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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
39-16511/H

Product:	Outdoor Air/Water Heat Pump – monobloc
Type designation:	**Airkompakt p0916**
Customer:	KOŁTON SPÓŁKA KOMANDYTOWA ul. Sosnowa 2 34-480 34-480 Jabłonka POLAND
Manufacturer:	KOŁTON SPÓŁKA KOMANDYTOWA ul. Sosnowa 2 34-480 34-480 Jabłonka POLAND
Responsible employee:	Ing. Antonín Kolbábek, Ph.D.
Report issue date:	2022-09-16
Distribution list:	1 copy to the Customer 1 copy to the Engineering Test Institute

I. Description of product tested

The Heat pump **Airkompakt p0916**, supplied by the company **KOŁTON SPÓŁKA KOMANDYTOWA**, is structurally adapted to operate in air/water system. Device is designed as monobloc unit placed outdoors on a pedestal. Refrigerant R290 is used with charge of 1.50 kg.
Power supply is three-phase. Heat pump is able to work in heating and cooling mode. Heat pump is working with fixed flow rate.

Main components of the outdoor unit **Airkompakt p0916**:

- Serial number 22PC09020010085
- Cuboid shape with dimensions 1300 × 590 × 1030 mm (W × D × H)
- Frame and casing made of varnished steel sheets
- Compressor Copeland Scroll ZH08KCU-TFMN-524
- Refrigerant R290 (charge: 1.50 kg)
- Cuboid-shaped evaporator Fin&Tube (3-rows), with dimensions: 800 × 55 × 885 mm (W × D × H), spacing 2.0 mm
- PHE condenser with dimensions 160 × 140 × 560 mm (W × D × H), including insulation
- Electronic expansion valve
- 4-way reversing valve Sanhua SHF(L)-11H-35U-52 (with coil)
- Refrigerant accumulator
- Axial fan ø 650 mm with motor
- Filter/dehydrator
- Pressure sensors
- Temperature sensors on water, refrigerant pipes, outside
- Refrigerant pipes

Scheme:
(i.e., illustrative connection of device)

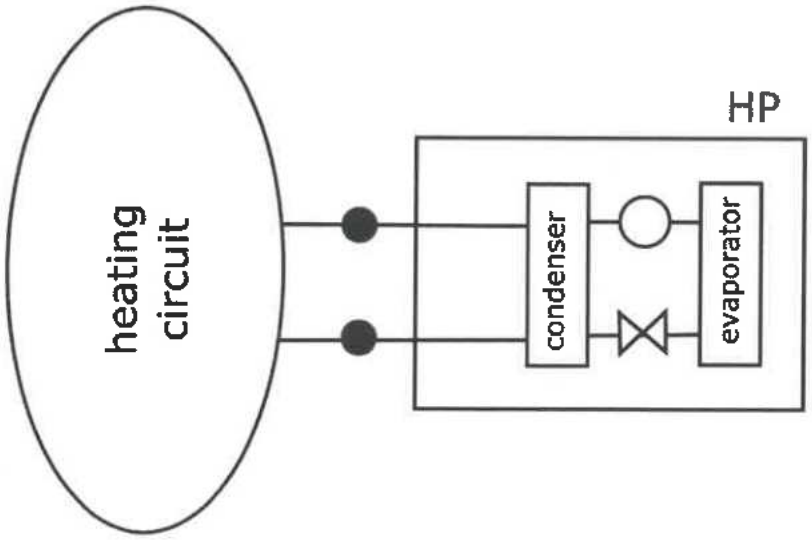
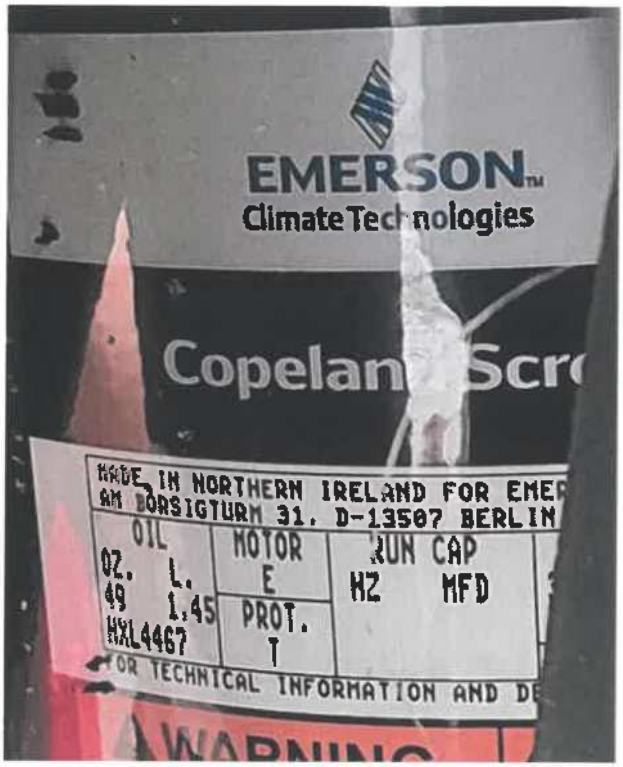


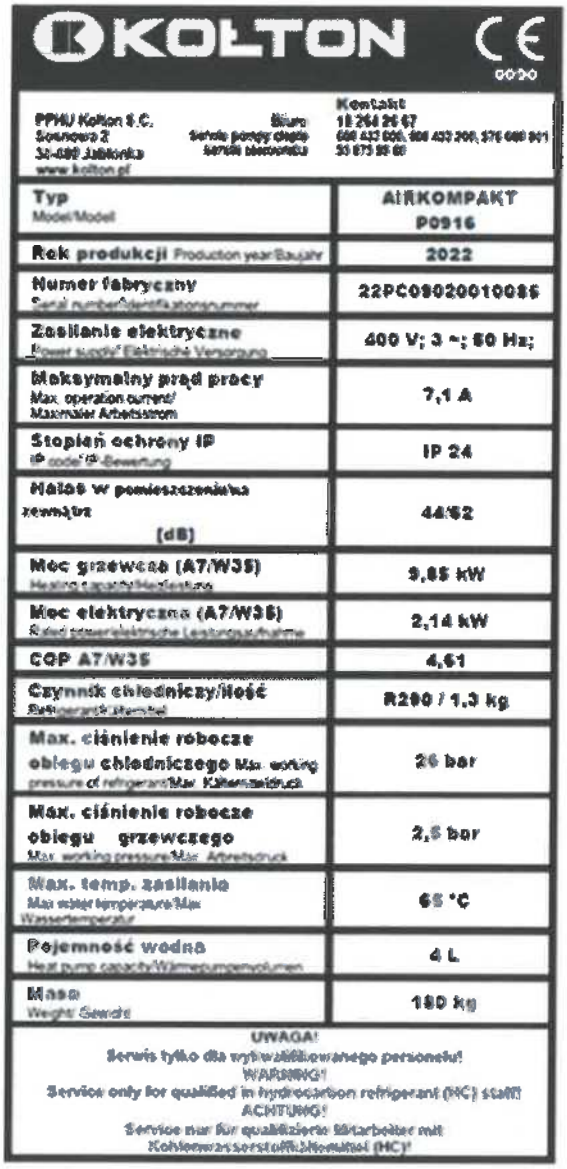
Photo-documentation:

Air/Water Heat pump **Airkompakt p0916**
– Front view with cover */on left/*, Back view without cover */on right/* –

Air/Water Heat pump **Airkompakt p0916**
– Side view without cover –



Air/Water Heat pump **Airkompakt p0916**
– Compressor label –



KOLTON CE 0020

PPHU Kolton S.C.
Sowinowa 2
32-020 Jabłonka
www.kolton.pl

Biuro
Serwis pompy ciepła

Kontakt
18 264 26 67
600 432 000, 606 432 200, 570 680 041
33 875 35 60

Typ Model/Modell	AIRKOMPAKT P0916
Rok produkcji Production year/Baujahr	2022
Numer fabryczny Serial number/Identifikationsnummer	22PC09020010085
Zasilanie elektryczne Power supply/ Elektrische Versorgung	400 V; 3 ~; 50 Hz;
Maksymalny prąd pracy Max. operation current/ Maximaler Arbeitsstrom	7,1 A
Stopień ochrony IP IP code/IP-Bewertung	IP 24
Hałas w pomieszczeniu/na zewnątrz [dB]	44/62
Moc grzewcza (A7/W35) Heating capacity/Heizleistung	9,85 kW
Moc elektryczna (A7/W35) Rated power/elektrische Leistungsaufnahme	2,14 kW
COP A7/W35	4,61
Czynnik chłodniczy/Ilość Refrigerant/Kennbild	R290 / 1,3 kg
Max. ciśnienie robocze obiegu chłodniczego Max. working pressure of refrigerant/Max. Betriebsdruck	26 bar
Max. ciśnienie robocze obiegu grzewczego Max. working pressure/Max. Betriebsdruck	2,5 bar
Max. temp. zasilania Max water temperature/Max Wassertemperatur	65 °C
Pojemność wodna Heat pump capacity/Wärmepumpenvolumen	4 L
Masa Weight/ Gewicht	180 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)!

Air/Water Heat pump **Airkompakt p0916**
– Outdoor unit label –

II. Sample tested

SZU reg. no.	Product name	Date of submission
0213.22.37137.001	Air/Water Heat pump **Airkompakt p0916**	2022-08-22

The visual inspection, tests and verification were carried out by Ing. Antonín Kolbábek, Ph.D. – Test engineer at the test station of SZU.

III. Measuring and test equipment:

The tests were performed using measuring and testing equipment with valid calibration.

No.	Description	Inventory number
1.	Electrical energy meter	022370/1
2.	Digital watt meter	MaR01/EM01
3.	Flow meter Krohne Optiflux	022370/5
4.	Barometer	022370/7
5.	Differential pressure gauge	MaR01_TI
6.	Temperature-humidity meter HC2-IC305	022370/10 022370/11
7.	Thermometers	022370/13
8.	Tape measure	ME 475
9.	Thermo-hydro meter 608-H1	117043
10.	Multi-analyser SINUS SoundBook MK2	000-000-000-875/1
11.	Microphone pair G.R.A.S. 40 AK, wind deflector	000-000-000-875/2
12.	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.	Acoustic measurements – Sound power level	Art. 7	ČSN EN 12102-1:2018	Page No. 9÷13	+

***) 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:	**T 076*** - Measurement of noise characteristics
Test method:	ČSN EN 12102-1:2018; ČSN ISO 9614-2:1997; EHPA Testing regulation – Testing of Air/Water Heat Pumps – Version 2.4a
Sample tested:	Air/Water Heat pump **Airkompakt p0916**
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 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

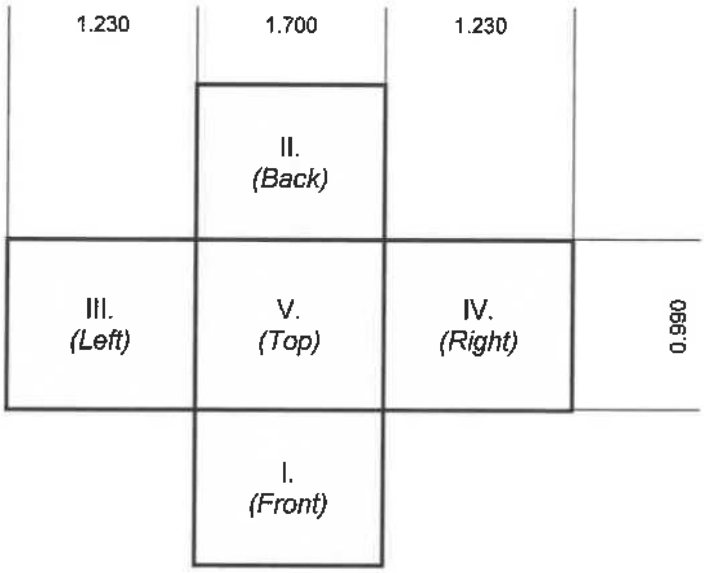
a) Measurement surface

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

Test sample			**For outdoor unit**	**For indoor unit**
Distance from the test sample	*d*	*[m]*	0.200	---
Height of measurement surface	*h*	*[m]*	1.230	---
Width of measurement surface	*w*	*[m]*	1.700	---
Depth of measurement surface	*l*	*[m]*	0.990	---
Total measurement surface area	*S*	*[m²]*	8.2804	---
Minimal measuring time	t_M	*[s]*	5× 40	---

Sketch of measurement surface (not in scale):

Air/Water Heat pump **Airkompakt p0916**
– Outdoor unit –



Note:
Segment I. (Front) was reduced into 2.0710 m² because of water pipe connections.

b) Acoustic environment

The testing samples were placed inside climatic-chambers (with dimensions see below); on walls and ceiling of the chambers were mounted sound absorption panels. Both samples were placed in the middle of the chamber, at a sufficient distance from the surrounding walls, and were rotated by about 5÷10 °.

An indoor unit of heat pump unit was hanged on a rigid tubular frame, without any reflective wall – the noise was emitted in all directions i.e., through a spatial angle 4π.

Climatic-acoustic chamber *(Corresponds to free-field over a reflecting plane)*			**For outdoor unit**	**For indoor unit**
Width of testing chamber	l_1	*[m]*	4.000	2.600
Length of testing chamber	l_2	*[m]*	6.000	2.800
Height of testing chamber	l_3	*[m]*	2.350	2.400

c) Measured and calculated data – General overview:

The measured values are in accordance with ČSN EN 12102-1:2018			YES	
The measured values are in accordance with ČSN ISO 9614-2:1997			YES	
Operation mode			Heating	
Specification of the assessment condition			A7/W55*)	
Type of HP capacity regulation			ON/FF	
Control settings of heat pump / compressor			Fixed	
Fan speed settings			AUTO	
Water pump settings – secondary circuit			---	
Designation of HP setting			*"ErP"*	
Test sample			Air/Water Heat pump **Airkompakt p0916**	
			– Outdoor unit –	– Indoor unit –
Date of testing			2022-09-02	---
Reference air temperature	t_{amb}	*[°C]*	6.8	---
Relative humidity of air	*RH*	*[%]*	86.4	---
Ambient pressure	p_{amb}	*[hPa]*	986.36	---
Overall sound power level (linear)	L_W	*[dB]*	71.0 ± 1.5	--- ± 1.5
Overall A-weighted sound power level	L_{WA}	***[dB]***	**62.9 ± 1.5**	**--- ± 1.5**
Accuracy class			**Engineering** (Grade 2)	**Engineering** (Grade 2)

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

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

Air/Water Heat pump **Airkompakt p0916** – Outdoor unit at A7/W55 */ Compressor: FIXED, Fan: AUTO, Water pump: -- /*	**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]	
125	20.6	2.7	YES	0.0	YES	YES	YES	68.6	52.1	± 3.0	passed
250	21.0	4.0	YES	0.0	YES	YES	YES	64.9	56.0	± 2.0	passed
500	**22.0**	**2.8**	**YES**	**0.0**	**YES**	**YES**	**YES**	**61.1**	**57.7**	**± 1.5**	**passed**
1000	23.3	2.4	YES	0.0	YES	YES	YES	57.5	57.4	± 1.5	passed
2000	21.3	1.9	YES	0.0	YES	YES	YES	51.9	53.1	± 1.5	passed
4000	20.7	2.4	YES	0.0	YES	YES	YES	46.9	47.9	± 1.5	c
8000**)	20.7	2.9	YES	0.0	YES	YES	YES	38.3	38.2	± 2.5	c
Total								**71.0**	**63.0**	**± 1.5**	

