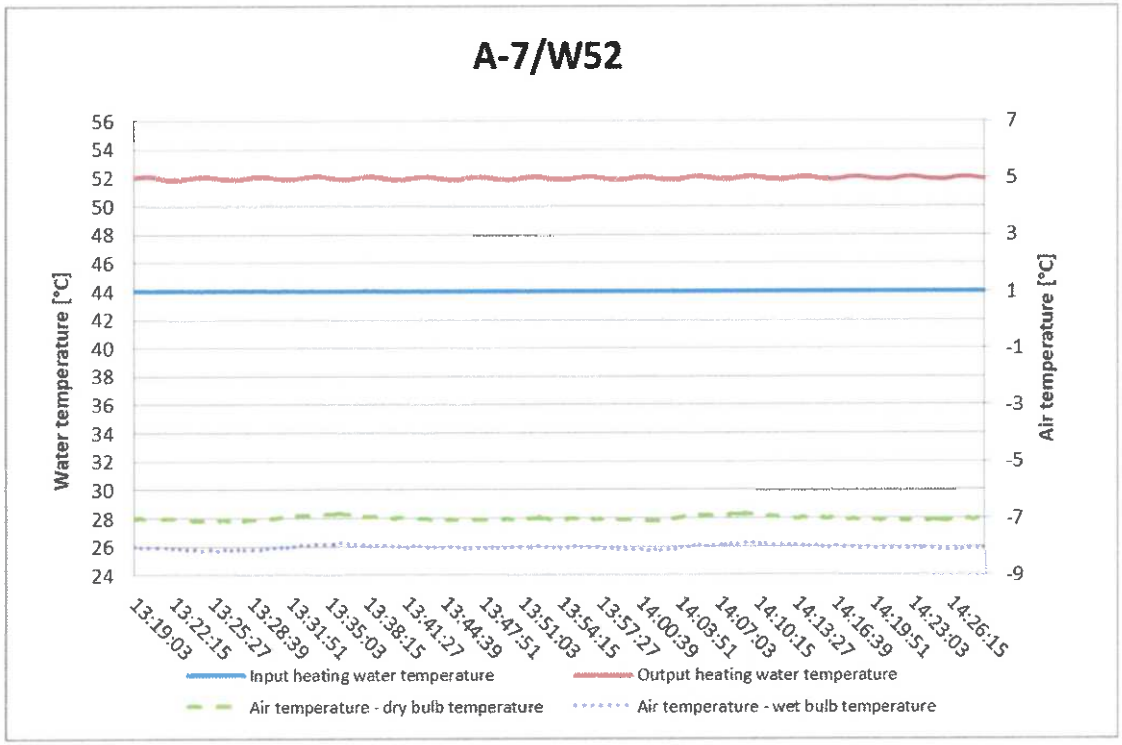
A-10/W35

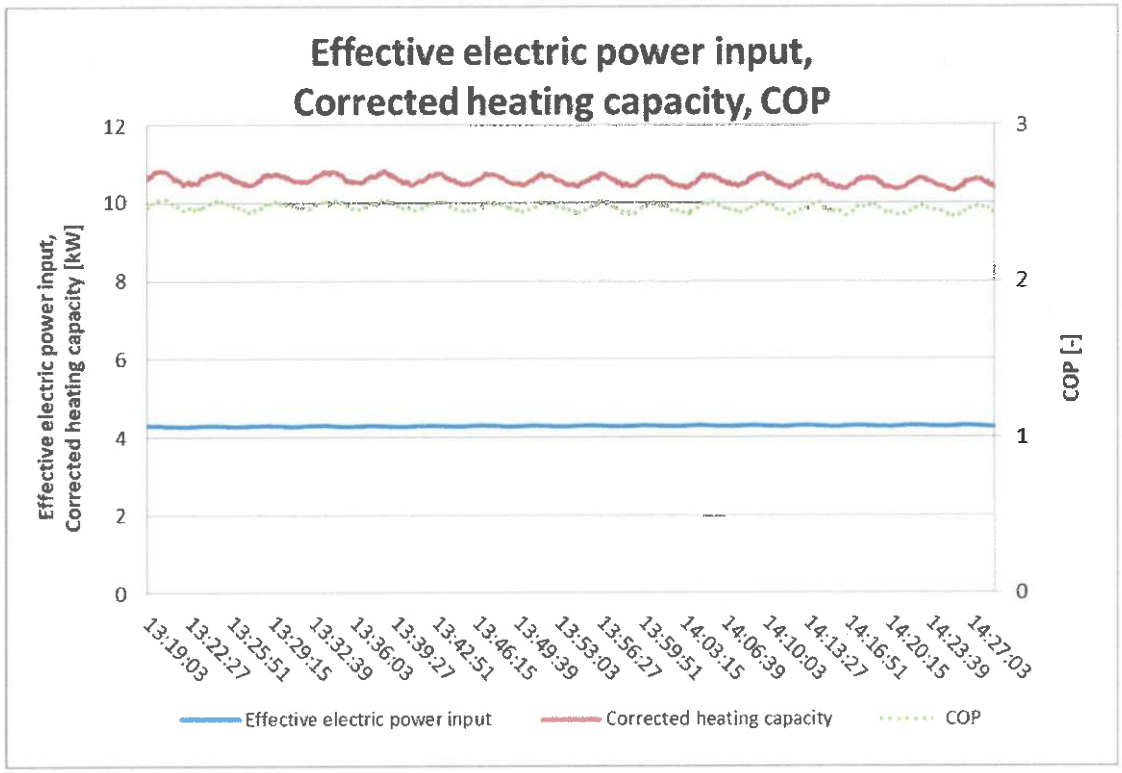

A-10/W35
Water temperature [°C]
Air temperature [°C]
38
36
34
32
30
28
26
24
22
20
18
-2
-4
-6
-8
-10
-12
9:03:03
9:06:15
9:09:27
9:12:39
9:15:51
9:19:03
9:22:15
9:25:27
9:28:39
9:31:51
9:35:03
9:38:15
9:41:27
9:44:39
9:47:51
9:51:03
9:54:15
9:57:27
10:00:39
10:03:51
10:07:03
10:10:15
Input heating water temperature
Output heating water temperature
Air temperature - dry bulb temperature
Air temperature - wet bulb temperature


Effective electric power input,
Corrected heating capacity, COP
Effective electric power input, Corrected heating capacity [kW]
COP [-]
12
10
8
6
4
2
0
4
3
2
1
0
9:03:03
9:06:27
9:09:51
9:13:15
9:16:39
9:20:03
9:23:27
9:26:51
9:30:15
9:33:39
9:37:03
9:40:27
9:43:51
9:47:15
9:50:39
9:54:03
9:57:27
10:00:51
10:04:15
10:07:39
10:11:03
Effective electric power input
Corrected heating capacity
COP

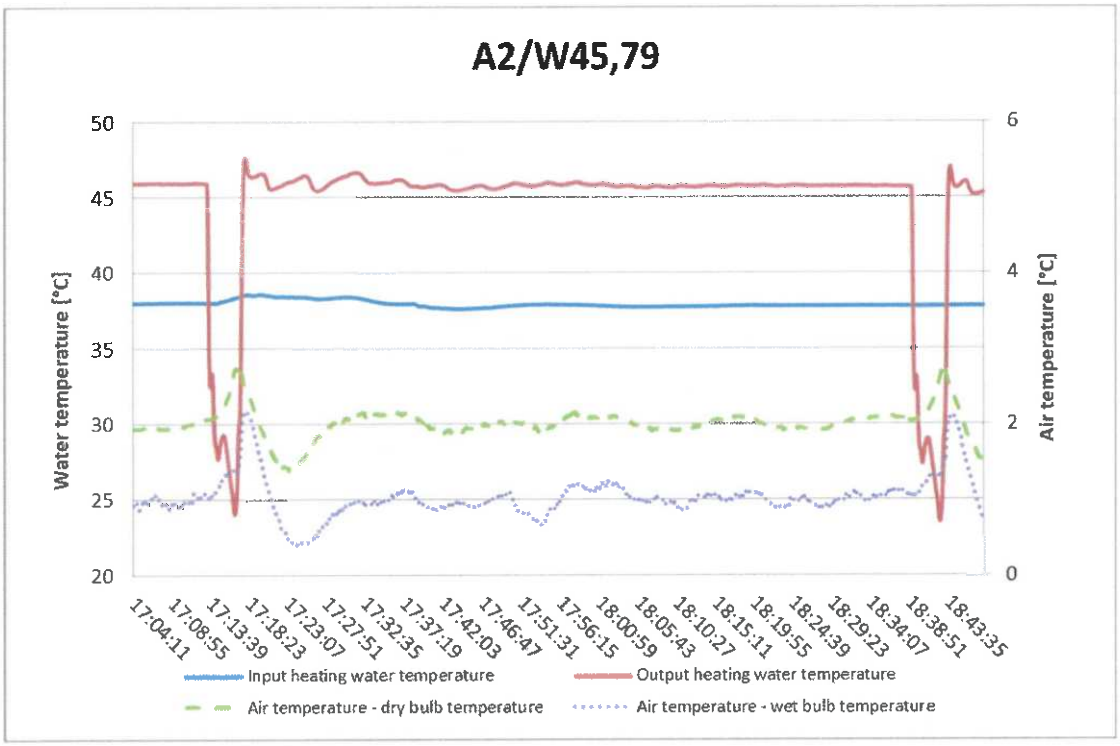
3. Seasonal performance tests and SCOP calculation – Medium temperature application