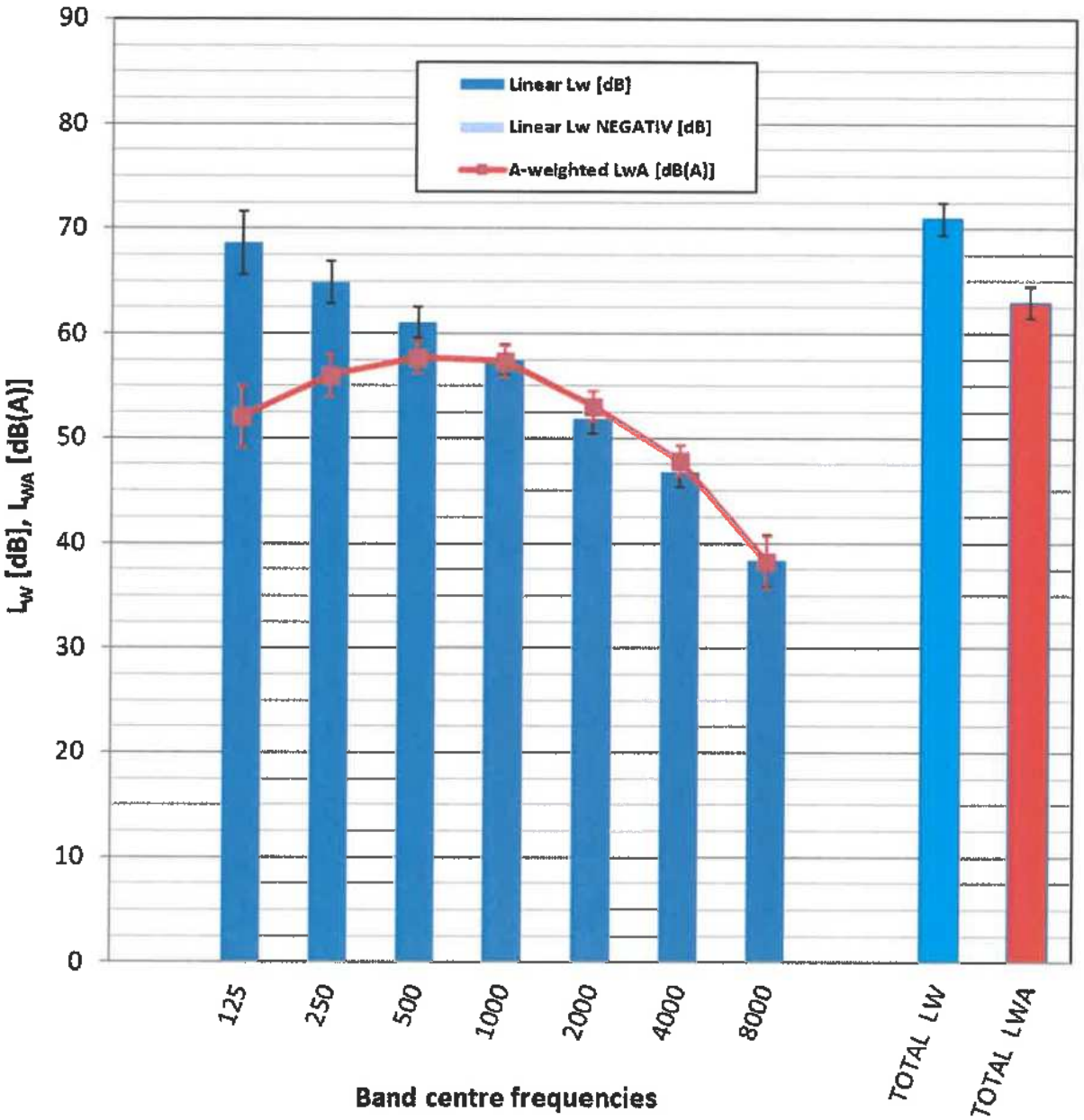
**) *Due to the sound intensity method, the frequency of 6300 Hz was measured only.*

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}. This bands are not evaluated in calculating of L_{WA}.*

Spectrum of Sound power level L_W – octave bands

Air/Water Heat pump **Airkompakt p0916** – Outdoor unit at A7/W55 */ Compressor: FIXED, Fan: AUTO, Water pump: --- /*	**Engineering** **(Grade 2)**



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

Air/Water Heat pump **Airkompakt p0916** – Outdoor unit at A7/W55 / *Compressor: FIXED, Fan: AUTO, Water pump: -- /*	**Engineering (Grade 2)**

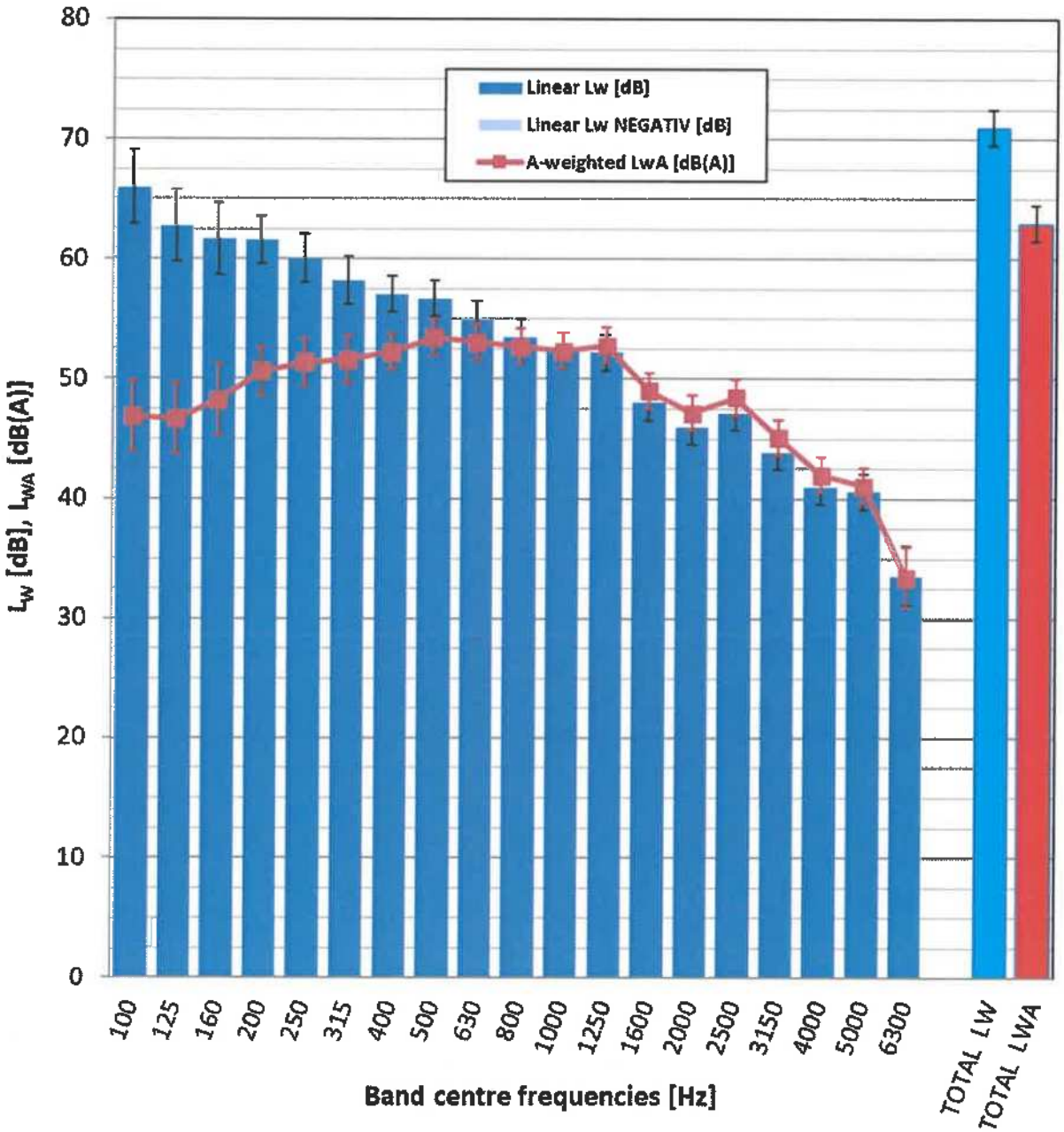
f_m	Criterion 1			Criterion 2		Criterion 3	All criteria passed?	L_W	L_{WA}	U	Evaluation
[Hz]	L_d	F_{pl}	$L_d > F_{pl}$	$F_{+/-}$	$F_{+/-} \leq 3$	$L_{W(1)}-L_{W(2)} \leq s$		[dB]	[dB(A)]	[dB]	
100	21.0	2.5	YES	0.0	YES	YES	YES	66.0	46.9	± 3.0	passed
125	20.6	2.7	YES	0.0	YES	YES	YES	62.8	46.7	± 3.0	passed
160	20.8	4.0	YES	0.0	YES	YES	YES	61.7	48.3	± 3.0	passed
200	20.9	4.5	YES	0.0	YES	YES	YES	61.6	50.7	± 2.0	passed
250	21.0	4.0	YES	0.0	YES	YES	YES	60.0	51.4	± 2.0	passed
315	21.5	3.5	YES	0.0	YES	YES	YES	58.2	51.6	± 2.0	passed
400	21.9	3.1	YES	0.0	YES	YES	YES	57.1	52.3	± 1.5	passed
500	**22.0**	**2.8**	**YES**	**0.0**	**YES**	**YES**	**YES**	**56.7**	**53.5**	**± 1.5**	**passed**
630	22.3	2.7	YES	0.0	YES	YES	YES	55.0	53.1	± 1.5	passed
800	22.3	2.4	YES	0.0	YES	YES	YES	53.5	52.7	± 1.5	passed
1000	23.3	2.4	YES	0.0	YES	YES	YES	52.3	52.3	± 1.5	passed
1250	22.5	2.5	YES	0.0	YES	YES	YES	52.2	52.8	± 1.5	passed
1600	22.9	2.2	YES	0.0	YES	YES	YES	48.0	49.0	± 1.5	passed
2000	21.3	1.9	YES	0.0	YES	YES	YES	46.0	47.2	± 1.5	passed
2500	20.4	2.2	YES	0.0	YES	YES	YES	47.2	48.5	± 1.5	passed
3150	20.8	2.4	YES	0.0	YES	YES	YES	43.9	45.1	± 1.5	passed
4000	20.7	2.4	YES	0.0	YES	YES	YES	41.0	42.0	± 1.5	c
5000	20.4	2.3	YES	0.0	YES	YES	YES	40.6	41.1	± 1.5	c
6300	20.7	2.9	YES	0.0	YES	YES	YES	33.6	33.5	± 2.5	c
Total								**71.0**	**62.9**	**± 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}. This 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 p0916 –** Outdoor unit at A7/W55 */ Compressor: FIXED, Fan: AUTO, Water pump: --- /*	**Engineering** **(Grade 2)**



Tested by:	Ing. Antonín Kolbábek, Ph.D.	Date:	2022-09-14	Signed:	
Reviewed and approved by:	Milan Holomek	Date:	2022-09-14	Signed:	

V. A list of referenced documents

- Order B-76791 of 2022-06-29 (Order reg. no. B-76791, received on 2022-06-29)
- Contract B-76791/39

- ČSN EN 14511-2:2019 - 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 14511-3:2019 - 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 14511-4:2019 - Air conditioners, liquid chilling packages and heat pumps for space heating and cooling and process chillers, with electrically driven compressors - Part 4: Requirements
- ČSN EN 14825:2020 - 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 seasonal performance

- ČSN EN 12102-1:2018 - 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 ISO 9614-2:1997 - Acoustics - Determination of sound power levels of noise sources using sound intensity - Part 2: Measurement by scannig

- EHPA Testing regulation – Testing of Air/Water Heat Pumps – Additional requirements for granting the international quality label for heat pumps – Version 2.4a

- Background of the SZÚ task No. 39-16511

- Record measurement file: 39-16511 P.P.H.U. (AW-EHPA).zip

Test Report compiled by: Ing. Antonín Kolbábek, Ph.D.
Head of Acoustics and Ventilation systems department / Test engineer

Test Report approved by: **Milan Holomek**
Head of Heat and Environment-Friendly Equipment Test Station

– End of Test Report –

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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
39-16511/T

Product:	Outdoor Air/Water Heat Pump – monobloc
Type designation:	**Airkompakt p0916**
Customer:	KOŁTON SPÓŁKA KOMANDYTOWA ul. Sosnowa 2 34-480 Jabłonka POLSKA
Manufacturer:	KOŁTON SPÓŁKA KOMANDYTOWA ul. Sosnowa 2 34-480 Jabłonka POLSKA
Employee responsible:	Ing. Mario Jankola
Report issue date:	2022-09-16
Distribution list:	1 copy to the Customer 1 copy to the Engineering Test Institute

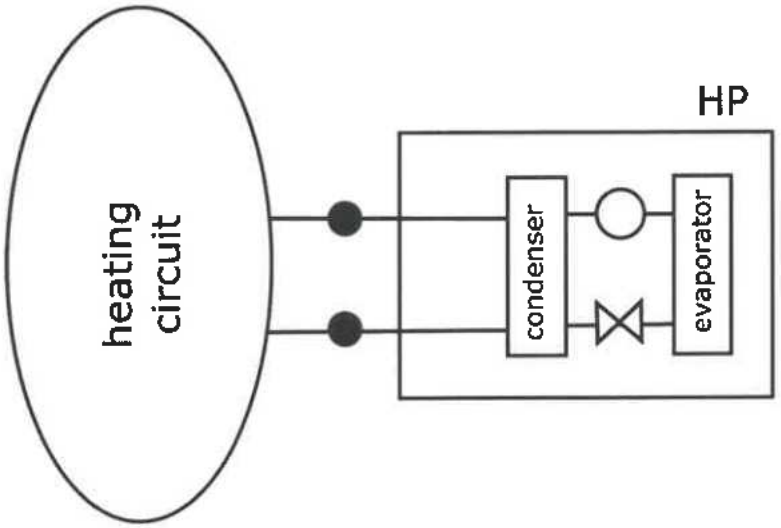
I. Description of product tested

The Heat pump **Airkompakt p0916** supplied by the company **KOŁTON SPÓŁKA KOMANDYTOWA** is structurally adapted to operate in air/water system. Device is designed as monobloc. Refrigerant R290 is used with charge 1.5 kg. Power supply is a three-phase. Heat pump is able to work in heating and cooling mode. Heat pump is working with fixed flow rate.

Main components of the unit **Airkompakt p0916**:

- Serial number 22PC09020010085
- Cubic shape with dimensions 1300 × 590 × 1030 mm (W × D × H)
- Frame and casing made of varnished steel sheets
- Cubic-shaped evaporator, 3 rows, dimensions 800 × 55 × 885 mm (W × D × H), spacing 2.0 mm
- Plate condenser, dimensions 160 × 140 × 560 mm (W × D × H) including insulation
- Compressor Copeland Scroll ZH08KCU-TFMN-524
- Refrigerant R290 (1.5 kg)
- Electric expansion valve
- 4-way reversing valve Sanhua SHF(L)-11H-35U-52
- Refrigerant accumulator
- Axial fan Ø65 cm
- Pressure sensors
- Temperature sensors
- Filter drier
- Refrigerant pipes

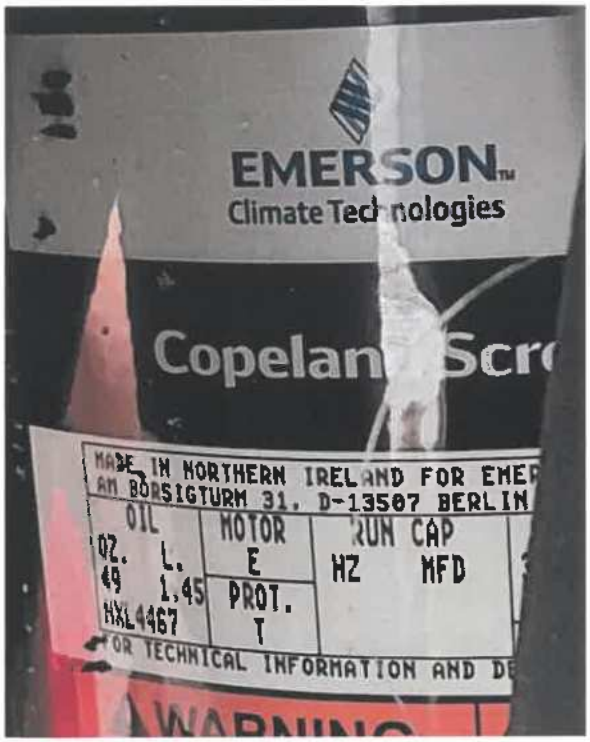
Scheme:



Photodocumentation:

Heat pump **Airkompakt p0916**
– Front view –

Heat pump **Airkompakt p0916**
– Back view –



Heat pump **Airkompakt p0916**
– Compressor label –

Heat pump **Airkompakt p0916**
– Label –

Heat pump **Airkompakt p0916**
– Without cover –

II. Sample tested

SZU reg. no.	Product name	Date of submission
0213.22.37137.001	Airkompakt p0916	2022-08-22

The visual inspection, tests and verification were carried out by Ing. Michal Faltýnek 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	022370/1
2.	Flow meter Krohne Optiflux	022370/5
3.	Barometer	022370/7
4.	Differential pressure gauge	MaR01_TI
5.	Temperature-humidity meter HC2-IC305	022370/10
6.	Temperature-humidity meter HC2-IC305	022370/11
7.	Thermometers	022370/13

IV. Methods, results of tests and verifications

No.	Test objective	Requirement	Method of test	Documentation	Test evaluation/ verification *
1.	Rating conditions	–	ČSN EN 14511-2:2019 ČSN EN 14511-3:2019	Page No. 7	x
2.	Seasonal performance tests and SCOP calculation – Low temperature application	–	ČSN EN 14511-3:2019 ČSN EN 14825:2020	Page No. 8	x
3.	Seasonal performance tests and SCOP calculation – Medium temperature application	–	ČSN EN 14511-3:2019 ČSN EN 14825:2020	Page No. 16	x
4.	Safety tests	Art. 4.2.1.2 Art. 4.2.1.3 Art. 4.5 sect. a) Art. 4.5 sect. b)	ČSN EN 14511-4:2019	Page No.24	+
5.	Out of accredited tests – SCOP calculations	–	ČSN EN 14511-3:2019 ČSN EN 14825:2020	Page No. 27	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:	**T 037* - Tests of leakage, pressure resistance, thermal and technical parameters, combustion efficiency, safety functions**
Test method:	ČSN EN 14511-2:2019, ČSN EN 14511-3:2019
Sample tested:	Heat pump **Airkompakt p0916**
Measuring equipment used:	see Chapter III

Specification of the assessment condition*		**A7/W35**	**A7/W55**
Date of testing		**2022-08-22**	**2022-08-24**
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]	34.96	55.01
Input heating water – temperature calculation	[°C]	30.00	46.98
Output heating water temperature	[°C]	34.96	55.01
Input heating water temperature	[°C]	30.00	46.98
Air temperature – dry bulb temperature	[°C]	7.11	7.11
Air temperature – wet bulb temperature	[°C]	6.12	6.11
Relative humidity	[%]	87.02	86.83
Barometric pressure	[kPa]	98.164	98.730
Ambient temperature	[°C]	7.11	7.11
Secondary circuit pressure difference	[kPa]	-15.335	-5.270
Efficiency of the secondary liquid pump	[–]	0.196	0.129
Volume flow rate of heating water	[$m^3 \cdot h^{-1}$]	1.5781	0.9178
Density of heating water	[$kg \cdot m^{-3}$]	994.0	985.8
Specific heat capacity of heating water	[$kJ \cdot kg^{-1} \cdot K^{-1}$]	4.180	4.180
Voltage	[V]	399.52	399.50
Total current	[A]	11.44	14.13
Overall power input	[kW]	1.916	2.667
Capacity correction of sec. liquid pump	[W]	-27.543	-9.036
Power input correction of sec. liquid pump	[W]	-34.27	-10.38
Heating capacity – heating water	[kW]	9.034	8.419
Corrected heating capacity – heating water	**[kW]**	**9.062**	**8.428**
Uncertainty of corrected heating capacity	[kW]	± 0.156	± 0.094
Effective electric power input	**[kW]**	**1.950**	**2.678**
COP	**[–]**	**4.647**	**3.148**
Uncertainty of COP	[–]	± 0.081	± 0.035
Control settings	**[–]**	**–**	**–**
Circulation pump settings – heating water	[–]	–	–

Test objective:	Seasonal performance tests and SCOP calculation – Low temperature application
Exact name of the test procedure:	**T 037* - Tests of leakage, pressure resistance, thermal and technical parameters, combustion efficiency, safety functions**
Test method:	ČSN EN 14511-3:2019, ČSN EN 14825:2020
Sample tested:	Heat pump **Airkompakt p0916**
Measuring equipment used:	see Chapter III

Design					Air / water – monobloc			
Conditions specification according to ČSN EN 14825:2020	Temperature application				**Low** (reference 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				Fixed			
Seasonal space heating energy efficiency	Heating	Average	η_s		**<u>157.2</u>**		%	
		Warmer	η_s		196.9	(Not tested)	%	
		Colder	η_s		138.7	(Not tested)	%	
Seasonal efficiency according to ČSN EN 14825:2020	Heating	Average	**SCOP**		**<u>4.00</u>**		–	
		Warmer	SCOP		5.00	(Not tested)	–	
		Colder	SCOP		3.54	(Not tested)	–	
Function	Cooling				Yes			
	Heating	Yes	Reference heating season	Average	Yes			
				Warmer	Yes			
				Colder	Yes			
Full heating load	Cooling		$P_{designc}$		–		kW	
	Heating	Average	$P_{designh}$		**<u>6.20</u>**		kW	
		Warmer	$P_{designh}$		**<u>7.00</u>**		kW	
		Colder	$P_{designh}$		**<u>5.65</u>**		kW	
Bivalent temperatures	Heating	Average	$T_{bivalent}$		-7		°C	
		Warmer	$T_{bivalent}$		2		°C	
		Colder	$T_{bivalent}$		-15		°C	
Operation limit temperatures	Heating	Average	TOL		-10		°C	
		Warmer	TOL		2		°C	
		Colder	TOL		-22		°C	
Seasonal power consumption according to ČSN EN 14825:2020	Cooling		Q_{CE}		–		kWh	
	Heating	Average	Q_{HE}		3197		kWh	
		Warmer	Q_{HE}		1870	(Not tested)	kWh	
		Colder	Q_{HE}		3930	(Not tested)	kWh	
Modes other than „active mode“	Off mode			P_{OFF}	14.8		W	
	Thermostat off mode			P_{TO}	14.7		W	
	Standby mode			P_{SB}	14.8		W	
	Crankcase heater mode			P_{CK}	0.0		W	

(Not tested): The technical data were declared by the Manufacturer and were not tested by the Testing Laboratory.

Calculation of SCOP according to ČSN EN 14825:2020:

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}	0.0147	[kW]
P_{SB}	0.0148	[kW]
P_{CK}	0.0000	[kW]
P_{OFF}	0.0148	[kW]
$P_{designh}$	6.20	[kW]
$SCOP_{ON}$	4.01	[–]

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]

$Q_H = 6.2 \cdot 2066 = 12802$ [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]

$Q_{HE} = 12802 / 4.01 + 178 \cdot 0.0147 + 0 \cdot 0.0148 + 178 \cdot 0 + 0 \cdot 0.0148 = 3197$ [kWh]

7.2 General formula for calculation of reference SCOP

$SCOP = Q_H / Q_{HE}$ [–]

$SCOP = 12802 / 3197 = 4$ [–]

7.1 Calculation of the seasonal space heating efficiency η_s

$\Sigma F(i) = F(1) + F(2)$ [–]

$\Sigma F = 0.03 + 0 = 0.03$ [–]

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

$\eta_s (A) = (1 / 2.5) \cdot 4 - 0.03 =$ **1.572** [–]

Temperature level		Low (reference water temperature 35 °C)		
Reference heating season		„A" = average ($T_{designh}$ = -10 °C)		
Assessment condition		**B**	**C**	**D**
Specification of the assessment condition*		**A2/W32.06**	**A7/W30.9**	**A12/W29.33**
Date of testing		**2022-08-26**	**2022-08-29**	**2022-08-29**
Transient test procedure	YES / NO	YES	NO	NO
Average defrost time of 1 cycle	[min]	3.1	–	–
Average time of 1 cycle	[min]	69.0	–	–
Calculation time	[min]	137.9	70.0	70.0
Output heating water – temperature calculation	[°C]	31.44	30.87	29.27
Input heating water – temperature calculation	[°C]	27.57	25.83	23.45
Output heating water temperature	[°C]	32.02	30.87	29.27
Input heating water temperature	[°C]	27.74	25.83	23.45
Air temperature – dry bulb temperature	[°C]	2.09	7.10	12.03
Air temperature – wet bulb temperature	[°C]	1.08	6.08	11.01
Relative humidity	[%]	83.73	86.60	88.78
Barometric pressure	[kPa]	98.053	98.765	98.687
Ambient temperature	[°C]	2.09	7.10	12.03
Secondary circuit pressure difference	[kPa]	-15.867	-16.100	-16.248
Efficiency of the secondary liquid pump	[–]	0.199	0.200	0.200
Volume flow rate of heating water	[$m^3 \cdot h^{-1}$]	1.5755	1.5745	1.5737
Density of heating water	[$kg \cdot m^{-3}$]	995.1	995.3	995.7
Specific heat capacity of heating water	[$kJ \cdot kg^{-1} \cdot K^{-1}$]	4.180	4.180	4.180
Voltage	[V]	399.53	399.75	399.75
Total current	[A]	11.02	10.93	10.83
Overall power input	[kW]	1.787	1.760	1.726
Capacity correction of sec. liquid pump	[W]	-28.006	-28.203	-28.329
Power input correction of sec. liquid pump	[W]	-34.95	-35.24	-35.43
Heating capacity – heating water	[kW]	7.038	9.181	10.583
Corrected heating capacity – heating water	**[kW]**	**7.066**	**9.209**	**10.611**
Uncertainty of corrected heating capacity	[kW]	± 0.156	± 0.156	± 0.157
Effective electric power input	**[kW]**	**1.822**	**1.795**	**1.761**
COP	**[–]**	**3.878**	**5.130**	**6.025**
Uncertainty of COP	[–]	± 0.086	± 0.088	± 0.090
Control settings	**[–]**	–	–	–
Circulation pump settings – heating water	[–]	–	–	–

Temperature level		Low (reference water temperature 35 °C)		
Reference heating season		„A" = average ($T_{designh}$ = -10 °C)		„W" = warmer ($T_{designh}$ = 2 °C)
Assessment condition		**TOL (E)**	**Tbiv (F)**	**Tbiv (F)**
Specification of the assessment condition*		**A-10/W35**	**A-7/W34**	**A2/W35**
Date of testing		**2022-08-24**	**2022-08-24**	**2022-08-26**
Transient test procedure	YES / NO	NO	YES	YES
Average defrost time of 1 cycle	[min]	–	2.8	3.0
Average time of 1 cycle	[min]	–	133.4	71.4
Calculation time	[min]	70.0	133.4	142.9
Output heating water – temperature calculation	[°C]	34.99	33.74	34.35
Input heating water – temperature calculation	[°C]	32.11	30.74	30.52
Output heating water temperature	[°C]	34.99	34.00	34.99
Input heating water temperature	[°C]	32.11	30.84	30.76
Air temperature – dry bulb temperature	[°C]	-9.97	-7.00	2.09
Air temperature – wet bulb temperature	[°C]	-10.97	-8.05	1.07
Relative humidity	[%]	69.93	73.77	83.66
Barometric pressure	[kPa]	98.767	98.770	98.204
Ambient temperature	[°C]	-9.97	-7.00	2.09
Secondary circuit pressure difference	[kPa]	-15.669	-15.785	-15.727
Efficiency of the secondary liquid pump	[–]	0.198	0.198	0.198
Volume flow rate of heating water	[$m^3 \cdot h^{-1}$]	1.5749	1.5767	1.5754
Density of heating water	[$kg \cdot m^{-3}$]	994.0	994.4	994.1
Specific heat capacity of heating water	[$kJ \cdot kg^{-1} \cdot K^{-1}$]	4.180	4.180	4.180
Voltage	[V]	399.61	399.85	399.87
Total current	[A]	11.27	11.24	11.32
Overall power input	[kW]	1.868	1.854	1.877
Capacity correction of sec. liquid pump	[W]	-27.820	-27.943	-27.878
Power input correction of sec. liquid pump	[W]	-34.68	-34.86	-34.76
Heating capacity – heating water	[kW]	5.232	5.454	6.968
Corrected heating capacity – heating water	**[kW]**	**5.260**	**5.482**	**6.996**
Uncertainty of corrected heating capacity	[kW]	± 0.155	± 0.155	± 0.155
Effective electric power input	**[kW]**	**1.902**	**1.889**	**1.911**
COP	**[–]**	**2.765**	**2.902**	**3.660**
Uncertainty of COP	[–]	± 0.082	± 0.082	± 0.082
Control settings	[–]	–	–	–
Circulation pump settings – heating water	[–]	–	–	–

Temperature level		Low (reference water temperature 35 °C)	
Reference heating season		„C" = colder ($T_{designh}$ = -22 °C)	
Assessment condition		**TOL (E)**	**Tbiv (F)**
Specification of the assessment condition*		**A-22/W35**	**A-15/W32**
Date of testing		**2022-08-23**	**2022-08-23**
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	32.00
Input heating water – temperature calculation	[°C]	32.99	29.49
Output heating water temperature	[°C]	35.00	32.00
Input heating water temperature	[°C]	32.99	29.49
Air temperature – dry bulb temperature	[°C]	-22.08	-14.97
Air temperature – wet bulb temperature	[°C]	-22.58	-15.83
Relative humidity	[%]	61.85	63.38
Barometric pressure	[kPa]	98.447	98.480
Ambient temperature	[°C]	-22.08	-14.97
Secondary circuit pressure difference	[kPa]	-20.282	-12.377
Efficiency of the secondary liquid pump	[–]	0.220	0.181
Volume flow rate of heating water	[$m^3 \cdot h^{-1}$]	1.5786	1.5814
Density of heating water	[$kg \cdot m^{-3}$]	994.0	994.9
Specific heat capacity of heating water	[$kJ \cdot kg^{-1} \cdot K^{-1}$]	4.180	4.180
Voltage	[V]	400.22	399.76
Total current	[A]	10.97	10.92
Overall power input	[kW]	1.774	1.760
Capacity correction of sec. liquid pump	[W]	-31.622	-24.571
Power input correction of sec. liquid pump	[W]	-40.52	-30.01
Heating capacity – heating water	[kW]	3.654	4.581
Corrected heating capacity – heating water	**[kW]**	**3.686**	**4.606**
Uncertainty of corrected heating capacity	[kW]	± 0.155	± 0.155
Effective electric power input	**[kW]**	**1.814**	**1.790**
COP	**[–]**	**2.031**	**2.573**
Uncertainty of COP	[–]	± 0.086	± 0.087
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 (T_j)	Eff. power input of compressor off state
	[°C]	[°C]	[%]	[kW]	[kW]	[–]	[–]	[–]	[–]	[kW]
A	-7	34.00	88.46	5.48	5.482	2.902	0.900	1.00	2.902	–
B	2	32.06	53.85	3.34	7.066	3.878	0.992	0.47	3.843	0.0147
C	7	30.90	34.62	2.15	9.209	5.130	0.992	0.23	4.995	0.0147
D	12	29.33	15.38	0.95	10.611	6.025	0.992	0.09	5.555	0.0147
TOL (E)	-10	35.00	100.00	6.20	5.260	2.765	0.900	1.18	2.765	–
Tbiv (F)	-7	34.00	88.46	5.48	5.482	2.902	0.900	1.00	2.902	–

Adaption of water temperature – according to ČSN EN 14825:2020, Annex F

- Low temperature application (reference water temperature 35 °C)
- Reference season „A"– average
- Condition D
- Fixed 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 fixed flow:

Δt = Declared capacity / Declared capacity $_{standard\ rating\ conditions\ A7W35} \cdot 5$

$CR \cdot \Delta t$ = Part load / Declared capacity · Declared capacity / Declared capacity $_{standard\ rating\ conditions\ A7W35} \cdot 5$

$CR \cdot \Delta t$ = Part load / Declared capacity $_{standard\ rating\ conditions\ A7W35} \cdot 5$

$t_{outlet,\,capacity\,test,\,fixed\,flow} = t_{outlet,\,average}$ + Declared capacity / Declared capacity $_{standard\ rating\ conditions\ A7W35} \cdot 5$ - Part load / Declared capacity $_{standard\ rating\ conditions\ A7W35} \cdot 5$

$t_{outlet,\,capacity\,test,\,fixed\,flow} = t_{outlet,\,average} + 5$ / Declared capacity $_{standard\ rating\ conditions\ A7W35}$ · (Declared capacity - Part load)

Measured data:

$t_{outlet,\,average}$	24.00	[°C]
Declared capacity	10.611	[kW]
Declared capacity $_{standard\ rating\ condition\ A7/W35}$	9.062	[kW]
Part load	0.95	[kW]

Calculation of water temperature

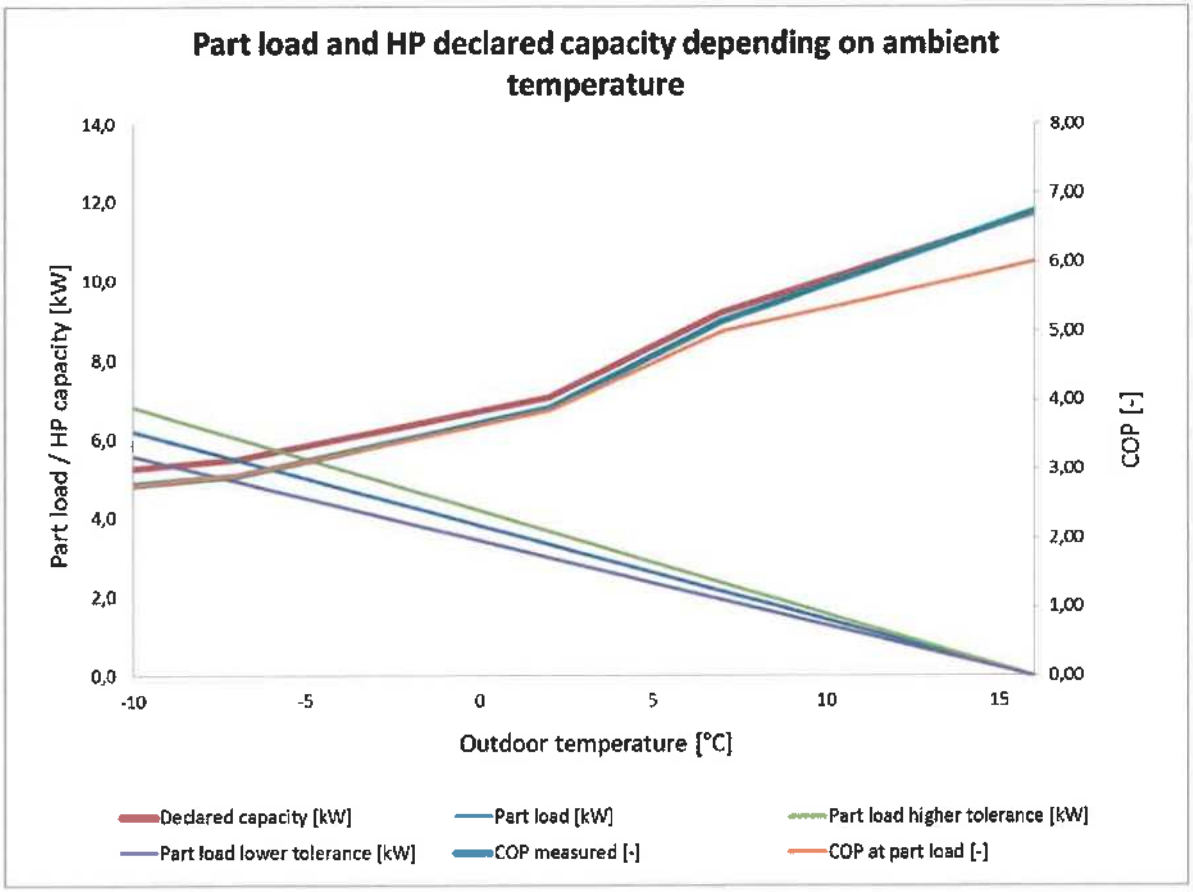
$t_{outlet,\,capacity\,test,\,fixed\,flow} = 24 + 5 / 9.062 \cdot (10.611 - 0.95) =$ **29.33** [°C]