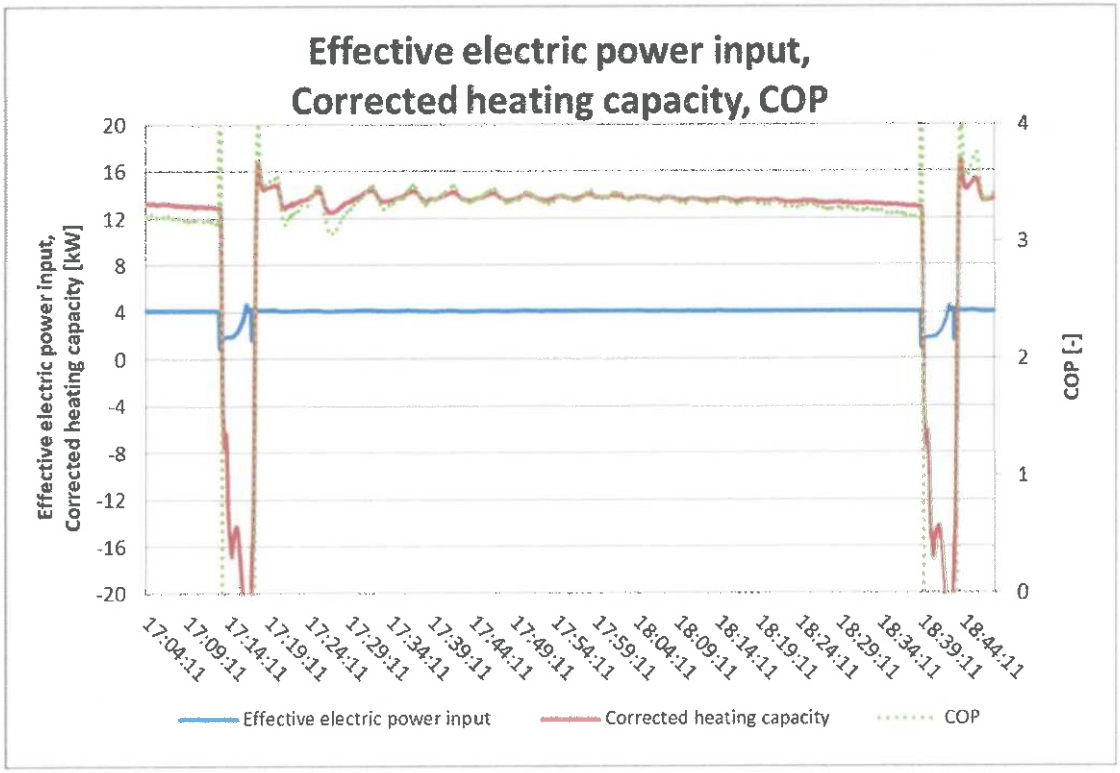
A-7/W52



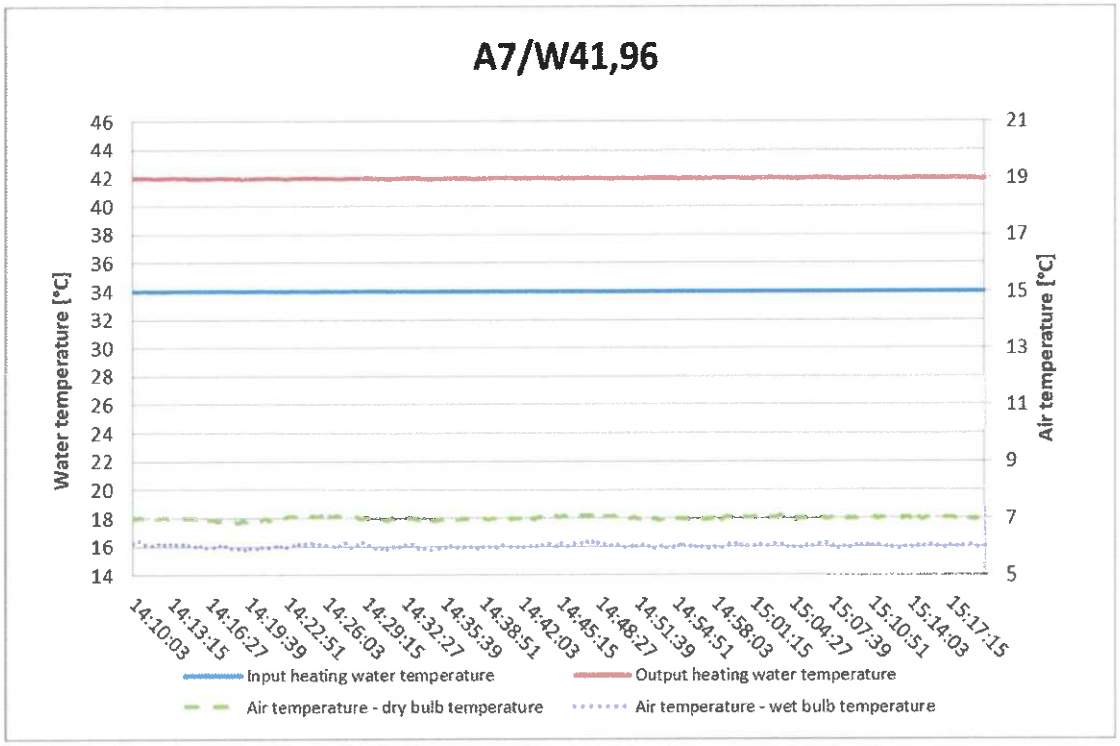


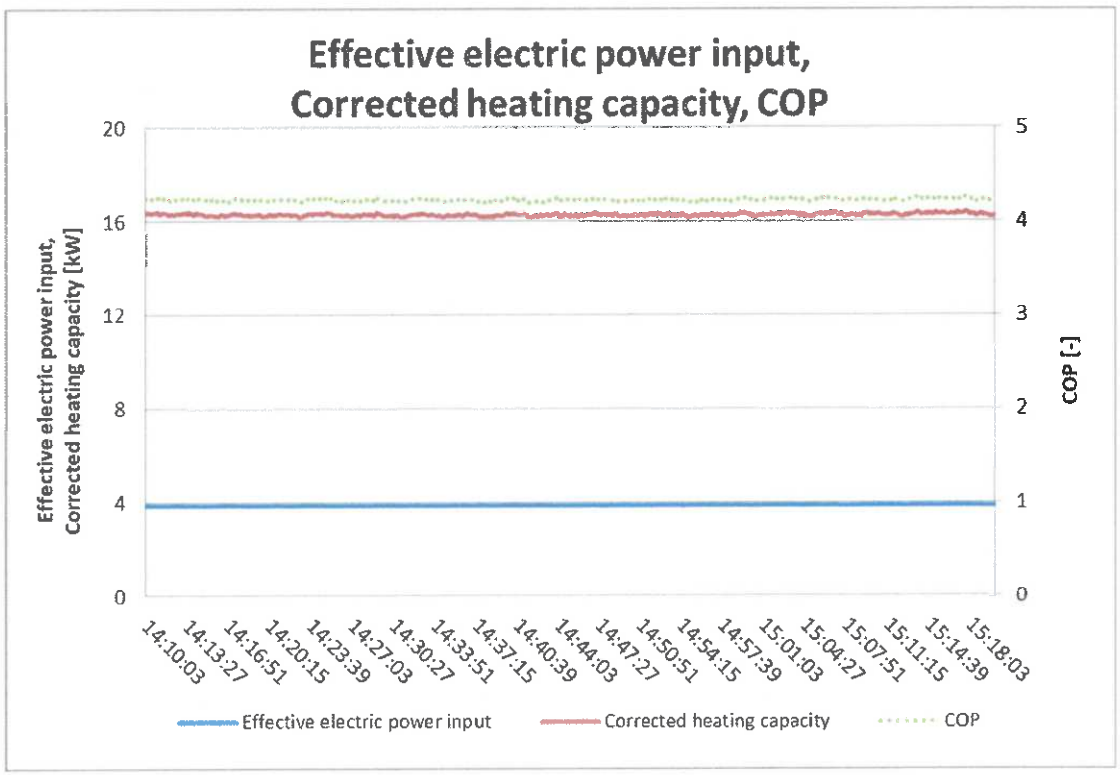
A2/W45.79


A2/W45,79
Water temperature [°C]
Air temperature [°C]
50
45
40
35
30
25
20
6
4
2
0
17:04:11
17:08:55
17:13:39
17:18:23
17:23:07
17:27:51
17:32:35
17:37:19
17:42:03
17:46:47
17:51:31
17:56:15
18:00:59
18:05:43
18:10:27
18:15:11
18:19:55
18:24:39
18:29:23
18:34:07
18:38:51
18:43:35
Input heating water temperature
Output heating water temperature
Air temperature - dry bulb temperature
Air temperature - wet bulb temperature