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 (Ph(Tj) - elbu(Tj))	
	[–]	[°C]	[h]	[%]	[kW]	[kW]	[kW]	[kW]	[kWh]	[–]	[kWh]	[kWh]	[kWh]	[kWh]
TOL (E)	21	-10	1	100.00	6.20	5.26	5.26	0.94	0.94	2.77	6	3	5	2
	22	-9	25	96.15	5.96	5.33	5.33	0.62	15.62	2.81	149	63	133	47
	23	-8	23	92.31	5.72	5.41	5.41	0.31	7.19	2.86	132	51	124	44
A, Tbiv (F)	24	-7	24	88.46	5.48	5.48	5.48	0.00	0.00	2.90	132	45	132	45
	25	-6	27	84.62	5.24	5.66	5.24	0.00	0.00	3.01	142	47	142	47
	26	-5	68	80.77	5.01	5.83	5.01	0.00	0.00	3.11	340	109	340	109
	27	-4	91	76.92	4.77	6.01	4.77	0.00	0.00	3.22	434	135	434	135
	28	-3	89	73.08	4.53	6.19	4.53	0.00	0.00	3.32	403	121	403	121
	29	-2	165	69.23	4.29	6.36	4.29	0.00	0.00	3.42	708	207	708	207
	30	-1	173	65.38	4.05	6.54	4.05	0.00	0.00	3.53	701	199	701	199
	31	0	240	61.54	3.81	6.71	3.81	0.00	0.00	3.63	915	252	915	252
	32	1	280	57.69	3.58	6.89	3.58	0.00	0.00	3.74	1001	268	1001	268
B	33	2	320	53.85	3.34	7.07	3.34	0.00	0.00	3.84	1068	278	1068	278
	34	3	357	50.00	3.10	7.49	3.10	0.00	0.00	4.07	1106	272	1106	272
	35	4	356	46.15	2.86	7.92	2.86	0.00	0.00	4.30	1018	237	1018	237
	36	5	303	42.31	2.62	8.35	2.62	0.00	0.00	4.53	794	175	794	175
	37	6	330	38.46	2.38	8.78	2.38	0.00	0.00	4.76	787	165	787	165
C	38	7	326	34.62	2.15	9.21	2.15	0.00	0.00	5.00	699	140	699	140
	39	8	348	30.77	1.91	9.49	1.91	0.00	0.00	5.11	864	130	664	130
	40	9	335	26.92	1.67	9.77	1.67	0.00	0.00	5.22	559	107	559	107
	41	10	315	23.08	1.43	10.05	1.43	0.00	0.00	5.33	450	84	450	84
	42	11	215	19.23	1.19	10.33	1.19	0.00	0.00	5.44	256	47	256	47
D	43	12	169	15.38	0.95	10.61	0.95	0.00	0.00	5.56	161	29	161	29
	44	13	151	11.54	0.72	10.89	0.72	0.00	0.00	5.67	108	19	108	19
	45	14	105	7.69	0.48	11.17	0.48	0.00	0.00	5.78	50	9	50	9
	46	15	74	3.85	0.24	11.45	0.24	0.00	0.00	5.89	18	3	18	3
		Σ	4910							Σ	12800	3194	12776	3170

SCOPon	4.01	SCOPnet	4.03
		SCOP	**4.00**

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:	**T 037* - Tests of leakage, pressure resistance, thermal and technical parameters, combustion efficiency, safety functions**
Test method:	ČSN EN 14511-3:2019, ČSN EN 14825:2020
Sample tested:	Heat pump **Airkompakt p0916**
Measuring equipment used:	see Chapter III

Design					Air / water – monobloc			
Conditions specification according to ČSN EN 14825:2020	Temperature application				**Medium** (reference 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				Fixed			
Seasonal space heating energy efficiency	Heating	Average	η_s		**127.0**		%	
		Warmer	η_s		158.4	(Not tested)	%	
		Colder	η_s		109.8	(Not tested)	%	
Seasonal efficiency according to ČSN EN 14825:2020	Heating	Average	**SCOP**		**3.25**		–	
		Warmer	SCOP		4.03	(Not tested)	–	
		Colder	SCOP		2.82	(Not tested)	–	
Function	Cooling				Yes			
	Heating	Yes	Reference heating season	Average	Yes			
				Warmer	Yes			
				Colder	Yes			
Full heating load	Cooling		$P_{designc}$		–		kW	
	Heating	Average	$P_{designh}$		**6.28**		kW	
		Warmer	$P_{designh}$		**6.52**		kW	
		Colder	$P_{designh}$		**5.29**		kW	
Bivalent temperatures	Heating	Average	$T_{bivalent}$		-7		°C	
		Warmer	$T_{bivalent}$		2		°C	
		Colder	$T_{bivalent}$		-15		°C	
Operation limit temperatures	Heating	Average	TOL		-10		°C	
		Warmer	TOL		2		°C	
		Colder	TOL		-19		°C	
Seasonal power consumption according to ČSN EN 14825:2020	Cooling		Q_{CE}		–		kWh	
	Heating	Average	Q_{HE}		3995		kWh	
		Warmer	Q_{HE}		2159	(Not tested)	kWh	
		Colder	Q_{HE}		4624	(Not tested)	kWh	
Modes other than „active mode"	Off mode			P_{OFF}	14.8		W	
	Thermostat off mode			P_{TO}	14.7		W	
	Standby mode			P_{SB}	14.8		W	
	Crankcase heater mode			P_{CK}	0.0		W	

(Not tested): The technical data were declared by the Manufacturer and were not tested by the Testing Laboratory.

Calculation of SCOP according to ČSN EN 14825:2020:

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}	0.0147	[kW]
P_{SB}	0.0148	[kW]
P_{CK}	0.0000	[kW]
P_{OFF}	0.0148	[kW]
$P_{designh}$	6.28	[kW]
$SCOP_{ON}$	3.25	[–]

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]

$Q_H = 6.28 \cdot 2066 = 12981$ [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]

$Q_{HE} = 12981 / 3.25 + 178 \cdot 0.0147 + 0 \cdot 0.0148 + 178 \cdot 0 + 0 \cdot 0.0148 = 3995$ [kWh]

7.2 General formula for calculation of reference SCOP

$SCOP = Q_H / Q_{HE}$ [–]

$SCOP = 12981 / 3995 = 3.25$ [–]

7.1 Calculation of the seasonal space heating efficiency η_s

$\Sigma F(i) = F(1) + F(2)$ [–]

$\Sigma F = 0.03 + 0 = 0.03$ [–]

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

$\eta_s (A) = (1 / 2.5) \cdot 3.25 - 0.03 = 1.27$ [–]

Temperature level		Medium (reference water temperature 55 °C)		
Reference heating season		„A" = average ($T_{designh}$ = -10 °C)		
Assessment condition		**B**	**C**	**D**
Specification of the assessment condition*		**A2/W45.3**	**A7/W42.34**	**A12/W38.95**
Date of testing		**2022-08-29**	**2022-08-25**	**2022-08-25**
Transient test procedure	YES / NO	YES	NO	NO
Average defrost time of 1 cycle	[min]	2.9	–	–
Average time of 1 cycle	[min]	77.8	–	–
Calculation time	[min]	155.5	70.0	70.0
Output heating water – temperature calculation	[°C]	44.43	42.34	38.95
Input heating water – temperature calculation	[°C]	37.93	33.97	29.13
Output heating water temperature	[°C]	45.30	42.34	38.95
Input heating water temperature	[°C]	38.23	33.97	29.13
Air temperature – dry bulb temperature	[°C]	2.03	7.09	12.02
Air temperature – wet bulb temperature	[°C]	1.03	6.08	11.01
Relative humidity	[%]	83.76	86.76	88.86
Barometric pressure	[kPa]	98.853	98.487	98.398
Ambient temperature	[°C]	2.03	7.09	12.02
Secondary circuit pressure difference	[kPa]	-5.461	-5.384	-5.387
Efficiency of the secondary liquid pump	[–]	0.130	0.130	0.130
Volume flow rate of heating water	[$m^3 \cdot h^{-1}$]	0.9181	0.9191	0.9160
Density of heating water	[$kg \cdot m^{-3}$]	990.4	991.3	992.6
Specific heat capacity of heating water	[$kJ \cdot kg^{-1} \cdot K^{-1}$]	4.180	4.180	4.180
Voltage	[V]	399.66	399.50	399.74
Total current	[A]	12.37	12.08	11.64
Overall power input	[kW]	2.186	2.103	1.972
Capacity correction of sec. liquid pump	[W]	-9.311	-9.208	-9.186
Power input correction of sec. liquid pump	[W]	-10.70	-10.58	-10.56
Heating capacity – heating water	[kW]	6.856	8.845	10.359
Corrected heating capacity – heating water	**[kW]**	**6.865**	**8.854**	**10.368**
Uncertainty of corrected heating capacity	[kW]	± 0.093	± 0.095	± 0.097
Effective electric power input	**[kW]**	**2.197**	**2.114**	**1.982**
COP	**[–]**	**3.125**	**4.189**	**5.230**
Uncertainty of COP	[–]	± 0.042	± 0.045	± 0.049
Control settings	**[–]**	–	–	–
Circulation pump settings – heating water	[–]	–	–	–

Temperature level		Medium (reference water temperature 55 °C)		
Reference heating season		„A" = average ($T_{designh}$ = -10 °C)		„W" = warmer ($T_{designh}$ = 2 °C)
Assessment condition		**TOL (E)**	**Tbiv (F)**	**Tbiv (F)**
Specification of the assessment condition*		**A-10/W55**	**A-7/W52**	**A2/W55**
Date of testing		**2022-08-25**	**2022-08-25**	**2022-08-26**
Transient test procedure	YES / NO	NO	NO	YES
Average defrost time of 1 cycle	[min]	–	–	2.8
Average time of 1 cycle	[min]	–	–	79.4
Calculation time	[min]	70.0	70.0	158.9
Output heating water – temperature calculation	[°C]	55.00	52.00	54.13
Input heating water – temperature calculation	[°C]	50.12	46.72	47.92
Output heating water temperature	[°C]	55.00	52.00	55.02
Input heating water temperature	[°C]	50.12	46.72	48.25
Air temperature – dry bulb temperature	[°C]	-9.96	-6.93	2.07
Air temperature – wet bulb temperature	[°C]	-10.97	-7.93	1.05
Relative humidity	[%]	69.69	73.80	83.71
Barometric pressure	[kPa]	98.642	98.612	97.958
Ambient temperature	[°C]	-9.96	-6.93	2.07
Secondary circuit pressure difference	[kPa]	-5.220	-5.252	-5.244
Efficiency of the secondary liquid pump	[–]	0.129	0.129	0.129
Volume flow rate of heating water	[$m^3 \cdot h^{-1}$]	0.9165	0.9176	0.9159
Density of heating water	[$kg \cdot m^{-3}$]	985.8	987.2	986.2
Specific heat capacity of heating water	[$kJ \cdot kg^{-1} \cdot K^{-1}$]	4.180	4.180	4.180
Voltage	[V]	399.82	399.64	399.75
Total current	[A]	13.67	13.21	13.89
Overall power input	[kW]	2.549	2.422	2.599
Capacity correction of sec. liquid pump	[W]	-8.951	-9.008	-8.982
Power input correction of sec. liquid pump	[W]	-10.28	-10.35	-10.32
Heating capacity – heating water	[kW]	5.118	5.549	6.512
Corrected heating capacity – heating water	**[kW]**	**5.127**	**5.558**	**6.521**
Uncertainty of corrected heating capacity	[kW]	± 0.091	± 0.091	± 0.092
Effective electric power input	**[kW]**	**2.559**	**2.433**	**2.609**
COP	**[–]**	**2.003**	**2.285**	**2.500**
Uncertainty of COP	[–]	± 0.036	± 0.038	± 0.035
Control settings	**[–]**	–	–	–
Circulation pump settings – heating water	[–]	–	–	–

Temperature level		Medium (reference water temperature 55 °C)	
Reference heating season		„C" = colder ($T_{designh}$ = -22 °C)	
Assessment condition		**D**	**Tbiv (F)**
Specification of the assessment condition*		**A12/W37.4**	**A-15/W49**
Date of testing		**2022-08-31**	**2022-08-30**
Transient test procedure	ANO / NE	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]	37.35	49.00
Input heating water – temperature calculation	[°C]	27.46	44.91
Output heating water temperature	[°C]	37.35	49.00
Input heating water temperature	[°C]	27.46	44.91
Air temperature – dry bulb temperature	[°C]	12.02	-14.93
Air temperature – wet bulb temperature	[°C]	11.01	-15.79
Relative humidity	[%]	88.87	63.15
Barometric pressure	[kPa]	98.790	98.740
Ambient temperature	[°C]	12.02	-14.93
Secondary circuit pressure difference	[kPa]	-6.160	-22.546
Efficiency of the secondary liquid pump	[–]	0.132	0.185
Volume flow rate of heating water	[$m^3 \cdot h^{-1}$]	0.9179	0.9142
Density of heating water	[$kg \cdot m^{-3}$]	993.2	988.5
Specific heat capacity of heating water	[$kJ \cdot kg^{-1} \cdot K^{-1}$]	4.180	4.180
Voltage	[V]	399.54	399.82
Total current	[A]	11.45	12.44
Overall power input	[kW]	1.928	2.214
Capacity correction of sec. liquid pump	[W]	-10.293	-25.287
Power input correction of sec. liquid pump	[W]	-11.86	-31.01
Heating capacity – heating water	[kW]	10.450	4.289
Corrected heating capacity – heating water	**[kW]**	**10.461**	**4.314**
Uncertainty of corrected heating capacity	[kW]	± 0.097	± 0.090
Effective electric power input	**[kW]**	**1.939**	**2.245**
COP	**[–]**	**5.394**	**1.921**
Uncertainty of COP	[–]	± 0.050	± 0.040
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	5.56	5.558	2.285	0.900	1.00	2.285	–
B	2	45.30	53.85	3.38	6.865	3.125	0.993	0.49	3.104	0.0147
C	7	42.34	34.62	2.17	8.854	4.189	0.993	0.25	4.101	0.0147
D	12	38.95	15.38	0.97	10.398	5.230	0.993	0.09	4.878	0.0147
TOL (E)	-10	55.00	100.00	6.28	5.127	2.003	0.900	1.23	2.003	–
Tbiv (F)	-7	52.00	88.46	5.56	5.558	2.285	0.900	1.00	2.285	–

Adaption of water temperature – according to ČSN EN 14825:2020, Annex F

- Medium temperature application (reference water temperature 55 °C)
- Reference season „A"– average
- Condition D
- Fixed 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 fixed flow:

Δt = Declared capacity / Declared capacity $_{standard\ rating\ conditions\ A7W55} \cdot 8$

$CR \cdot \Delta t$ = Part load / Declared capacity · Declared capacity / Declared capacity $_{standard\ rating\ conditions\ A7W55} \cdot 8$

$CR \cdot \Delta t$ = Part load / Declared capacity $_{standard\ rating\ conditions\ A7W55} \cdot 8$

$t_{outlet,\,capacity\,test,\,fixed\,flow}$ = $t_{outlet,\,average}$ + Declared capacity / Declared capacity $_{standard\ rating\ conditions\ A7W55} \cdot 8$ - Part load / Declared capacity $_{standard\ rating\ conditions\ A7W55} \cdot 8$

$t_{outlet,\,capacity\,test,\,fixed\,flow}$ = $t_{outlet,\,average}$ + 8 / Declared capacity $_{standard\ rating\ conditions\ A7W55}$ · (Declared capacity - Part load)

Measured data:

$t_{outlet,\,average}$	30.00	[°C]
Declared capacity	10.398	[kW]
Declared capacity $_{standard\ rating\ condition\ A7/W55}$	8.428	[kW]
Part load	0.97	[kW]