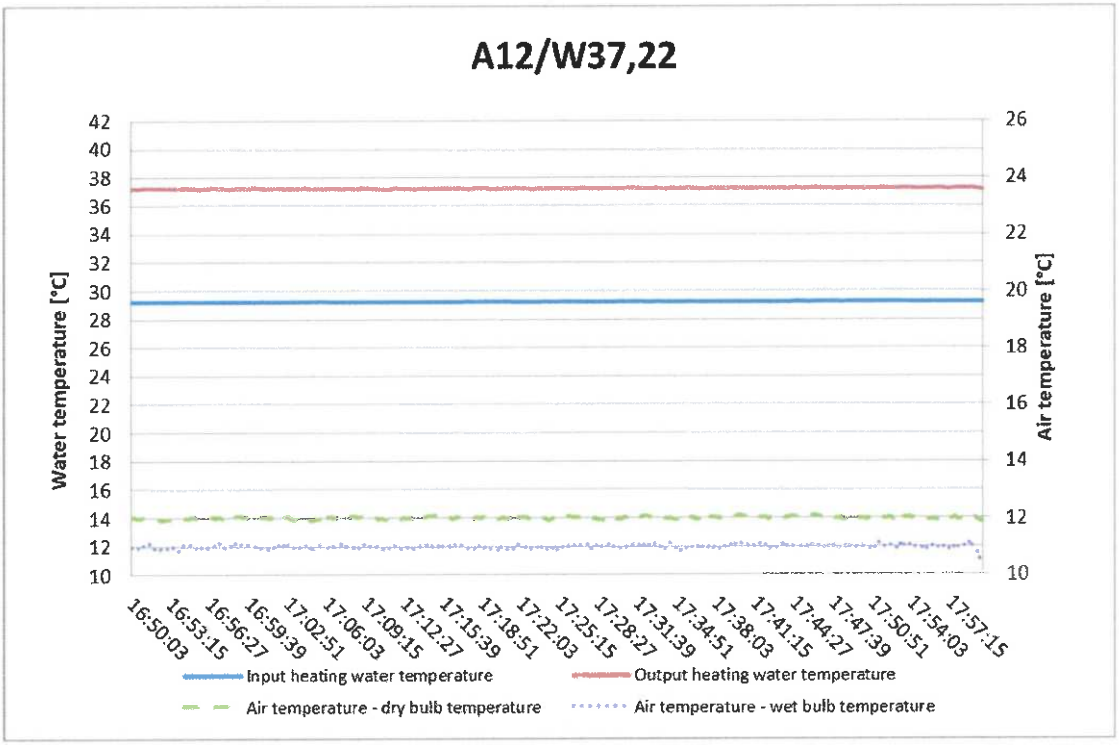

Effective electric power input,
Corrected heating capacity, COP
Effective electric power input, Corrected heating capacity [kW]
COP [-]
20
16
12
8
4
0
-4
-8
-12
-16
-20
4
3
2
1
0
17:04:11
17:09:11
17:14:11
17:19:11
17:24:11
17:29:11
17:34:11
17:39:11
17:44:11
17:49:11
17:54:11
17:59:11
18:04:11
18:09:11
18:14:11
18:19:11
18:24:11
18:29:11
18:34:11
18:39:11
18:44:11
Effective electric power input
Corrected heating capacity
COP

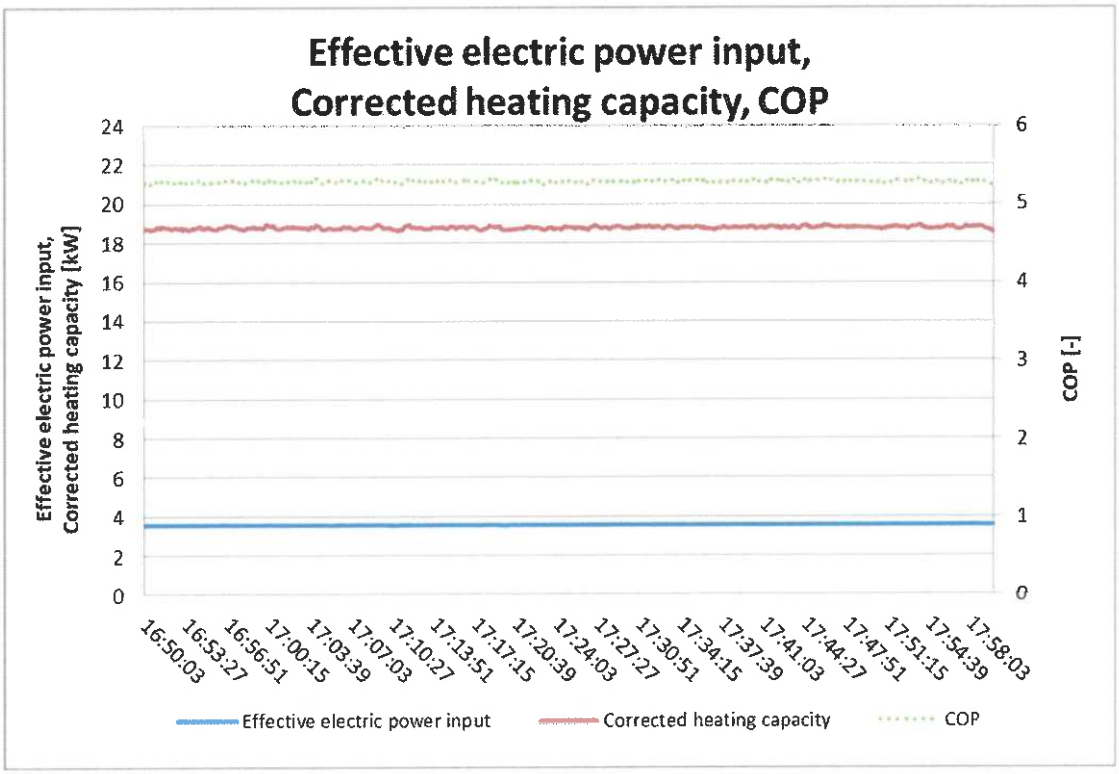
A7/W41.96


A7/W41,96
Water temperature [°C]
Air temperature [°C]
46
44
42
40
38
36
34
32
30
28
26
24
22
20
18
16
14
21
19
17
15
13
11
9
7
5
14:10:03
14:13:15
14:16:27
14:19:39
14:22:51
14:26:03
14:29:15
14:32:27
14:35:39
14:38:51
14:42:03
14:45:15
14:48:27
14:51:39
14:54:51
14:58:03
15:01:15
15:04:27
15:07:39
15:10:51
15:14:03
15:17:15
Input heating water temperature
Output heating water temperature
Air temperature - dry bulb temperature
Air temperature - wet bulb temperature

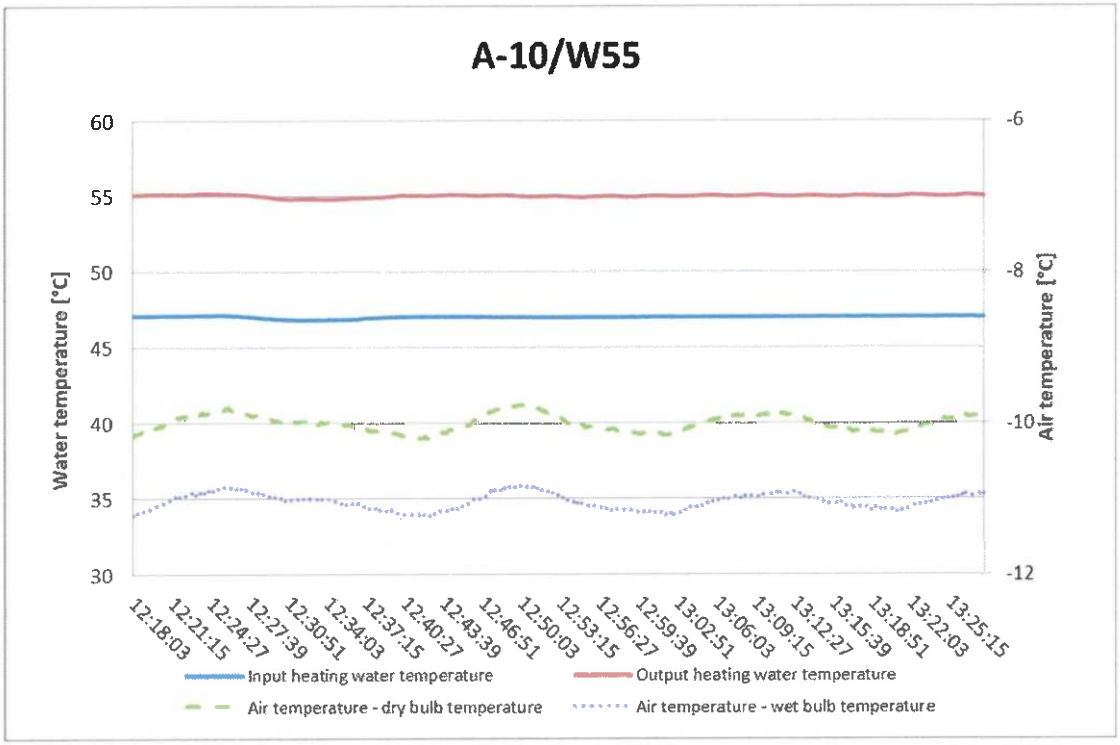

Effective electric power input,
Corrected heating capacity, COP
Effective electric power input, Corrected heating capacity [kW]
COP [-]
20
16
12
8
4
0
5
4
3
2
1
0
14:10:03
14:13:27
14:16:51
14:20:15
14:23:39
14:27:03
14:30:27
14:33:51
14:37:15
14:40:39
14:44:03
14:47:27
14:50:51
14:54:15
14:57:39
15:01:03
15:04:27
15:07:51
15:11:15
15:14:39
15:18:03
Effective electric power input
Corrected heating capacity
COP