Calculation of water temperature

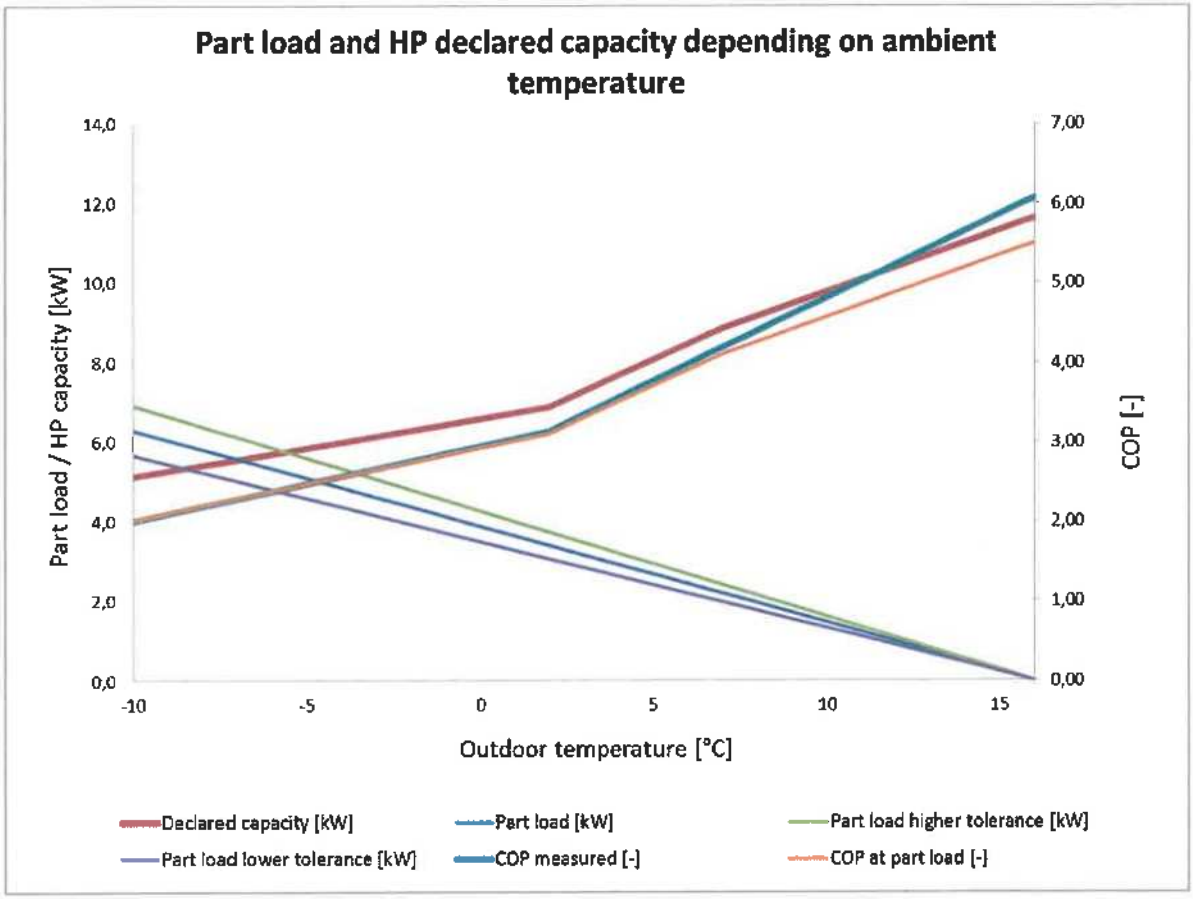
$t_{outlet,\,capacity\,test,\,fixed\,flow} = 30 + 8 / 8.428 \cdot (10.398 - 0.97) =$ **38.95** [°C]

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

	Bin j [–]	Outdoor temp. (dry bulb) Tj [°C]	Hours hj [h]	Part load ratio [%]	Heat load Ph(Tj) [kW]	Capacity of HP [kW]	Heat load covered by heat pump [kW]	Resistive heat elbu (Tj) elbu(Tj) [kW]	Annual resistive heat hj x elbu(Tj) [kWh]	COPbin (Tj) COPbin (Tj) [–]	Annual heating demand hj x Ph(Tj) [kWh]	Annual power input including electric back up heating [kWh]	Net annual heating capacity hj x (Ph(Tj) - elbu(Tj)) [kWh]	Net annual power input without electric back up heating [kWh]
TOL (E)	**21**	**-10**	**1**	**100.00**	**6.28**	**5.13**	**5.13**	**1.16**	**1.16**	**2.00**	**6**	**4**	**5**	**3**
	22	-9	25	96.15	6.04	5.27	5.27	0.77	19.27	2.10	151	82	132	63
	23	-8	23	92.31	5.80	5.41	5.41	0.39	8.87	2.19	133	66	125	57
A, Tbiv (F)	**24**	**-7**	**24**	**88.46**	**5.56**	**5.56**	**5.56**	**0.00**	**0.00**	**2.29**	**133**	**58**	**133**	**58**
	25	-6	27	84.62	5.32	5.70	5.32	0.00	0.00	2.38	144	60	144	60
	26	-5	68	80.77	5.07	5.85	5.07	0.00	0.00	2.47	345	140	345	140
	27	-4	91	76.92	4.83	5.99	4.83	0.00	0.00	2.56	440	172	440	172
	28	-3	89	73.08	4.59	6.14	4.59	0.00	0.00	2.65	409	154	409	154
	29	-2	165	69.23	4.35	6.28	4.35	0.00	0.00	2.74	718	262	718	262
	30	-1	173	65.38	4.11	6.43	4.11	0.00	0.00	2.83	711	251	711	251
	31	0	240	61.54	3.87	6.57	3.87	0.00	0.00	2.92	928	318	928	318
	32	1	280	57.69	3.62	6.72	3.62	0.00	0.00	3.01	1015	337	1015	337
B	**33**	**2**	**320**	**53.85**	**3.38**	**6.87**	**3.38**	**0.00**	**0.00**	**3.10**	**1083**	**349**	**1083**	**349**
	34	3	357	50.00	3.14	7.26	3.14	0.00	0.00	3.30	1122	340	1122	340
	35	4	356	46.15	2.90	7.66	2.90	0.00	0.00	3.50	1032	295	1032	295
	36	5	303	42.31	2.66	8.06	2.66	0.00	0.00	3.70	805	218	805	218
	37	6	330	38.46	2.42	8.46	2.42	0.00	0.00	3.90	797	204	797	204
C	**38**	**7**	**326**	**34.62**	**2.17**	**8.85**	**2.17**	**0.00**	**0.00**	**4.10**	**709**	**173**	**709**	**173**
	39	8	348	30.77	1.93	9.16	1.93	0.00	0.00	4.26	673	158	673	158
	40	9	335	26.92	1.69	9.47	1.69	0.00	0.00	4.41	567	128	567	128
	41	10	315	23.08	1.45	9.78	1.45	0.00	0.00	4.57	457	100	457	100
	42	11	215	19.23	1.21	10.09	1.21	0.00	0.00	4.72	260	55	260	55
D	**43**	**12**	**169**	**15.38**	**0.97**	**10.40**	**0.97**	**0.00**	**0.00**	**4.88**	**163**	**33**	**163**	**33**
	44	13	151	11.54	0.72	10.71	0.72	0.00	0.00	5.03	109	22	109	22
	45	14	105	7.69	0.48	11.02	0.48	0.00	0.00	5.19	51	10	51	10
	46	15	74	3.85	0.24	11.32	0.24	0.00	0.00	5.34	18	3	18	3
		Σ	4910							Σ	12979	3992	12950	3963

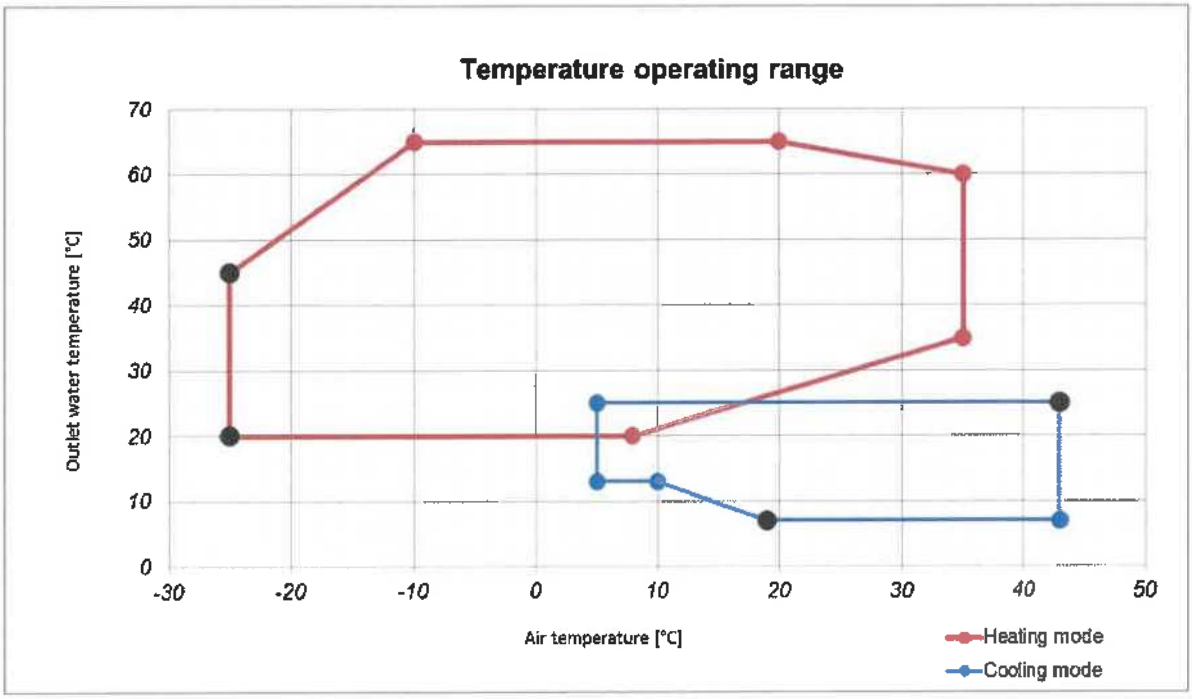
SCOPon	3.25	SCOPnet	3.27
		SCOP	**3.25**

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



Test objective:	Safety tests
Exact name of the test procedure:	**T 037* - Tests of leakage, pressure resistance, thermal and technical parameters, combustion efficiency, safety functions**
Test method:	ČSN EN 14511-4:2019
Sample tested:	Heat pump **Airkompakt p0916**
Measuring equipment used:	see Chapter III

1) Temperature operating range



Test point	Inlet air dry bulb temperature [°C]		Outlet heating water temperature [°C]		Water flow rate in condenser [m³/h]	Note
Heating mode						
1.	A	-25	W	20	Minimum	Minimum water flow rate: **0.9142 m³·h⁻¹** Maximum water flow rate: **1.5814 m³·h⁻¹**
2.	A	-25	W	45	Minimum	
Cooling mode						
1.	A	19	W	7	Minimum	Minimum starting water flow rate: **0.9142 m³·h⁻¹** Maximum water flow rate: **1.5814 m³·h⁻¹**
2.	A	43	W	25	Maximum	

Heat pump **Airkompakt p0916** is fully operational in the temperature operating range.

Starting and operating tests (heating mode)

Test according to Article 4.2.1.2 of ČSN EN 14511-4:2019

Operational requirements conditions for air-to-water units					
Test point	**Inlet temperature at outdoor heat exchanger (°C)**	**Inlet temperature at indoor heat exchanger (°C)**	**Water flow rate at indoor heat exchanger**	**Voltage (V)**	**Test result**
1 (starting)	Lower limit of use	Lower limit of use	minimum	Rated voltage	+
2 (operating)	Lower limit of use	Upper limit of use	minimum	Rated voltage	+

Evaluation:
+... For a starting test, the unit shall start and operate during 15 min, for an operating test, the unit shall be able to operate during 1 h, without tripping of the motor overload protective devices.
–... The unit did not fulfill test requirements.
0... The requirement does not apply to the product concerned.
x... Test was not required.

Starting and operating tests (cooling mode)

Test according to Article 4.2.1.3 of ČSN EN 14511-4:2019

Operational requirements conditions for air-to-water units					
Test point	**Inlet temperature at outdoor heat exchanger (°C)**	**Inlet temperature at indoor heat exchanger (°C)**	**Water flow rate at indoor heat exchanger**	**Voltage (V)**	**Test result**
1 (starting)	Lower limit of use	Lower limit of use	minimum	Rated voltage	+
2 (starting)	Upper limit of use	Upper limit of use	maximum	Rated voltage	+

Evaluation:
+... For a starting test, the unit shall start and operate during 15 min, without tripping of the motor overload protective devices.
–... The unit did not fulfill test requirements.
0... The requirement does not apply to the product concerned.
x... Test was not required.

2) Outside the operating range

Requirements for outside the operating range	Requirement specification	Test result	Note
If operating outside the temperature range can cause damage to the unit, it shall be provided with safety devices which ensure that the unit suffers no damage when the operating limits of use indicated by the manufacturer are exceeded and remains capable of operating when coming back within these limits. A safety device that does not automatically reset may trip provided that a warning device is fitted. The manufacturer shall indicate any safety devices provided and their operating conditions according to 7.2.3.	ČSN EN 14511-4:2019 Art. 4.3	x	–

Evaluation:
+... The unit fulfills test requirements.
–... The unit did not fulfill test requirements.
0... The requirement does not apply to the product concerned.
x... Test was not required.

3) Freeze-up test in cooling mode

Air-to-air and water(brine)-to-air units

Required operating conditions	Test result	Note
Test according to Article 4.4 of ČSN EN 14511-4:2019	0	–

Evaluation: +... After the unit has operated for 6 hours or after the last freeze up cycle has been completed after these 6 h, the following requirements shall be fulfilled:
- no ice shall have accumulated on the evaporator;
- no ice shall drip from the unit;
- no water shall drip or be blown off the unit into the room.

–... The unit did not fulfill test requirements.
0... The requirement does not apply to the product concerned.
x... Test was not required.

4) Shutting off the heat transfer medium flows

Required operating conditions	Test result	Note
Test for section a) Art. 4.5 ČSN EN 14511-4:2019 – heating	+	No flow error
Test for section a) Art. 4.5 ČSN EN 14511-4:2019 – cooling	+	Unit shut down instantly, no flow error
Test for section b) Art. 4.5 ČSN EN 14511-4:2019 – heating	+	Unit kept working with lower output
Test for section b) Art. 4.5 ČSN EN 14511-4:2019 – cooling	+	Unit turned off and on 3 times
Test for section c) Art. 4.5 ČSN EN 14511-4:2019	0	–

Evaluation: +... The unit shall remain capable of operating after restoration of the flow rates for 30 min once the compressor has restarted.
–... The unit did not fulfill test requirements.
0... The requirement does not apply to the product concerned.
x... Test was not required.

5) Complete power supply failure

Required operating conditions	Test result	Note
Test according to Article 4.6 of ČSN EN 14511-4:2019	+	–

Evaluation: +... The unit has to restart automatically within 30 min. When manufacturer states that the unit does not automatically restart, fault detection is necessary. The unit is checked for any damage sustained during the test and if any safety devices have operated during the test.
–... The unit did not fulfill test requirements.
0... The requirement does not apply to the product concerned.
x... Test was not required.

6) Condensate draining and enclosure sweat test

Air-to-air and water(brine)-to-air units

Required operating conditions	Test result	Note
Test according to Article 4.7 of ČSN EN 14511-4:2019	0	–

Evaluation: +... During the test of 4 hours no condensed water shall drip, run or blow off the unit except through the drain. For indoor units, drain holes shall be provided with suitable pipe connection, the minimum diameter of which shall be 12 mm.
–... The unit did not fulfill test requirements.
0... The requirement does not apply to the product concerned.
x... Test was not required.