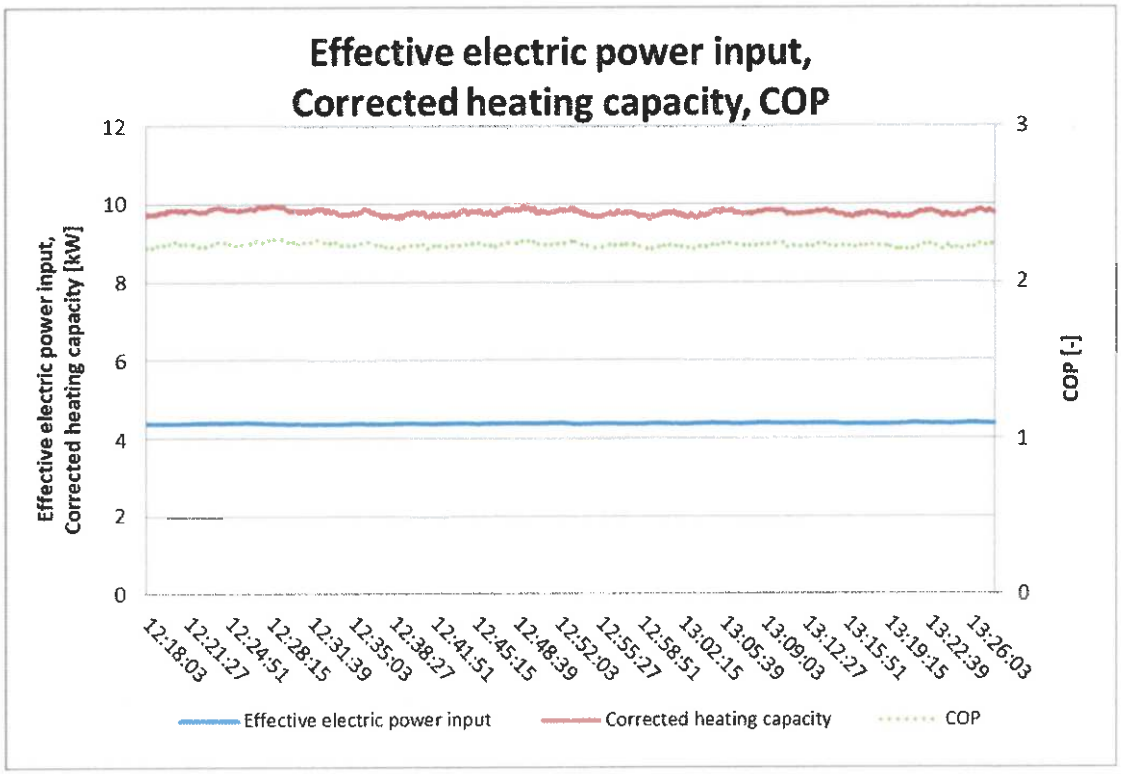
A12/W37.22


A12/W37,22
Water temperature [°C]
Air temperature [°C]
Input heating water temperature
Output heating water temperature
Air temperature - dry bulb temperature
Air temperature - wet bulb temperature


Effective electric power input,
Corrected heating capacity, COP
Effective electric power input, Corrected heating capacity [kW]
COP [-]
Effective electric power input
Corrected heating capacity
COP

A-10/W55


A-10/W55
Water temperature [°C]
Air temperature [°C]
60
55
50
45
40
35
30
-6
-8
-10
-12
12:18:03
12:21:15
12:24:27
12:27:39
12:30:51
12:34:03
12:37:15
12:40:27
12:43:39
12:46:51
12:50:03
12:53:15
12:56:27
12:59:39
13:02:51
13:06:03
13:09:15
13:12:27
13:15:39
13:18:51
13:22:03
13:25:15
Input heating water temperature
Output heating water temperature
Air temperature - dry bulb temperature
Air temperature - wet bulb temperature


Effective electric power input,
Corrected heating capacity, COP
Effective electric power input, Corrected heating capacity [kW]
COP [-]
12
10
8
6
4
2
0
3
2
1
0
12:18:03
12:21:27
12:24:51
12:28:15
12:31:39
12:35:03
12:38:27
12:41:51
12:45:15
12:48:39
12:52:03
12:55:27
12:58:51
13:02:15
13:05:39
13:09:03
13:12:27
13:15:51
13:19:15
13:22:39
13:26:03
Effective electric power input
Corrected heating capacity
COP

VI. A list of referenced documents

- Order B-81825 of 2024-03-20 (Order reg. no. B-81825, received on 2024-03-20)
- Contract B-81825
- ČSN EN 14511-2:2023 - Air conditioners, liquid chilling packages and heat pumps for space heating and cooling and process chillers, with electrically driven compressors - Part 2: Test conditions
- ČSN EN 14511-3:2023 - Air conditioners, liquid chilling packages and heat pumps for space heating and cooling a process chillers with electrically driven compressors - Part 3: Test methods
- ČSN EN 14825:2023 - Air conditioners, liquid chilling packages and heat pumps, with electrically driven compressors, for space heating and cooling - Testing and rating at part load conditions and calculation of
- Background of the task 39-17622
- Record measurement file 39-17622

Test Report compiled by: Ing. Tomáš Sedláček

Accredited Testing Laboratory No. 1045.1 * STROJÍRENSKÝ ZKUŠEBNÍ ÚSTAV, s.p. * 1

Test Report approved by: Ing. Mario Jankola
Heating Equipment and Construction Products Manager

– End of Test Report –

Strojírenský zkušební ústav, s.p., Brno, Česká republika
Engineering Test Institute, Public Enterprise, Brno, Czech Republic

TEST CERTIFICATE

Number **O-B-00604-24**

Customer	Kołton Spółka komandytowa ul. Sosnowa 2 34-480 Jabłonka POLAND
Product	Outdoor Air/Water Heat pump - monobloc
Type designation / Trade mark	**Airkompakt p1522**
Test methods	ČSN EN 14511-3:2023, ČSN EN 12102-1:2023
Basis of certificate	Test reports: 39-17622/T *of* 2024-04-09 39-17622/H *of* 2024-04-09 Technical documents of Kołton Spółka komandytowa
Temperature application	**LOW TEMPERATURE,** (Reference water temperature 35 °C) **MEDIUM TEMPERATURE** (Reference water temperature 55 °C)

Results:

Temperature conditions*	**A7/W35**	**A7/W55**
Corrected heating capacity [kW]	16.117	15.332
Effective electric power input [kW]	3.473	4.775
Coefficient of performance [–]	4.640	3.211

(*) Comment to abbreviated marking: e.g. A7/W35

A (air), 7 (input air – dry bulb temperature in °C) / W (water), 35 (output heating (cooling) water temperature in °C).

STROJÍRENSKÝ ZKUŠEBNÍ ÚSTAV, s.p. CZ 1

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Sound power level at temperature condition A7/W55*:

Outdoor Air/Water Heat pump - monobloc		**Airkompakt p1522**	
Sound power level	L_{WA}	63.1 ± 1.5	dB(A)
Accuracy class		Engineering (grade 2)	

(*) Comment to abbreviated marking: e.g. A7/W55

A (air), 7 (input air – dry bulb temperature in °C) / W (water), 55 (output heating (cooling) water temperature in °C).

Specification of conditions:

Compressor speed control	**Fixed**	Heating water volume flow rate (indoor heat exchanger)	**Variable**
Outlet water temperature (indoor heat exchanger)	**Variable**	Source liquid volume flow rate (outdoor heat exchanger)	–
Function	**Reversible**		

Engineering Test Institute, Public Enterprise, confirms by this Test Certificate that the testing of the product in question was performed with the results as stated above. Engineering Test Institute, Public Enterprise, is an accredited Testing Laboratory 1045.1.

Brno, 2024-04-10

Ing. Mario Jankola
Heating Equipment and Construction Products Manager

– END OF TEST CERTIFICATE –

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Strojírenský zkušební ústav, s.p., Brno, Česká republika
Engineering Test Institute, Public Enterprise, Brno, Czech Republic

TEST CERTIFICATE

Number **O-B-00605-24**

Customer	Kołton Spółka komandytowa ul. Sosnowa 2 34-480 Jabłonka POLAND
Product	Outdoor Air/Water Heat pump - monobloc
Type designation / Trademark	**Airkompakt p1522**
Test methods	ČSN EN 14511-3:2023, ČSN EN 14825:2023, ČSN EN 12102-1:2023
Basis of certificate	Test reports: 39-17622/T *of* 2024-04-09 39-17622/H *of* 2024-04-09 Technical documents of Kołton Spółka komandytowa
Reference heating season	**„A" = average** (Reference design temperature $T_{designh}$ = -10 °C)

Results:

LOW TEMPERATURE (Reference water temperature 35 °C)		MEDIUM TEMPERATURE (Reference water temperature 55 °C)
12.45	**$P_{designh}$ [kW]** … Full load heating	**11.96**
4.12	**SCOP [–]** … Seasonal coefficient of performance	**3.28**

Outdoor temperature T_j [°C]	Heating declared capacity P_{dh} [kW]	Coefficient of performance at the declared capacity COP_d [–]	Outdoor temperature T_j [°C]	Heating declared capacity P_{dh} [kW]	Coefficient of performance at the declared capacity COP_d [–]
T_j = -7	11.017	3.283	T_j = -7	10.576	2.470
T_j = +2	12.737	3.875	T_j = +2	12.231	3.047
T_j = +7	16.513	5.112	T_j = +7	16.264	4.223
T_j = +12	19.195	6.058	T_j = +12	18.782	5.286
T_j = TOL = -10	9.956	2.977	T_j = TOL = -10	9.785	2.238
T_j = $T_{bivalent}$ = -7	11.017	3.283	T_j = $T_{bivalent}$ = -7	10.576	2.470

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LOW TEMPERATURE (Reference water temperature 35 °C)				MEDIUM TEMPERATURE (Reference water temperature 55 °C)
Power consumption in modes other than „active mode“:				
17.7	Off mode	P_{OFF}	[W]	17.7
17.7	Thermostat off mode	P_{TO}	[W]	17.7
17.7	Standby mode	P_{SB}	[W]	17.7
0	Crankcase heater mode	P_{CK}	[W]	0
Annual electricity consumption for heating according to:				
6252	ČSN EN 14825:2023	Q_{HE}	[kWh]	**7521**
Seasonal Space heating energy efficiency				
161.6	ČSN EN 14825:2023	η_s	[%]	**128.4**
Liquid flow rate in outdoor heating exchanger:				
–	Source liquid	Min/Max	[m^3/h]	–
Liquid flow rate in indoor heating exchanger:				
1.731/3.344	Heating water	Min/Max	[m^3/h]	1.068/2.035

Sound power level at condition A7W55*:

Airkompakt p1522	L_{WA}	63.1 ± 1.5	dB(A)	Accuracy class 2 (Engineering)

(*) Comment to abbreviated marking A7W55:
„A“ air, „7“ inlet temperature (dry-bulb temperature) in °C, „W“ water, „55“ outlet temperature in °C.

Specification of conditions:

Compressor speed control	**Fixed**	Heating water volume flow rate (indoor heat exchanger)	**Variable**
Outlet water temperature (indoor heat exchanger)	**Variable**	Source liquid volume flow rate (outdoor heat exchanger)	**–**
Function	**Reversible**		

Engineering Test Institute, Public Enterprise, confirms by this Test Certificate that the testing of the product in question was performed with the results as stated above. Engineering Test Institute, Public Enterprise, is an accredited Testing Laboratory 1045.1.

Brno, 2024-04-10

Ing. Mario Jankola
Heating Equipment and Construction Products Manager

– END OF TEST CERTIFICATE –

STROJÍRENSKÝ ZKUŠEBNÍ ÚSTAV, s.p. CZ 1

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Strojírenský zkušební ústav, s.p., Brno, Česká republika
Engineering Test Institute, Public Enterprise, Brno, Czech Republic

TEST CERTIFICATE

Number **O-B-00606-24**

Customer	Kołton Spółka komandytowa ul. Sosnowa 2 34-480 Jabłonka POLAND
Product	Outdoor Air/Water Heat pump - monobloc
Type designation / Trade mark	**Airkompakt p0916** **Airkompakt p1118** **Airkompakt p1522** **Airkompakt p1926**
Test methods	ČSN EN 14511-3:2023, ČSN EN 14825:2023, ČSN EN 12102-1:2023
Basis of certificate	Test reports: 39-17622/T *of* 2024-04-09 39-17622/H *of* 2024-04-09 Technical documents of Kołton Spółka komandytowa
Temperature application	**LOW TEMPERATURE,** (Reference water temperature 35 °C) **MEDIUM TEMPERATURE** (Reference water temperature 55 °C)

Specification of conditions:

Compressor speed control	**Fixed**	Heating water volume flow rate (indoor heat exchanger)	**Variable**
Outlet water temperature (indoor heat exchanger)	**Variable**	Source liquid volume flow rate (outdoor heat exch.)	–
Function	**Reversible**		

STROJÍRENSKÝ ZKUŠEBNÍ ÚSTAV, s.p. CZ 1

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Results:

Model names			Airkompakt p0916	Airkompakt p1118	Airkompakt p1522	Airkompakt p1926
Temperature condition*			(Tested)	(Not tested)	(Tested)	(Not tested)
A7/W35	Corrected heating capacity	[kW]	9.062	11.200	16.117	19.650
	Effective power input	[kW]	1.950	2.599	3.473	4.226
	Coefficient of performance	[–]	4.647	4.310	4.640	4.650
	Control settings	[–]	–	–	–	–
A7/W55	Corrected heating capacity	[kW]	8.428	11.200	15.332	17.400
	Effective power input	[kW]	2.678	3.478	4.775	5.918
	Coefficient of performance	[–]	3.148	3.220	3.221	2.940
	Control settings	[–]	–	–	–	–
A2/W35	Corrected heating capacity	[kW]	6.996 (Not tested)	9.400	13.500 (Not tested)	14.400
	Effective power input	[kW]	1.911 (Not tested)	2.473	3.562 (Not tested)	3.891
	Coefficient of performance	[–]	3.660 (Not tested)	3.800	3.790 (Not tested)	3.700
	Control settings	[–]	–	–	–	–
Sound power level at condition A7/W55*:						
L_{WA}		[dB(A)]	62.9 ± 1.5	66.0 ± 1.5	63.1 ± 1.5	69.0 ± 1.5
Accuraccy class				Engineering (2)		

(*) Comment to abbreviated marking e.g. A7W55:

„A" air, „7" inlet temperature (dry-bulb temperature) in °C, „W" water, „55" outlet temperature in °C.

(Tested) This test sample was tested at the Testing Laboratory.

(Not tested) The technical data were declared by the Manufacturer according to the model range specifications and were not tested by the Testing Laboratory.

Engineering Test Institute, Public Enterprise, confirms by this Test Certificate that the testing of the product in question was performed with the results as stated above. Engineering Test Institute, Public Enterprise, is an accredited Testing Laboratory 1045.1.

Test certificate **invalidates** and replaces the **O-B-01502-22 rev.1** from 2022-09-30.

Brno, 2024-04-10

Ing. Mario Jankola
Heating Equipment and Construction Products Manager

– END OF TEST CERTIFICATE –

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Strojírenský zkušební ústav, s.p., Brno, Česká republika
Engineering Test Institute, Public Enterprise, Brno, Czech Republic

TEST CERTIFICATE

Number **O-B-00629-24**

Customer	Kołton Spółka komandytowa ul. Sosnowa 2 34-480 Jabłonka POLAND
Product	Outdoor Air/Water Heat pump - monobloc
Type designation / Trademark	**Airkompakt p0916** **Airkompakt p1118** **Airkompakt p1522** **Airkompakt p1926**
Test methods	ČSN EN 14511-3:2023, ČSN EN 14825:2023
Basis of certificate	Test reports: 39-17622/T *of* 2024-04-09 39-17622/H *of* 2024-04-09 Technical documents of Kołton Spółka komandytowa
Temperature application	**LOW TEMPERATURE** (Reference water temperature 35 °C)
Reference heating season	**„A" = average / „W" = warmer / „C" = colder** (Reference design conditions for heating $T_{designh}$ = -10 °C / +2 °C / -22 °C)

Specification of conditions:

Compressor speed control	**Fixed**	Heating water volume flow rate (indoor heat exchanger)	**Variable**
Outlet water temperature (indoor heat exchanger)	**Variable**	Source liquid volume flow rate (outdoor heat exchanger)	–
Function	**Reversible**		

STROJÍRENSKÝ ZKUŠEBNÍ ÚSTAV, s.p. CZ 1

Strojírenský zkušební ústav, s.p., Hudcova 424/56b, 621 00 Brno, Česká republika
Engineering Test Institute, public enterprise, Hudcova 424/56b, 621 00 Brno, Czech Republic
www.szutest.cz

Results:

Low temperature application

(Reference water temperature 35 °C)

Model names			Airkompakt p0916 (Tested)	Airkompakt p1118 (Not tested)	Airkompakt p1522 (Tested)	Airkompakt p1926 (Not tested)
Full load heating	$P_{designh}$ [kW]	A	6.20	8.59	12.45	14.58
		W	7.00	9.40	13.50 *(Not tested)*	14.40
		C	5.65	7.97	9.68 *(Not tested)*	12.38
Bivalent temperature	$T_{bivalent}$ [°C]	A	-7	-7	-7	-7
		W	2	2	2	2
		C	-15	-15	-15	-15
Seasonal coefficient of performance	SCOP [–]	A	4.00	4.05	4.12	4.08
		W	5.00 *(Not tested)*	5.16	4.96 *(Not tested)*	5.13
		C	3.54 *(Not tested)*	3.61	3.55 *(Not tested)*	3.53
Seasonal Space heating energy efficiency	η_s [%]	A	157.2	159.1	161.6	160.2
		W	196.9 *(Not tested)*	203.3	195.3 *(Not tested)*	202.3
		C	138.7 *(Not tested)*	141.2	139.1 *(Not tested)*	138.3

(Tested) This test sample was tested at the Testing Laboratory.

(Not tested) The technical data were declared by the Manufacturer according to the model range specifications and were not tested by the Testing Laboratory.

Engineering Test Institute, Public Enterprise, confirms by this Test Certificate that the testing of the product in question was performed with the results as stated above. Engineering Test Institute, Public Enterprise, is an accredited Testing Laboratory 1045.1.

Test certificate **invalidates** and replaces the **O-B-01500-22 rev.1** from 2022-09-30.