Test objective:	Out of accredited tests – SCOP calculations
Exact name of the test procedure:	**SCOP calculations – *based on values provided by the customer***
Test method:	ČSN EN 14511-3:2019, ČSN EN 14825:2020
Sample tested:	Heat pump **Airkompakt p0916**

Data for SCOP calculation
- Low temperature application (reference water temperature 35 °C)
- Reference heating season „W" – warmer

	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	–	–	–	–	–	–	–	–	–	–
B	2	35.00	100.00	7.00	6.996	3.660	0.900	1.00	3.660	–
C	7	33.43	64.29	4.50	8.900	4.790	0.992	0.51	4.753	0.0147
D	12	30.69	28.57	2.00	10.500	5.700	0.992	0.19	5.513	0.0147
TOL (E)	2	35.00	100.00	7.00	6.996	3.660	0.900	1.00	3.660	–
Tbiv (F)	2	35.00	100.00	7.00	6.996	3.660	0.900	1.00	3.660	–

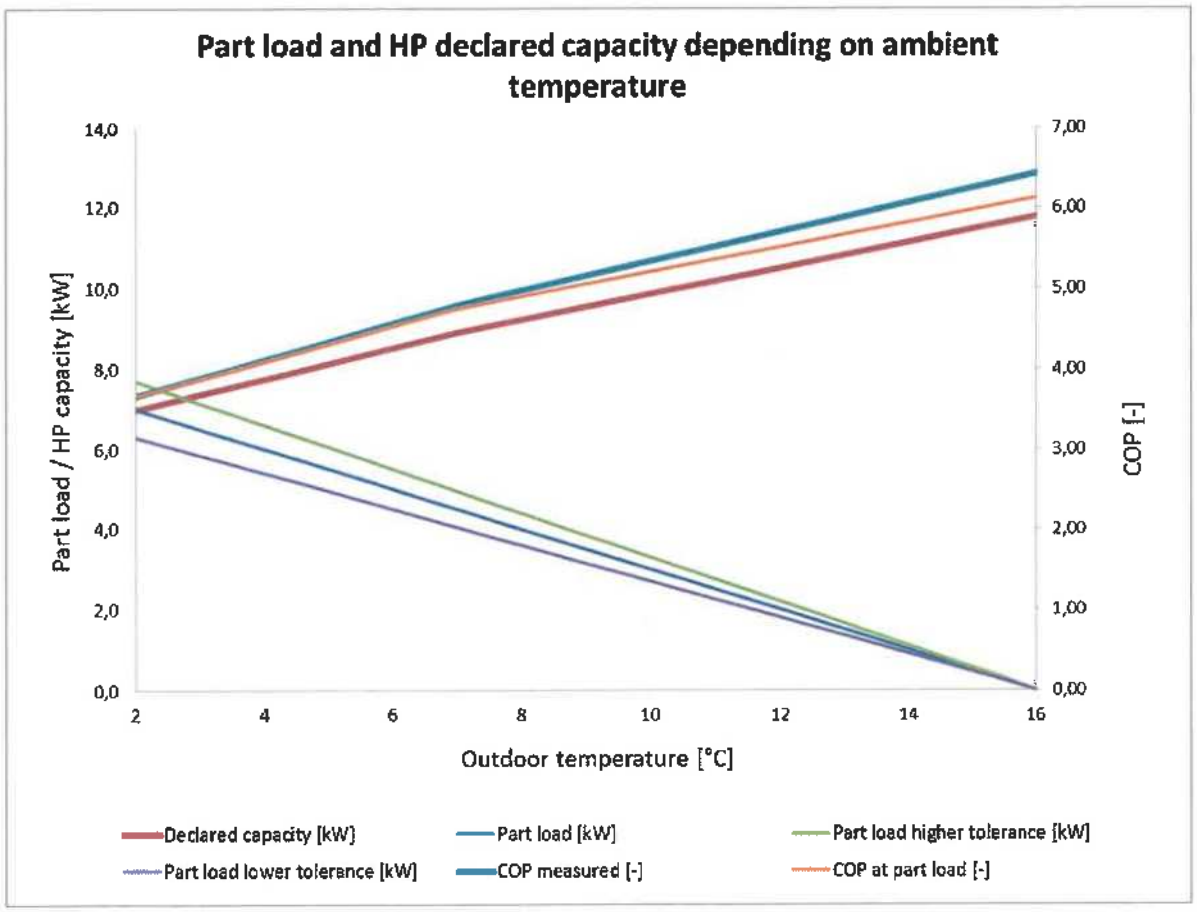
Calculation SCOP, $SCOP_{on}$, $SCOP_{net}$
- Low temperature application (reference water temperature 35 °C)
- Reference heating season „W" – warmer

	Bin j [–]	Outdoor temp. (dry bulb) T_j [°C]	Hours h_j [h]	Part load ratio [%]	Heat load $P_{h(Tj)}$ [kW]	Capacity of HP [kW]	Heat load covered by heat pump [kW]	Resistive heat elbu (Tj) $elbu_{(Tj)}$ [kW]	Annual resistive heat $h_j \times elbu_{(Tj)}$ [kWh]	COPbin (Tj) COP bin (Tj) [–]	Annual heating demand $h_j \times P_{h(Tj)}$ [kWh]	Annual power input including electric back up heating [kWh]	Net annual heating capacity $h_j \times (P_{h(Tj)} - elbu_{(Tj)})$ [kWh]	Net annual power input without electric back up heating [kWh]
B, TOL (E), Tbiv (F)	**33**	**2**	**3**	**100.00**	**7.00**	**7.00**	**7.00**	**0.00**	**0.00**	**3.66**	**21**	**6**	**21**	**6**
	34	3	22	92.86	6.50	7.38	6.50	0.00	0.00	3.88	143	37	143	37
	35	4	63	85.71	6.00	7.76	6.00	0.00	0.00	4.10	378	92	378	92
	36	5	63	78.57	5.50	8.14	5.50	0.00	0.00	4.32	346	80	346	80
	37	6	175	71.43	5.00	8.52	5.00	0.00	0.00	4.53	875	193	875	193
C	**38**	**7**	**162**	**64.29**	**4.50**	**8.90**	**4.50**	**0.00**	**0.00**	**4.75**	**729**	**153**	**729**	**153**
	39	8	259	57.14	4.00	9.22	4.00	0.00	0.00	4.91	1035	211	1035	211
	40	9	360	50.00	3.50	9.54	3.50	0.00	0.00	5.06	1259	249	1259	249

	41	10	428	42.86	3.00	9.86	3.00	0.00	0.00	5.21	1283	246	1283	246
	42	11	430	35.71	2.50	10.18	2.50	0.00	0.00	5.36	1074	200	1074	200
D	**43**	**12**	**503**	**28.57**	**2.00**	**10.50**	**2.00**	**0.00**	**0.00**	**5.51**	**1005**	**182**	**1005**	**182**
	44	13	444	21.43	1.50	10.82	1.50	0.00	0.00	5.66	666	118	666	118
	45	14	384	14.29	1.00	11.14	1.00	0.00	0.00	5.82	384	66	384	66
	46	15	294	7.14	0.50	11.46	0.50	0.00	0.00	5.97	147	25	147	25
		Σ	3590							Σ	9345	1858	9345	1858

SCOPon	5.03	SCOPnet	5.03
		SCOP	**5.00**

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



Data for SCOP calculation
- Low temperature application (reference water temperature 35 °C)
- Reference heating season „C" – colder

	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	31.87	60.53	3.42	6.800	3.150	0.993	0.50	3.129	0.0147
B	2	29.66	36.84	2.08	6.900	4.050	0.991	0.30	3.971	0.0147
C	7	29.39	23.68	1.34	9.300	5.190	0.992	0.14	4.948	0.0147
D	12	29.51	10.53	0.59	10.580	5.840	0.992	0.06	5.139	0.0147
TOL (E)	-22	35.00	100.00	5.65	3.686	2.031	0.900	1.53	2.031	–
Tbiv (F)	-15	32.00	81.58	4.61	4.606	2.573	0.900	1.00	2.573	–
G	-15	32.00	81.58	4.61	4.606	2.573	0.900	1.00	2.573	–

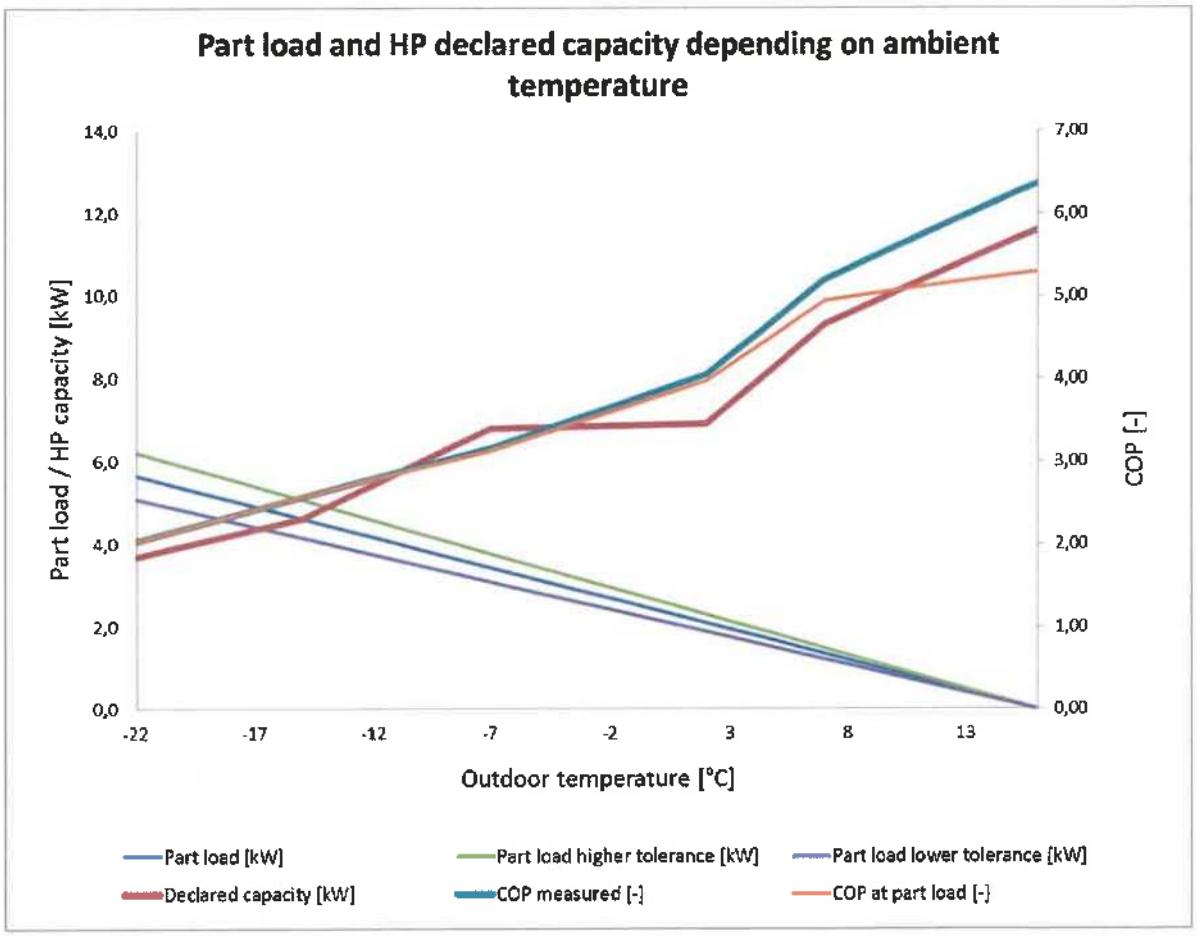
Calculation SCOP, $SCOP_{on}$, $SCOP_{net}$
- Low temperature application (reference water temperature 35 °C)
- Reference heating season „C" – colder

	Bin j	Outdoor temp. (dry bulb) T_j	Hours h_j	Part load ratio	Heat load $P_{h(Tj)}$	Capacity of HP	Heat load covered by heat pump	Resistive heat elbu (Tj) $elbu_{(Tj)}$	Annual resistive heat $h_j \times elbu_{(Tj)}$	COPbin (Tj) COP bin (Tj)	Annual heating demand $h_j \times P_{h(Tj)}$	Annual power input including electric back up heating	Net annual heating capacity $h_j \times (P_{h(Tj)} - elbu_{(Tj)})$	Net annual power input without electric back up heating
	[–]	[°C]	[h]	[%]	[kW]	[kW]	[kW]	[kW]	[kWh]	[–]	[kWh]	[kWh]	[kWh]	[kWh]
TOL (E)	**9**	**-22**	**1**	**100.00**	**5.65**	**3.69**	**3.69**	**1.96**	**1.96**	**2.03**	**6**	**4**	**4**	**2**
	10	-21	6	97.37	5.50	3.82	3.82	1.68	10.08	2.11	33	21	23	11
	11	-20	13	94.74	5.35	3.95	3.95	1.40	18.20	2.19	70	42	51	23
	12	-19	17	92.11	5.20	4.08	4.08	1.12	19.04	2.26	88	50	69	31
	13	-18	19	89.47	5.05	4.21	4.21	0.84	15.96	2.34	96	50	80	34
	14	-17	26	86.84	4.90	4.34	4.34	0.56	14.56	2.42	127	61	113	47
	15	-16	39	84.21	4.75	4.47	4.47	0.28	10.92	2.50	185	81	175	70
G, Tbiv (F)	**16**	**-15**	**41**	**81.58**	**4.61**	**4.61**	**4.61**	**0.00**	**0.00**	**2.57**	**189**	**73**	**189**	**73**
	17	-14	35	78.95	4.46	4.88	4.46	0.00	0.00	2.64	156	59	156	59
	18	-13	52	76.32	4.31	5.15	4.31	0.00	0.00	2.71	224	83	224	83
	19	-12	37	73.68	4.16	5.43	4.16	0.00	0.00	2.78	154	55	154	55
	20	-11	41	71.05	4.01	5.70	4.01	0.00	0.00	2.85	164	58	164	58

	21	-10	43	68.42	3.86	5.98	3.86	0.00	0.00	2.92	166	57	166	57
	22	-9	54	65.79	3.71	6.25	3.71	0.00	0.00	2.99	201	67	201	67
	23	-8	90	63.16	3.57	6.53	3.57	0.00	0.00	3.06	321	105	321	105
A	**24**	**-7**	**125**	**60.53**	**3.42**	**6.80**	**3.42**	**0.00**	**0.00**	**3.13**	**427**	**137**	**427**	**137**
	25	-6	169	57.89	3.27	6.81	3.27	0.00	0.00	3.22	552	171	552	171
	26	-5	195	55.26	3.12	6.82	3.12	0.00	0.00	3.32	608	183	608	183
	27	-4	278	52.63	2.97	6.83	2.97	0.00	0.00	3.41	826	242	826	242
	28	-3	306	50.00	2.82	6.84	2.82	0.00	0.00	3.50	864	247	864	247
	29	-2	454	47.37	2.67	6.86	2.67	0.00	0.00	3.60	1214	338	1214	338
	30	-1	385	44.74	2.53	6.87	2.53	0.00	0.00	3.69	972	264	972	264
	31	0	490	42.11	2.38	6.88	2.38	0.00	0.00	3.78	1165	308	1165	308
	32	1	533	39.47	2.23	6.89	2.23	0.00	0.00	3.88	1188	306	1188	306
B	**33**	**2**	**380**	**36.84**	**2.08**	**6.90**	**2.08**	**0.00**	**0.00**	**3.97**	**790**	**199**	**790**	**199**
	34	3	228	34.21	1.93	7.38	1.93	0.00	0.00	4.17	440	106	440	106
	35	4	261	31.58	1.78	7.86	1.78	0.00	0.00	4.36	465	107	465	107
	36	5	279	28.95	1.63	8.34	1.63	0.00	0.00	4.56	456	100	456	100
	37	6	229	26.32	1.49	8.82	1.49	0.00	0.00	4.75	340	72	340	72
C	**38**	**7**	**269**	**23.68**	**1.34**	**9.30**	**1.34**	**0.00**	**0.00**	**4.95**	**360**	**73**	**360**	**73**
	39	8	233	21.05	1.19	9.56	1.19	0.00	0.00	4.99	277	56	277	56
	40	9	230	18.42	1.04	9.81	1.04	0.00	0.00	5.02	239	48	239	48
	41	10	243	15.79	0.89	10.07	0.89	0.00	0.00	5.06	217	43	217	43
	42	11	191	13.16	0.74	10.32	0.74	0.00	0.00	5.10	142	28	142	28
D	**43**	**12**	**146**	**10.53**	**0.59**	**10.58**	**0.59**	**0.00**	**0.00**	**5.14**	**87**	**17**	**87**	**17**
	44	13	150	7.89	0.45	10.84	0.45	0.00	0.00	5.18	67	13	67	13
	45	14	97	5.26	0.30	11.09	0.30	0.00	0.00	5.22	29	6	29	6
	46	15	61	2.63	0.15	11.35	0.15	0.00	0.00	5.25	9	2	9	2
		Σ	6446							Σ	13916	3928	13825	3837

SCOPon	3.54	SCOPnet	3.60
		SCOP	**3.54**

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



Data for SCOP calculation
- Medium temperature application (reference water temperature 55 °C)
- Reference heating season „W" – warmer

	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	–	–	–	–	–	–	–	–	–	–
B	2	55.00	100.00	6.52	6.521	2.500	0.900	1.00	2.500	–
C	7	49.90	64.29	4.19	8.300	3.500	0.994	0.51	3.479	0.0147
D	12	42.20	28.57	1.86	10.500	5.160	0.993	0.18	4.993	0.0147
TOL (E)	2	55.00	100.00	6.52	6.521	2.500	0.900	1.00	2.500	–
Tbiv (F)	2	55.00	100.00	6.52	6.521	2.500	0.900	1.00	2.500	–

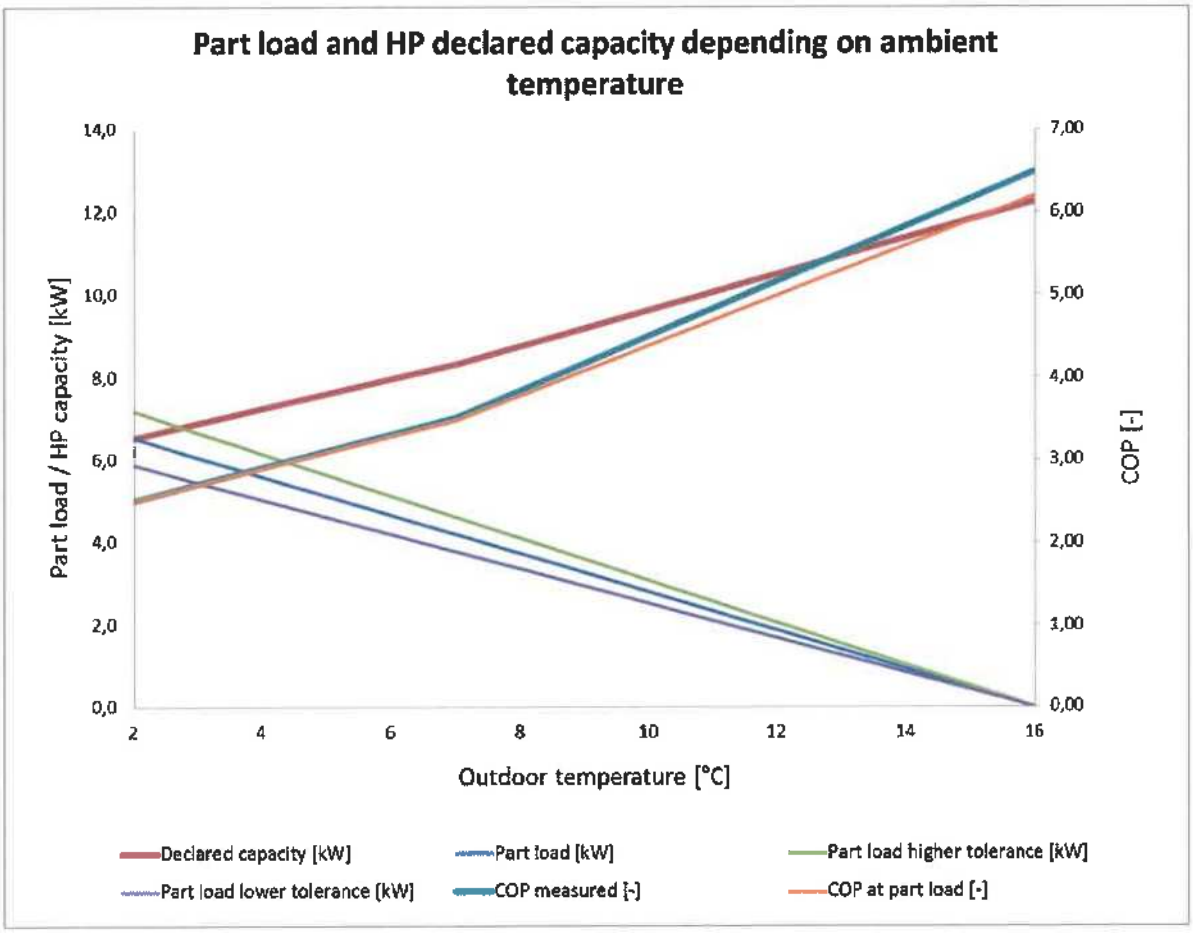
Calculation SCOP, $SCOP_{on}$, $SCOP_{net}$
- Medium temperature application (reference water temperature 55 °C)
- Reference heating season „W" – warmer

	Bin j	Outdoor temp. (dry bulb) T_j	Hours h_j	Part load ratio	Heat load $P_{h(Tj)}$	Capacity of HP	Heat load covered by heat pump	Resistive heat elbu (Tj) $elbu_{(Tj)}$	Annual resistive heat $h_j \times elbu_{(Tj)}$	COPbin (Tj) COP bin (Tj)	Annual heating demand $h_j \times P_{h(Tj)}$	Annual power input including electric back up heating	Net annual heating capacity $h_j \times (P_{h(Tj)} - elbu_{(Tj)})$	Net annual power input without electric back up heating
	[–]	[°C]	[h]	[%]	[kW]	[kW]	[kW]	[kW]	[kWh]	[–]	[kWh]	[kWh]	[kWh]	[kWh]
B, TOL (E), Tbiv (F)	**33**	**2**	**3**	**100.00**	**6.52**	**6.52**	**6.52**	**0.00**	**0.00**	**2.50**	**20**	**8**	**20**	**8**
	34	3	22	92.86	6.06	6.88	6.06	0.00	0.00	2.70	133	49	133	49
	35	4	63	85.71	5.59	7.23	5.59	0.00	0.00	2.89	352	122	352	122
	36	5	63	78.57	5.12	7.59	5.12	0.00	0.00	3.09	323	105	323	105
	37	6	175	71.43	4.66	7.94	4.66	0.00	0.00	3.28	815	248	815	248
C	**38**	**7**	**162**	**64.29**	**4.19**	**8.30**	**4.19**	**0.00**	**0.00**	**3.48**	**679**	**195**	**679**	**195**
	39	8	259	57.14	3.73	8.74	3.73	0.00	0.00	3.78	965	255	965	255
	40	9	360	50.00	3.26	9.18	3.26	0.00	0.00	4.08	1174	287	1174	287
	41	10	428	42.86	2.79	9.62	2.79	0.00	0.00	4.39	1196	273	1196	273
	42	11	430	35.71	2.33	10.06	2.33	0.00	0.00	4.69	1001	214	1001	214
D	**43**	**12**	**503**	**28.57**	**1.86**	**10.50**	**1.86**	**0.00**	**0.00**	**4.99**	**937**	**188**	**937**	**188**
	44	13	444	21.43	1.40	10.94	1.40	0.00	0.00	5.30	620	117	620	117
	45	14	384	14.29	0.93	11.38	0.93	0.00	0.00	5.60	358	64	358	64

	46	15	294	7.14	0.47	11.82	0.47	0.00	0.00	5.90	137	23	137	23
		Σ	3590							Σ	8711	2148	8711	2148

SCOPon	4.06	SCOPnet	4.06
		SCOP	**4.03**

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



Data for SCOP calculation
- Medium temperature application (reference water temperature 55 °C)
- Reference heating season „C" – colder

	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	47.23	60.53	3.20	6.600	2.400	0.995	0.48	2.386	0.0147
B	2	41.70	36.84	1.95	6.900	3.300	0.993	0.28	3.242	0.0147
C	7	39.07	23.68	1.25	8.700	4.610	0.992	0.14	4.406	0.0147
D	12	37.40	10.53	0.56	10.461	5.394	0.992	0.05	4.753	0.0147
TOL (E)	-19	52.43	92.11	4.87	3.600	1.670	0.900	1.35	1.670	–
Tbiv (F)	-15	49.00	81.58	4.31	4.314	1.921	0.900	1.00	1.921	–
G	-15	49.00	81.58	4.31	4.314	1.921	0.900	1.00	1.921	–

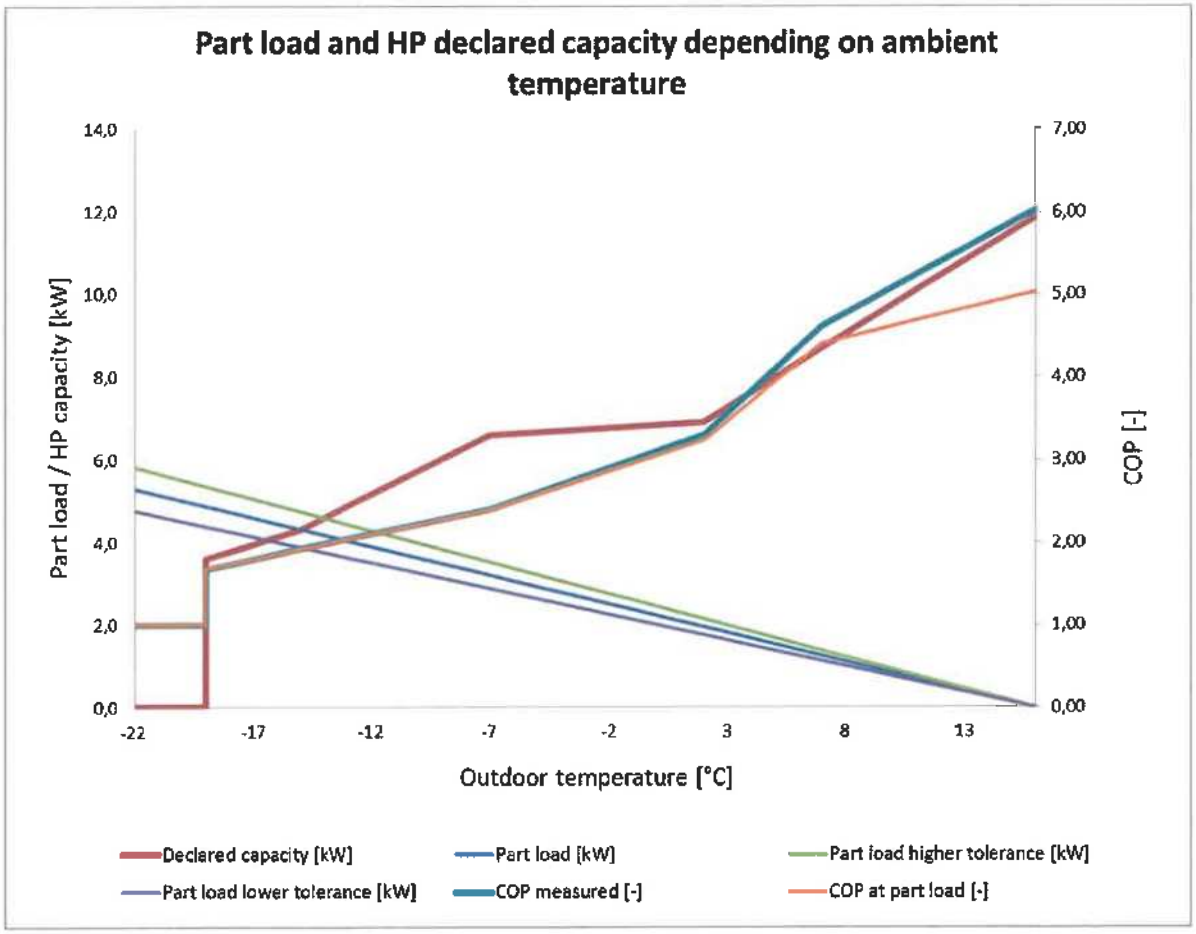
Calculation SCOP, $SCOP_{on}$, $SCOP_{net}$
- Medium temperature application (reference water temperature 55 °C)
- Reference heating season „C" – colder

	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	T_j	h_j		$P_{h(Tj)}$			$elbu_{(Tj)}$	$h_j \times elbu_{(Tj)}$	COP bin (Tj)	$h_j \times P_{h(Tj)}$		$h_j \times (P_{h(Tj)} - elbu_{(Tj)})$	
	[–]	[°C]	[h]	[%]	[kW]	[kW]	[kW]	[kW]	[kWh]	[–]	[kWh]	[kWh]	[kWh]	[kWh]
	9	-22	1	100.00	5.29	0.00	0.00	5.29	5.29	1.00	5	5	0	0
	10	-21	6	97.37	5.15	0.00	0.00	5.15	30.89	1.00	31	31	0	0
	11	-20	13	94.74	5.01	0.00	0.00	5.01	65.13	1.00	65	65	0	0
	12	**-19**	**17**	**92.11**	**4.87**	**3.60**	**3.60**	**1.27**	**21.60**	**1.67**	**83**	**58**	**61**	**37**
	13	-18	19	89.47	4.73	3.78	3.78	0.95	18.11	1.73	90	60	72	41
	14	-17	26	86.84	4.59	3.96	3.96	0.64	16.52	1.80	119	74	103	57
	15	-16	39	84.21	4.45	4.14	4.14	0.32	12.39	1.86	174	99	161	87
G	**16**	**-15**	**41**	**81.58**	**4.31**	**4.31**	**4.31**	**0.00**	**0.00**	**1.92**	**177**	**92**	**177**	**92**
	17	-14	35	78.95	4.17	4.60	4.17	0.00	0.00	1.98	146	74	146	74
	18	-13	52	76.32	4.04	4.89	4.04	0.00	0.00	2.04	210	103	210	103
	19	-12	37	73.68	3.90	5.17	3.90	0.00	0.00	2.10	144	69	144	69
	20	-11	41	71.05	3.76	5.46	3.76	0.00	0.00	2.15	154	72	154	72
	21	-10	43	68.42	3.62	5.74	3.62	0.00	0.00	2.21	156	70	156	70

	22	-9	54	65.79	3.48	6.03	3.48	0.00	0.00	2.27	188	83	188	83
	23	-8	90	63.16	3.34	6.31	3.34	0.00	0.00	2.33	301	129	301	129
A	**24**	**-7**	**125**	**60.53**	**3.20**	**6.60**	**3.20**	**0.00**	**0.00**	**2.39**	**400**	**168**	**400**	**168**
	25	-6	169	57.89	3.06	6.63	3.06	0.00	0.00	2.48	517	209	517	209
	26	-5	195	55.26	2.92	6.67	2.92	0.00	0.00	2.58	570	221	570	221
	27	-4	278	52.63	2.78	6.70	2.78	0.00	0.00	2.67	774	290	774	290
	28	-3	306	50.00	2.64	6.73	2.64	0.00	0.00	2.77	809	292	809	292
	29	-2	454	47.37	2.50	6.77	2.50	0.00	0.00	2.86	1137	397	1137	397
	30	-1	385	44.74	2.37	6.80	2.37	0.00	0.00	2.96	911	308	911	308
	31	0	490	42.11	2.23	6.83	2.23	0.00	0.00	3.05	1091	357	1091	357
	32	1	533	39.47	2.09	6.87	2.09	0.00	0.00	3.15	1113	354	1113	354
B	**33**	**2**	**380**	**36.84**	**1.95**	**6.90**	**1.95**	**0.00**	**0.00**	**3.24**	**740**	**228**	**740**	**228**
	34	3	228	34.21	1.81	7.26	1.81	0.00	0.00	3.47	412	119	412	119
	35	4	261	31.58	1.67	7.62	1.67	0.00	0.00	3.71	436	118	436	118
	36	5	279	28.95	1.53	7.98	1.53	0.00	0.00	3.94	427	108	427	108
	37	6	229	26.32	1.39	8.34	1.39	0.00	0.00	4.17	319	76	319	76
C	**38**	**7**	**269**	**23.68**	**1.25**	**8.70**	**1.25**	**0.00**	**0.00**	**4.41**	**337**	**76**	**337**	**76**
	39	8	233	21.05	1.11	9.05	1.11	0.00	0.00	4.48	259	58	259	58
	40	9	230	18.42	0.97	9.40	0.97	0.00	0.00	4.54	224	49	224	49
	41	10	243	15.79	0.83	9.76	0.83	0.00	0.00	4.61	203	44	203	44
	42	11	191	13.16	0.70	10.11	0.70	0.00	0.00	4.68	133	28	133	28
D	**43**	**12**	**146**	**10.53**	**0.56**	**10.46**	**0.56**	**0.00**	**0.00**	**4.75**	**81**	**17**	**81**	**17**
	44	13	150	7.89	0.42	10.81	0.42	0.00	0.00	4.82	63	13	63	13
	45	14	97	5.26	0.28	11.17	0.28	0.00	0.00	4.89	27	6	27	6
	46	15	61	2.63	0.14	11.52	0.14	0.00	0.00	4.96	8	2	8	2
		Σ	6446							Σ	13034	4622	12864	4452