Brno, 2024-04-11

Ing. Mario Jankola
Heating Equipment and Construction Products Manager

– END OF TEST CERTIFICATE –

STROJÍRENSKÝ ZKUŠEBNÍ ÚSTAV, s.p. CZ 1

Strojírenský zkušební ústav, s.p., Hudcova 424/56b, 621 00 Brno, Česká republika
Engineering Test Institute, public enterprise, Hudcova 424/56b, 621 00 Brno, Czech Republic
www.szutest.cz

Strojírenský zkušební ústav, s.p., Brno, Česká republika
Engineering Test Institute, Public Enterprise, Brno, Czech Republic

TEST CERTIFICATE

Number **O-B-00630-24**

Customer	Kołton Spółka komandytowa ul. Sosnowa 2 34-480 Jabłonka POLAND
Product	Outdoor Air/Water Heat pump - monobloc
Type designation / Trademark	**Airkompakt p0916** **Airkompakt p1118** **Airkompakt p1522** **Airkompakt p1926**
Test methods	ČSN EN 14511-3:2023, ČSN EN 14825:2023
Basis of certificate	Test reports: 39-17622/T *of* 2024-04-09 39-17622/H *of* 2024-04-09 Technical documents of Kołton Spółka komandytowa
Temperature application	**MEDIUM TEMPERATURE** (Reference water temperature 55 °C)
Reference heating season	**„A" = average / „W" = warmer / „C" = colder** (Reference design conditions for heating $T_{designh}$ = -10 °C / +2 °C / -22 °C)

Specification of conditions:

Compressor speed control	**Fixed**	Heating water volume flow rate (indoor heat exchanger)	**Variable**
Outlet water temperature (indoor heat exchanger)	**Variable**	Source liquid volume flow rate (outdoor heat exchanger)	–
Function	**Reversible**		

STROJÍRENSKÝ ZKUŠEBNÍ ÚSTAV, S.P. CZ 1

Strojírenský zkušební ústav, s.p., Hudcova 424/56b, 621 00 Brno, Česká republika
Engineering Test Institute, public enterprise, Hudcova 424/56b, 621 00 Brno, Czech Republic
www.szutest.cz

Results:

Medium temperature application

(Reference water temperature 55 °C)

Model names			Airkompakt p0916 (Tested)	Airkompakt p1118 (Not tested)	Airkompakt p1522 (Tested)	Airkompakt p1926 (Not tested)
Full load heating	$P_{designh}$ [kW]	A	6.28	8.59	11.96	13.90
		W	6.52	8.90	11.60 *(Not tested)*	14.40
		C	5.29	7.72	9.68 *(Not tested)*	12.38
Bivalent temperature	$T_{bivalent}$ [°C]	A	-7	-7	-7	-7
		W	2	2	2	2
		C	-15	-15	-15	-15
Seasonal coefficient of performance	SCOP [–]	A	3.25	3.39	3.28	3.35
		W	4.03 *(Not tested)*	4.07	4.13 *(Not tested)*	4.10
		C	2.82 *(Not tested)*	2.97	2.93 *(Not tested)*	2.94
Seasonal Space heating energy efficiency	η_s [%]	A	127.0	132.8	128.4	131.2
		W	158.4 *(Not tested)*	159.8	162.4 *(Not tested)*	161.1
		C	109.8 *(Not tested)*	116.0	114.2 *(Not tested)*	114.5

(Tested) This test sample was tested at the Testing Laboratory.

(Not tested) The technical data were declared by the Manufacturer according to the model range specifications and were not tested by the Testing Laboratory.

Engineering Test Institute, Public Enterprise, confirms by this Test Certificate that the testing of the product in question was performed with the results as stated above. Engineering Test Institute, Public Enterprise, is an accredited Testing Laboratory 1045.1.

Test certificate **invalidates** and replaces the **O-B-01501-22 rev.1** from 2022-09-30.

Brno, 2024-04-11

Ing. Mario Jankola

Heating Equipment and Construction Products Manager

– END OF TEST CERTIFICATE –

STROJÍRENSKÝ ZKUŠEBNÍ ÚSTAV, s.p. CZ 1

Strojírenský zkušební ústav, s.p., Hudcova 424/56b, 621 00 Brno, Česká republika
Engineering Test Institute, public enterprise, Hudcova 424/56b, 621 00 Brno, Czech Republic
www.szutest.cz

Tłumaczenie przysięgłe z jęz. angielskiego na jęz. polski

Instytut Testów Inżynieryjnych, Przedsiębiorstwo Publiczne, Brno, Republika Czeska

CERTYFIKAT TESTÓW

Numer: O-B-00604-24

Klient	KOŁTON SPÓŁKA KOMANDYTOWA ul. Sosnowa 2 34-480 Jabłonka POLSKA
Produkt	Zewnętrzna pompa ciepła typu powietrze/woda – monoblok
Oznaczenie typu/ znak towarowy	**Airkompakt p1522**
Metody testowe	ČSN EN 14511-3:2023, ČSN EN 12102-1:2023
Podstawa certyfikatu	Raporty z testów: 39-17622/T z 2024-04-09 39-17622/H z 2024-04-09 Dokumentacja techniczna KOŁTON SPÓŁKA KOMANDYTOWA
Zastosowana temp.	**NISKA TEMPERATURA** (Referencyjna temperatura wody 35°C) **ŚREDNIA TEMPERATURA** (Referencyjna temperatura wody 55°C)

Wyniki:

Warunki temperaturowe*	A7/W35	A7/W55
Skorygowana wydajność grzewcza [kW]	16,117	15,332
Efektywny pobór mocy elektrycznej [kW]	3,473	4,775
Współczynnik efektywności [-]	4,640	3,211
Ustawienia sprężarki [-]	-	-

(*) Komentarz do skróconego oznaczenia: np. A7/W35
A (powietrze), 7 (powietrze wejściowe - temperatura termometru suchego w °C) / W (woda), 35 (wyjściowa temperatura wody grzewczej (chłodzącej) w °C)

[okrągła pieczęć]

[Hologram]

Instytut Testów Inżynieryjnych, Przedsiębiorstwo Publiczne,
Hudcova 424/56b, 621 00 Brno, Republika Czeska
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Poziom mocy akustycznej w warunkach temperaturowych A7/W55*:

Zewnętrzna pompa ciepła typu powietrze/woda – monoblok		**Airkompakt p1522**
Poziom mocy akustycznej	L_{WA} 63,1 ±1,5	dB(A)
Klasa dokładności	Inżynieria (klasa 2)	

(*) Komentarz do skróconego oznaczenia: np. A7/W55
A (powietrze), 7 (powietrze wejściowe - temperatura termometru suchego w °C)/ W (woda), 55 (wyjściowa temperatura wody grzewczej (chłodzącej) w °C)

Specyfikacja warunków:

Sterowanie prędkością sprężarki	Stałe	Przepływ objętościowy wody grzewczej (wewnętrzny wymiennik ciepła)	Zmienny
Temperatura wody na wylocie (wewnętrzny wymiennik ciepła)	Zmienna	Objętość przepływu cieczy źródłowej (zewnętrzny wymiennik ciepła)	-
Funkcja	Odwracalna		

Instytut Testów Inżynieryjnych, Przedsiębiorstwo Publiczne, potwierdza niniejszym Certyfikatem Testów, że badanie danego produktu zostało przeprowadzone z wynikami podanymi powyżej. Instytut Testów Inżynieryjnych, Przedsiębiorstwo Publiczne, jest akredytowanym Laboratorium Badawczym 1045.1.

Brno, 10.04.2024 r.

[nieczytelny podpis]
Ing. Mario Jankola
Kierownik Stacji Badań Urządzeń Cieplnych i Przyjaznych Środowisku

- KONIEC CERTYFIKATU TESTÓW -
[okrągła pieczęć]

Instytut Testów Inżynieryjnych, Przedsiębiorstwo Publiczne,
Hudcova 424/56b, 621 00 Brno, Republika Czeska
www.szutest.cz

Nr rep. 759/24
Stwierdzam zgodność powyższego przekładu z okazanym dokumentem
Tytułem wynagrodzenia pobrano -
Augustów, dnia: 13.04.2024 r.
Tłumacz przysięgły języka angielskiego – mgr Piotr Szlaużys (nr TP/4453/05)

Tłumaczenie przysięgłe z jęz. angielskiego na jęz. polski

Instytut Testów Inżynieryjnych, Przedsiębiorstwo Publiczne, Brno, Republika Czeska

CERTYFIKAT TESTÓW

Numer: O-B-00605-24

Klient	KOŁTON SPÓŁKA KOMANDYTOWA ul. Sosnowa 2 34-480 Jabłonka POLSKA
Produkt	Zewnętrzna pompa ciepła typu powietrze/woda – monoblok
Oznaczenie typu/ znak towarowy	**Airkompakt p1522**
Metody testowe	ČSN EN 14511-3:2023, ČSN EN 14825:2023; ČSN EN 12102-1:2023,
Podstawa certyfikatu	Raporty z testów: 39-17622/T z 2024-04-09 39-17622/H z 2024-04-09 Dokumentacja techniczna KOŁTON SPÓŁKA KOMANDYTOWA
Referencyjny sezon grzewczy	**„A" = umiarkowany** (Referencyjna temperatura projektowa $T_{designh}$ = -10 °C)

Wyniki:

NISKA TEMPERATURA (Referencyjna temperatura wody 35°C)

ŚREDNIA TEMPERATURA (Referencyjna temperatura wody 55°C)

12,45	$P_{designh}$ **[kW]** ... Znamionowa moc cieplna				**11,96**
4,12	**SCOP** [-] ... Sezonowy współczynnik efektywności				**3,28**
Temperatura zewnętrzna **Tj [°C]**	Deklarowana wydajność grzewcza **P_{dh} [kW]**	Współczynnik efektywności przy deklarowanej wydajności **COP_d [-]**	Temperatura zewnętrzna **T_j [°C]**	Deklarowana wydajność grzewcza **P_{dh} [kW]**	Współczynnik efektywności przy deklarowanej wydajności **COP_d [-]**
Tj =-7	11,017	3,283	Tj= -7	10,576	2,470
Tj= +2	12,737	3,875	Tj= +2	12,231	3,047
Tj=+7	16,513	5,112	Tj= +7	16,264	4,223
Tj= +12	19,195	6,058	Tj= +12	18,782	5,286
Tj=TOL= -10	9,956	2,977	Tj= TOL =-10	9,785	2,238
Tj= $T_{bivalent}$= -7	11,017	3,283	Tj = $T_{bivalent}$= -7	10,576	2,470

[okrągła pieczęć]

[Hologram]

Instytut Testów Inżynieryjnych, Przedsiębiorstwo Publiczne,
Hudcova 424/56b, 621 00 Brno, Republika Czeska
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NISKA TEMPERATURA (Referencyjna temperatura wody 35°C)		ŚREDNIA TEMPERATURA (Referencyjna temperatura wody 55°C)
Pobór mocy w trybach innych niż „tryb aktywny"		
17,7	Tryb wyłączony P_{OFF} (W)	17,7
17,7	Tryb wyłączonego termostatu P_{TO} [W]	17,7
17,7	Tryb czuwania P_{SB} [W]	17,7
0	Tryb grzałki karteru P_{CK} [W]	0
Roczne zużycie energii elektrycznej na ogrzewanie według:		
6252	ČSN EN 14825:2023 Q_{HE} [kWh]	7521
Sezonowa efektywność energetyczna ogrzewania pomieszczeń		
161,6	ČSN EN 14825:2023 η_s [%]	128,4
Natężenie przepływu cieczy w zewnętrznym wymienniku ciepła:		
-	Źródło cieczy Min./Maks. [m³/h]	-
Natężenie przepływu cieczy w wewnętrznym wymienniku ciepła:		
1,731/3,344	Woda grzewcza Min./Maks. [m³/h]	1,068/2,035

Poziom mocy akustycznej w warunku A7W55*:

Airkompakt p1522 L_{WA} 63,1±1,5 dB(A) Klasa dokładności 2 (inżynieria)

-zewnętrzna jednostka-

(*) Komentarz do skróconego oznaczenia:

„A" powietrze, „7" = temperatura na wlocie (temperatura termometru suchego) w °C, „W" woda, „55" temperatura na wylocie w °C.

Specyfikacja warunków:

Sterowanie prędkością sprężarki	Stałe	Przepływ objętościowy wody grzewczej (wewnętrzny wymiennik ciepła)	Zmienny
Temperatura wody na wylocie (wewnętrzny wymiennik ciepła)	Zmienna	Objętość przepływu cieczy źródłowej (zewnętrzny wymiennik ciepła)	-
Funkcja	Odwracalna		

Instytut Testów Inżynieryjnych, Przedsiębiorstwo Publiczne, potwierdza niniejszym Certyfikatem Testów, że badanie danego produktu zostało przeprowadzone z wynikami podanymi powyżej. Instytut Testów Inżynieryjnych, Przedsiębiorstwo Publiczne, jest akredytowanym Laboratorium Badawczym 1045.1.

Brno, 10.04.2024 r.

[nieczytelny podpis]
Ing. Mario Jankola
Kierownik Stacji Badań Urządzeń Cieplnych i Przyjaznych Środowisku

- KONIEC CERTYFIKATU TESTÓW -
[okrągła pieczęć]

Instytut Testów Inżynieryjnych, Przedsiębiorstwo Publiczne,
Hudcova 424/56b, 621 00 Brno, Republika Czeska
www.szutest.cz

Nr rep. 760/24
Stwierdzam zgodność powyższego przekładu z okazanym dokumentem
Tytułem wynagrodzenia pobrano -
Augustów, dnia: 13.04.2024 r.
Tłumacz przysięgły języka angielskiego – mgr Piotr Szlaużys (nr TP/4453/05)

Tłumaczenie przysięgłe z jęz. angielskiego na jęz. polski

Instytut Testów Inżynieryjnych, Przedsiębiorstwo Publiczne, Brno, Republika Czeska

CERTYFIKAT TESTÓW
Numer: O-B-00606-24

Klient	KOŁTON SPÓŁKA KOMANDYTOWA ul. Sosnowa 2 34-480 Jabłonka POLSKA
Produkt	Zewnętrzna pompa ciepła typu powietrze/woda – monoblok
Oznaczenie typu/ znak towarowy	**Airkompakt p0916** **Airkompakt p1118** **Airkompakt p1522** **Airkompakt p1926**
Metody testowe	ČSN EN 14511-3:2023, ČSN EN 14825:2023, ČSN EN 12102-1:2023
Podstawa certyfikatu	Raporty z testów: 39-17622/T z 2024-04-09 39-17622/T z 2024-04-09 Dokumentacja techniczna KOŁTON SPÓŁKA KOMANDYTOWA
Zastosowana temp.	**NISKA TEMPERATURA** (Referencyjna temperatura wody 35°C) **ŚREDNIA TEMPERATURA** (Referencyjna temperatura wody 55°C)

Specyfikacja warunków:

Sterowanie prędkością sprężarki	Stałe	Przepływ objętościowy wody grzewczej (wewnętrzny wymiennik ciepła)	Zmienny
Temperatura wody na wylocie (wewnętrzny wymiennik ciepła)	Zmienna	Objętość przepływu cieczy źródłowej (zewnętrzny wymiennik ciepła)	-
Funkcja	Odwracalna		

[okrągła pieczęć]

[Hologram]

Instytut Testów Inżynieryjnych, Przedsiębiorstwo Publiczne,
Hudcova 424/56b, 621 00 Brno, Republika Czeska
www.szutest.cz

Wyniki:

	Nazwy modeli / Warunki temperaturowe		**Airkompakt p0916 (Testowany)**	**Airkompakt p1118 (Nietestowany)**	**Airkompakt P1522 (Testowany)**	**Airkompakt p1926 (Nietestowany)**
A7/W35	Skorygowana wydajność grzewcza	[kW]	9,062	11,200	16,117	19,650
	Efektywny pobór mocy	[kW]	1,950	2,599	3,473	4,226
	Współczynnik efektywności	[-]	4,647	4,310	4,640	4,650
	Ustawienia sterowania	[-]	-	-	-	-
A7/W55	Skorygowana wydajność grzewcza	[kW]	8,428	11,200	15,332	17,400
	Efektywny pobór mocy	[kW]	2,678	3,478	4,775	5,918
	Współczynnik efektywności	[-]	3,148	3,220	3,221	2,940
	Ustawienia sterowania	[-]	-	-	-	-
A2/W35	Skorygowana wydajność grzewcza	[kW]	6,996 (Nietestowane)	9,400	13,500 (Nietestowane)	14,400
	Efektywny pobór mocy	[kW]	1,911 (Nietestowane)	2,473	3,562 (Nietestowane)	3,891
	Współczynnik efektywności	[-]	3,660 (Nietestowane)	3,800	3,790 (Nietestowane)	3,700
	Ustawienia sterowania	[-]	-	-	-	-
	Poziom mocy akustycznej w warunku A7/W55*:					
	L_{WA}	[dB(A)]	62,9 ± 1,5	66,0 ± 1,5	63,1 ± 1,5	69,0 ± 1,5
	Klasa dokładności			Inżynieria (2)		

(*) Komentarz do skróconego oznaczenia, np. A7W55:
„A" powietrze, „7" temperatura na wlocie (temperatura termometru suchego) w °C, „W" woda, „55" temperatura na wylocie w °C.
(Testowany) Ta próbka testowa została przetestowana w Laboratorium Badawczym.
(Nietestowany) Dane techniczne zostały zadeklarowane przez Producenta zgodnie ze specyfikacją typoszeregu i nie były sprawdzane przez Laboratorium Badawcze.
Instytut Testów Inżynieryjnych, Przedsiębiorstwo Publiczne potwierdza niniejszym Certyfikatem Testów, że badanie danego produktu zostało przeprowadzone z wynikami podanymi powyżej. Instytut Testów Inżynieryjnych, Przedsiębiorstwo Publiczne, jest akredytowanym Laboratorium Badawczym 1045.1.
Certyfikat testów unieważnia i zastępuje O-B-01502-22 rev.1 z 30 września 2022 r.
Brno, 10.04.2024 r.

[nieczytelny podpis]
Ing. Mario Jankola
Kierownik Stacji Badań Urządzeń Cieplnych i Przyjaznych Środowisku
- KONIEC CERTYFIKATU TESTÓW -
[okrągła pieczęć]

Instytut Testów Inżynieryjnych, Przedsiębiorstwo Publiczne,
Hudcova 424/56b, 621 00 Brno, Republika Czeska
www.szutest.cz

Nr rep. 763/24
Stwierdzam zgodność powyższego przekładu z okazanym dokumentem
Tytułem wynagrodzenia pobrano -
Augustów, dnia: 13.04.2024 r.
Tłumacz przysięgły języka angielskiego – mgr Piotr Szlaużys (nr TP/4453/05)

Tłumaczenie przysięgłe z jęz. angielskiego na jęz. polski

Instytut Testów Inżynieryjnych, Przedsiębiorstwo Publiczne, Brno, Republika Czeska

CERTYFIKAT TESTÓW
Numer: O-B-00629-24

Klient	KOŁTON SPÓŁKA KOMANDYTOWA ul. Sosnowa 2 34-480 Jabłonka POLSKA
Produkt	Zewnętrzna pompa ciepła typu powietrze/woda – monoblok
Oznaczenie typu/ znak towarowy	**Airkompakt p0916** **Airkompakt p1118** **Airkompakt p1522** **Airkompakt p1926**
Metody testowe	ČSN EN 14511-3:2023, ČSN EN 14825:2023;
Podstawa certyfikatu	Raporty z testów: 39-17622/T z 2024-04-09 39-17622/H z 2024-04-09 Dokumentacja techniczna KOŁTON SPÓŁKA KOMANDYTOWA
Zastosowana temp.	**NISKA TEMPERATURA** (Referencyjna temperatura wody 35°C)

Referencyjny sezon grzewczy **„A" = umiarkowany / „W" = ciepły / „C" = chłodny**
(Referencyjny warunek projektowy dla ogrzewania $T_{designh}$ = -10 °C/+2°C/-22°C)

Specyfikacja warunków:

Sterowanie prędkością sprężarki	Stałe	Przepływ objętościowy wody grzewczej (wewnętrzny wymiennik ciepła)	Zmienny
Temperatura wody na wylocie (wewnętrzny wymiennik ciepła)	Zmienna	Objętość przepływu cieczy źródłowej (zewnętrzny wymiennik ciepła)	-
Funkcja	Odwracalna		

[okrągła pieczęć]

[Hologram]

Instytut Testów Inżynieryjnych, Przedsiębiorstwo Publiczne,
Hudcova 424/56b, 621 00 Brno, Republika Czeska
www.szutest.cz

Wyniki:

Zastosowanie niskotemperaturowe
(Referencyjna temperatura wody 35°C)

Nazwy modeli			**Airkompakt p0916 (Testowany)**	**Airkompakt p1118 (Nietestowany)**	**Airkompakt p1522 (Testowany)**	**Airkompakt p1926 (Nietestowany)**
Znamionowa moc cieplna	$P_{designh}$ [kW]	**A**	6,20	8,59	12,45	14,58
		W	7,00	9,40	13,50 *(Nietestowany)*	14,40
		C	5,65	7,97	9,68 *(Nietestowany)*	12,38
Temperatura biwalentna	$T_{bivalent}$ [°C]	**A**	-7	-7	-7	-7
		W	2	2	2	2
		C	-15	-15	-15	-15
Sezonowy współczynnik efektywności	**SCOP** [-]	**A**	4,00	4,05	4,12	4,08
		W	5,00 *(Nietestowany)*	5,16	4,96 *(Nietestowany)*	5,13
		C	3,54 *(Nietestowany)*	3,61	3,55 *(Nietestowany)*	3,53
Sezonowa efektywność energetyczna ogrzewania pomieszczeń	n_s [%]	**A**	157,2	159,1	161,6	160,2
		W	196,9 *(Nietestowany)*	203,3	195,3 *(Nietestowany)*	202,3
		C	138,7 *(Nietestowany)*	141,2	139,1 *(Nietestowany)*	138,3

(Testowany) Ta próbka testowa została przetestowana w Laboratorium Badawczym.
(Nietestowany) Dane techniczne zostały zadeklarowane przez Producenta zgodnie ze specyfikacją typoszeregu i nie były sprawdzane przez Laboratorium Badawcze.
Instytut Testów Inżynieryjnych, Przedsiębiorstwo Publiczne, potwierdza niniejszym Certyfikatem Testów, że badanie danego produktu zostało przeprowadzone z wynikami podanymi powyżej. Instytut Testów Inżynieryjnych, Przedsiębiorstwo Publiczne, jest akredytowanym Laboratorium Badawczym 1045.1.
Certyfikat testów unieważnia i zastępuje O-B-01500-22 rev.1 z 30 września 2022 r.
Brno, 11.04.2024 r.

[nieczytelny podpis] Ing. Mario Jankola
Kierownik Stacji Badań Urządzeń Cieplnych i Przyjaznych Środowisku
- KONIEC CERTYFIKATU TESTÓW -
[okrągła pieczęć]

Instytut Testów Inżynieryjnych, Przedsiębiorstwo Publiczne,
Hudcova 424/56b, 621 00 Brno, Republika Czeska
www.szutest.cz

Nr rep. 762/24
Stwierdzam zgodność powyższego przekładu z okazanym dokumentem
Tytułem wynagrodzenia pobrano -
Augustów, dnia: 13.04.2024 r.
Tłumacz przysięgły języka angielskiego – mgr Piotr Szlaużys (nr TP/4453/05)

Tłumaczenie przysięgłe z jęz. angielskiego na jęz. polski

Instytut Testów Inżynieryjnych, Przedsiębiorstwo Publiczne, Brno, Republika Czeska

CERTYFIKAT TESTÓW
Numer: O-B-00630-24

Klient	KOŁTON SPÓŁKA KOMANDYTOWA ul. Sosnowa 2 34-480 Jabłonka POLSKA
Produkt	Zewnętrzna pompa ciepła typu powietrze/woda – monoblok
Oznaczenie typu/ znak towarowy	**Airkompakt p0916** **Airkompakt p1118** **Airkompakt p1522** **Airkompakt p1926**
Metody testowe	ČSN EN 14511-3:2023, ČSN EN 14825:2023
Podstawa certyfikatu	Raporty z testów: 39-17622/T z 2024-04-09 39-17622/H z 2024-04-09 Dokumentacja techniczna KOŁTON SPÓŁKA KOMANDYTOWA
Zastosowana temp.	**ŚREDNIA TEMPERATURA** (Referencyjna temperatura wody 55°C)

Referencyjny sezon grzewczy **„A" = umiarkowany / „W" = ciepły / „C" = chłodny**
(Referencyjny warunek projektowy dla ogrzewania $T_{designh}$ = -10 °C/+2°C/-22°C)

Specyfikacja warunków:

Sterowanie prędkością sprężarki	Stałe	Przepływ objętościowy wody grzewczej (wewnętrzny wymiennik ciepła)	Zmienny
Temperatura wody na wylocie (wewnętrzny wymiennik ciepła)	Zmienna	Objętość przepływu cieczy źródłowej (zewnętrzny wymiennik ciepła)	-
Funkcja	Odwracalna		

[okrągła pieczęć]

[Hologram]

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www.szutest.cz

Wyniki:

Nazwy modeli			**Zastosowanie średniotemperaturowe** (Referencyjna temperatura wody 55°C) **Airkompakt p0916 (Testowany)**	**Airkompakt p1118 (Nietestowany)**	**Airkompakt p1522 (Testowany)**	**Airkompakt p1926 (Nietestowany)**
Znamionowa moc cieplna	**$P_{designh}$ [kW]**	**A**	6,28	8,59	11,96	13,90
		W	6,52	8,90	11,60 *(Nietestowany)*	14,40
		C	5,29	7,72	9,68 *(Nietestowany)*	12,38
Temperatura biwalentna	**$T_{bivalent}$ [°C]**	**A**	-7	-7	-7	-7
		W	2	2	2	2
		C	-15	-15	-15	-15
Sezonowy współczynnik efektywności	**SCOP [-]**	**A**	3,25	3,39	3,28	3,35
		W	4,03 *(Nietestowany)*	4,07	4,13 *(Nietestowany)*	4,10
		C	2,82 *(Nietestowany)*	2,97	2,93 *(Nietestowany)*	2,94
Sezonowa efektywność energetyczna ogrzewania pomieszczeń	**η_s [%]**	**A**	127,0	132,8	128,4	131,2
		W	158,4 *(Nietestowany)*	159,8	162,4 *(Nietestowany)*	161,1
		C	109,8 *(Nietestowany)*	116,0	114,2 *(Nietestowany)*	114,5

(Testowany) Ta próbka testowa została przetestowana w Laboratorium Badawczym.
(Nietestowany) Dane techniczne zostały zadeklarowane przez Producenta zgodnie ze specyfikacją typoszeregu i nie były sprawdzane przez Laboratorium Badawcze.
Instytut Testów Inżynieryjnych, Przedsiębiorstwo Publiczne, potwierdza niniejszym Certyfikatem Testów, że badanie danego produktu zostało przeprowadzone z wynikami podanymi powyżej. Instytut Testów Inżynieryjnych, Przedsiębiorstwo Publiczne, jest akredytowanym Laboratorium Badawczym 1045.1.
Certyfikat testów unieważnia i zastępuje O-B-01501-22 rev.1 z 30 września 2022 r.
Brno, 11.04.2024 r.

[nieczytelny podpis]
Ing. Mario Jankola
Kierownik Stacji Badań Urządzeń Cieplnych i Przyjaznych Środowisku
- KONIEC CERTYFIKATU TESTÓW -
[okrągła pieczęć]

Instytut Testów Inżynieryjnych, Przedsiębiorstwo Publiczne,
Hudcova 424/56b, 621 00 Brno, Republika Czeska
www.szutest.cz

Nr rep. 761/24
Stwierdzam zgodność powyższego przekładu z okazanym dokumentem
Tytułem wynagrodzenia pobrano -
Augustów, dnia: 13.04.2024 r.
Tłumacz przysięgły języka angielskiego – mgr Piotr Szlaużys (nr TP/4453/05)

OŚWIADCZENIE

Producent KOŁTON SPÓŁKA KOMANDYTOWA oświadcza, iż pompy ciepła

1) AIRKOMPAKT P1522
Oznaczenie/typ/identyfikator modelu

2) AIRKOMPAKT P1926
Oznaczenie/typ/identyfikator modelu

3)
Oznaczenie/typ/identyfikator modelu

4)
Oznaczenie/typ/identyfikator modelu

5)
Oznaczenie/typ/identyfikator modelu

Należą do jednego podtypu w danym typoszeregu i spełniają łącznie następujące warunki:

- identyczna konstrukcja obiegu chłodniczego, ten sam czynnik chłodniczy/roboczy;
- ten sam producent, typ i liczba sprężarek;
- ten sam typ elementu rozprężnego;
- ten sam typ skraplacza;
- ten sam typ parownika;
- ten sam typ procesu odszraniania;
- ten sam sterownik i zasada sterowania wydajnością;
- ten sam producent, typ i liczba wentylatorów parownika (w przypadku powietrznych pomp ciepła) i zasada sterowania wydajnością (stała, zmienna lub stopniowana regulacja prędkości obrotowej);
- urządzenia z i bez zaworu czterodrogowego nie mogą być zaliczone do tego samego typoszeregu.

KOŁTON
KOŁTON spółka komandytowa
ul. Sosnowa 2, 34-480 Jabłonka
NIP 735 274 90 54 REGON 120755317 KRS 0000987297

Jabłonka, dn. 10.04.2024 r.
Miejscowość, data

Podpis osoby upoważnionej