SCOPon	2.82	SCOPnet	2.89
		SCOP	**2.82**

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

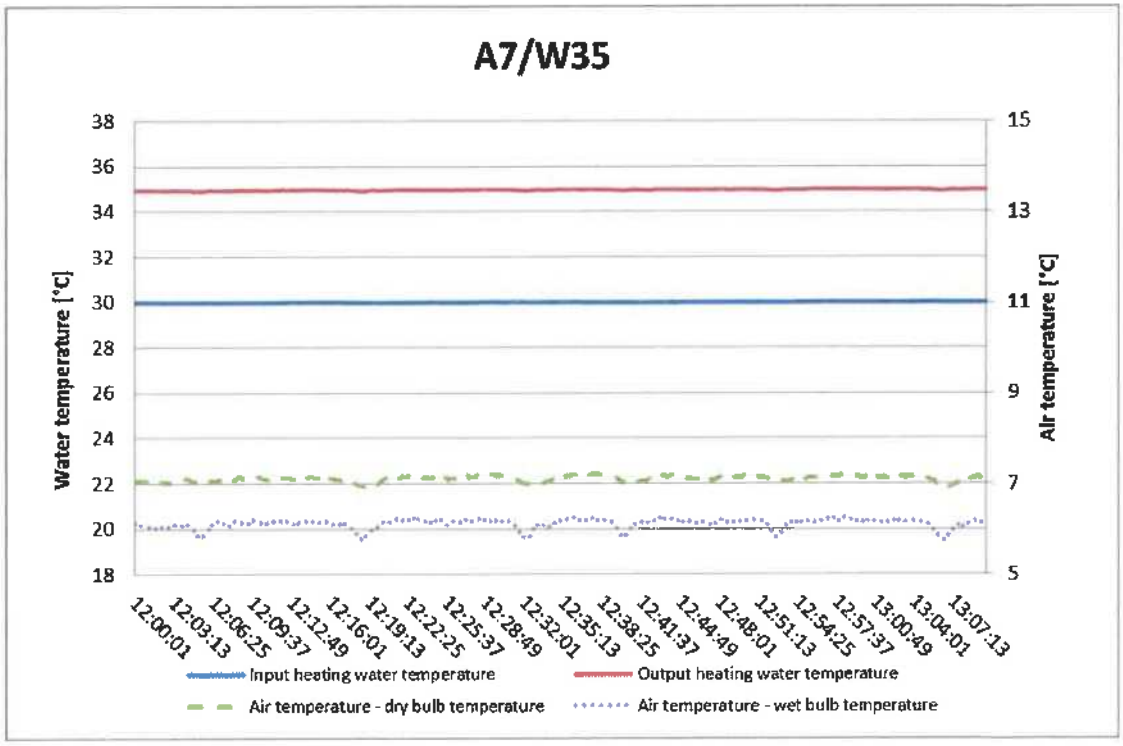


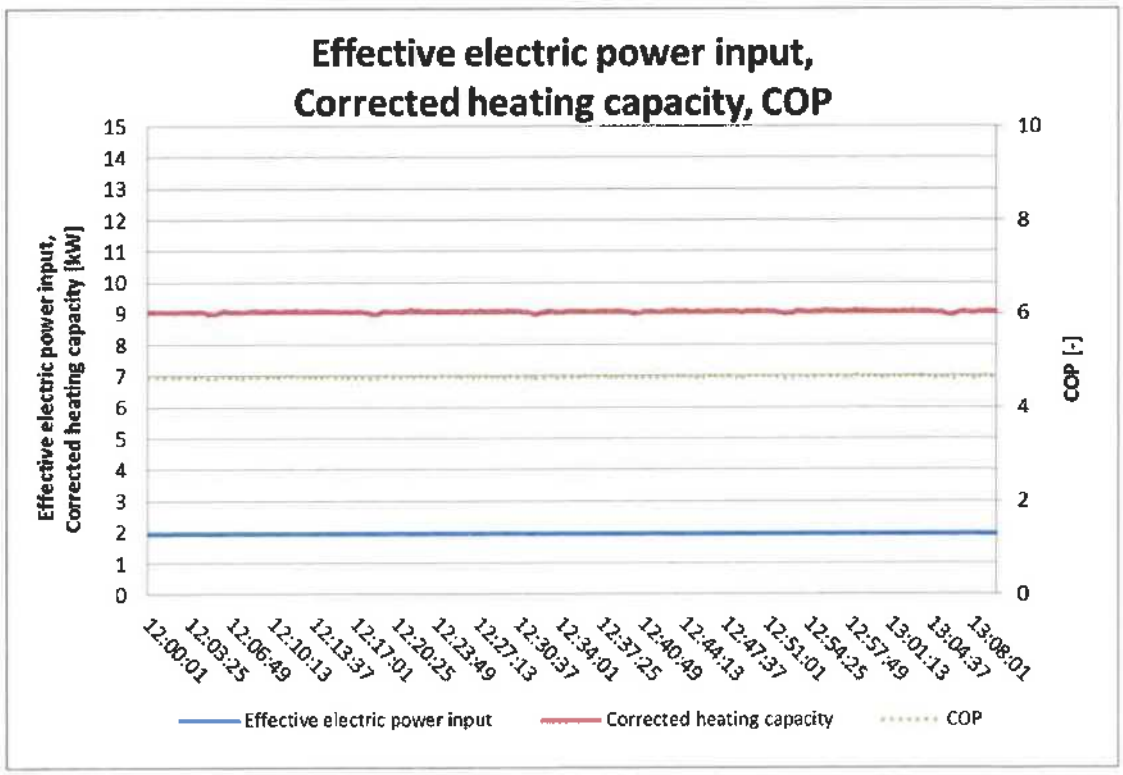
Tested by:	Ing. Michal Faltýnek	Date:	2022-09-16	Signed:	
Reviewed and approved by:	Ing. Mario Jankola	Date:	2022-09-16	Signed:	

V. Graphs

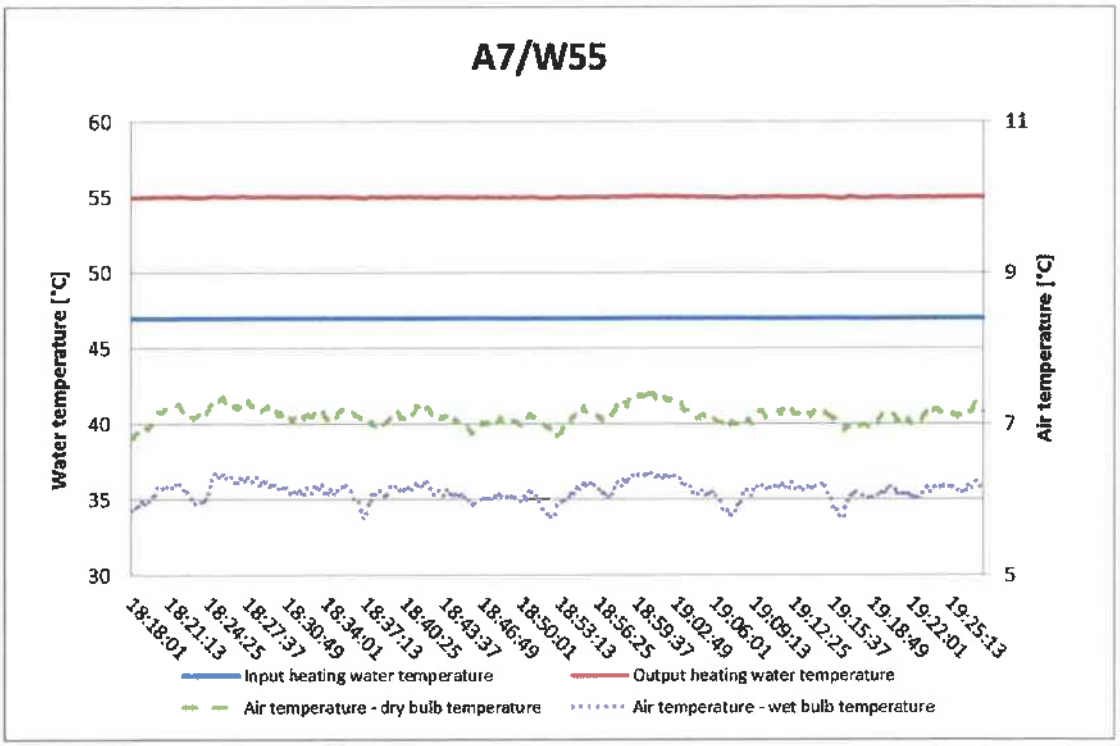
1. Rating conditions

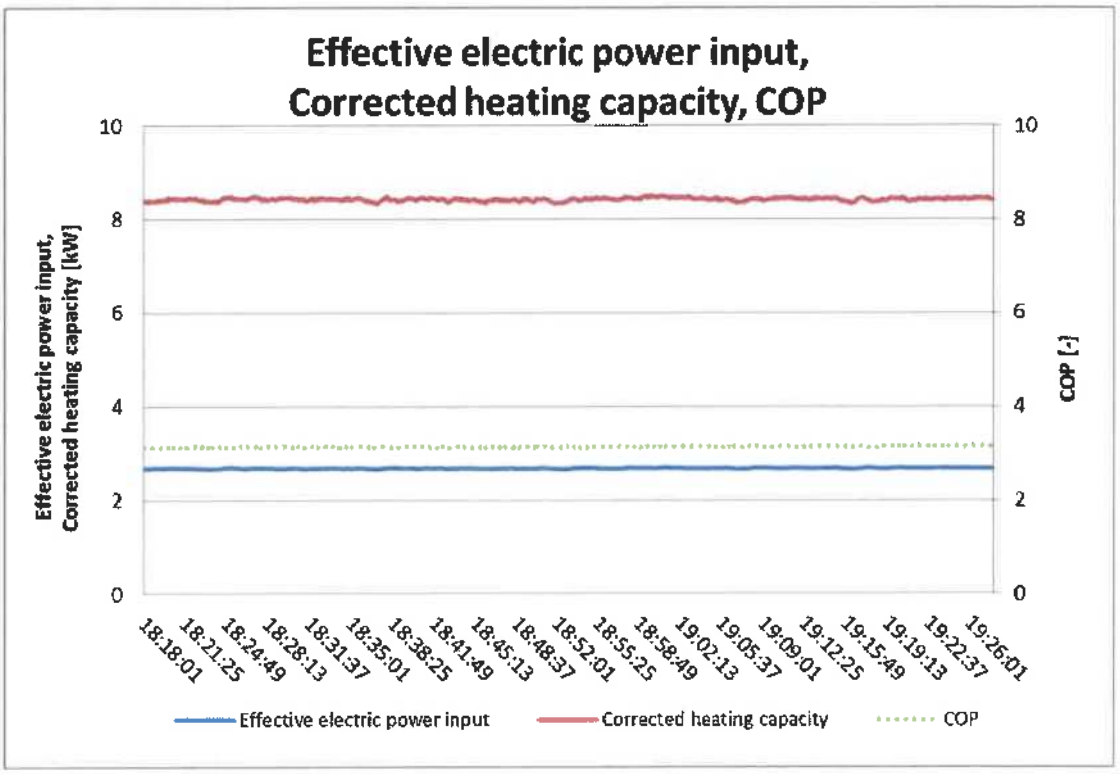
A7/W35





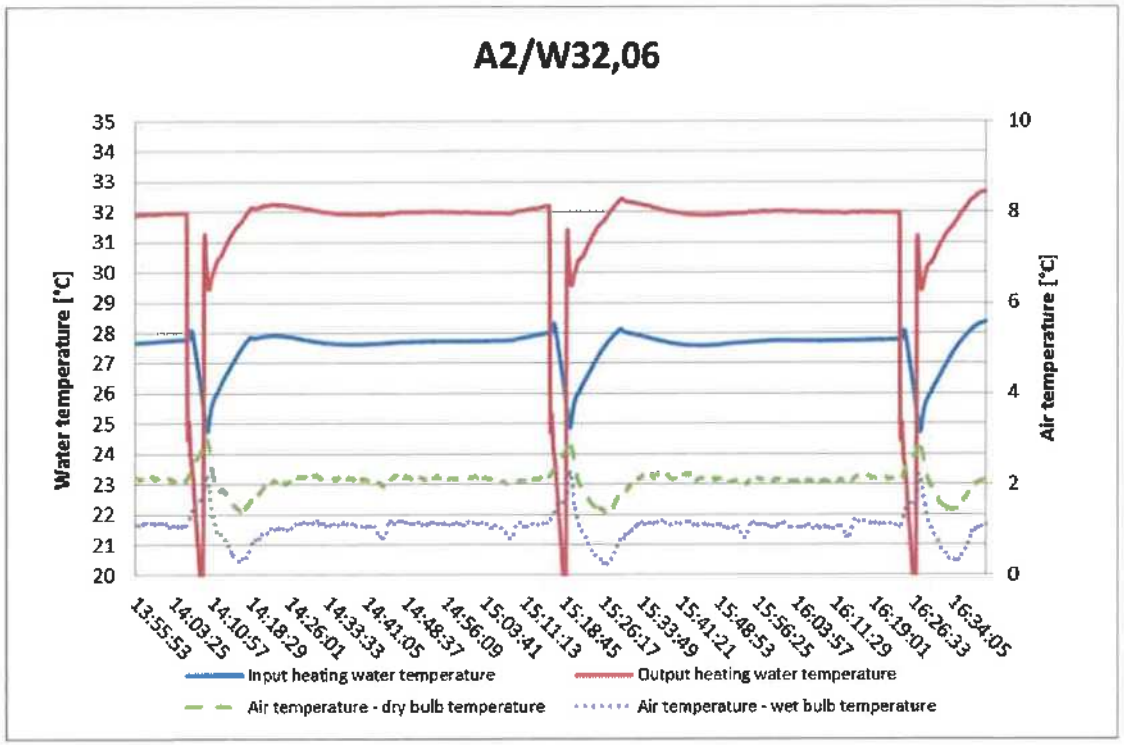
A7/W55

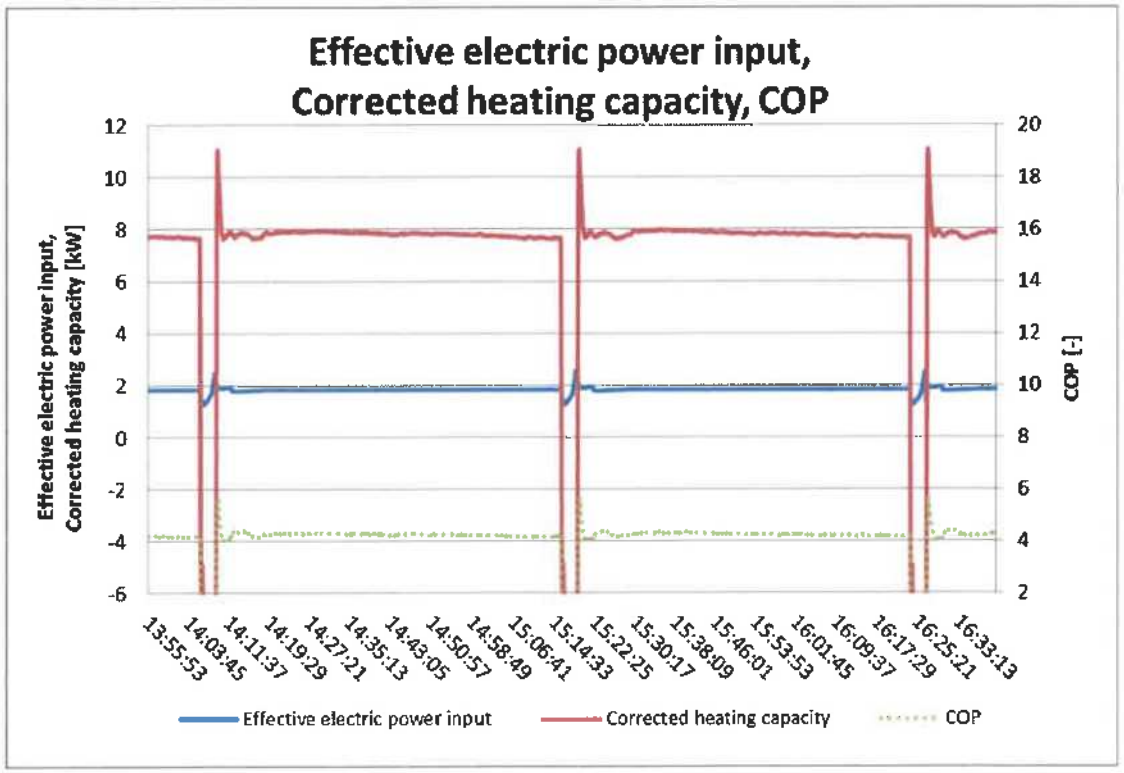

A7/W55
Water temperature [°C]
Air temperature [°C]
60
55
50
45
40
35
30
11
9
7
5
18:18:01
18:21:13
18:24:25
18:27:37
18:30:49
18:34:01
18:37:13
18:40:25
18:43:37
18:46:49
18:50:01
18:53:13
18:56:25
18:59:37
19:02:49
19:06:01
19:09:13
19:12:25
19:15:37
19:18:49
19:22:01
19:25:13
Input heating water temperature
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 [-]
10
8
6
4
2
0
10
8
6
4
2
0
18:18:01
18:21:25
18:24:49
18:28:13
18:31:37
18:35:01
18:38:25
18:41:49
18:45:13
18:48:37
18:52:01
18:55:25
18:58:49
19:02:13
19:05:37
19:09:01
19:12:25
19:15:49
19:19:13
19:22:37
19:26:01
Effective electric power input
Corrected heating capacity
COP

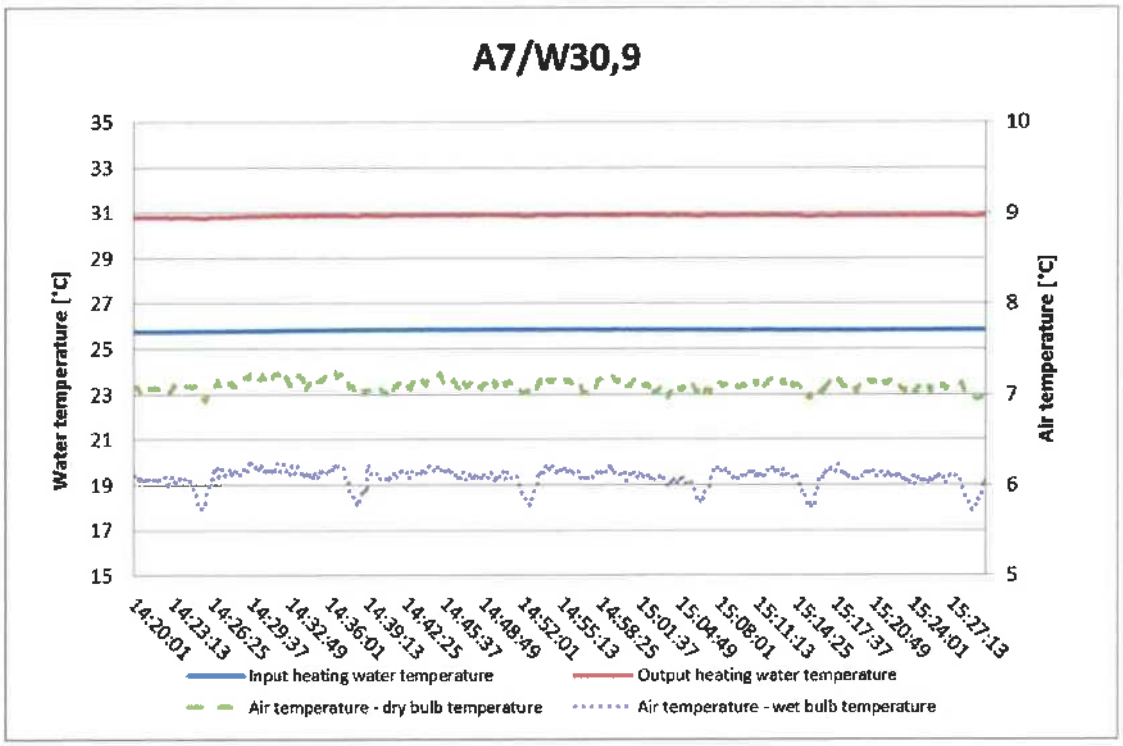
2. Seasonal performance tests and SCOP calculation – Low temperature application

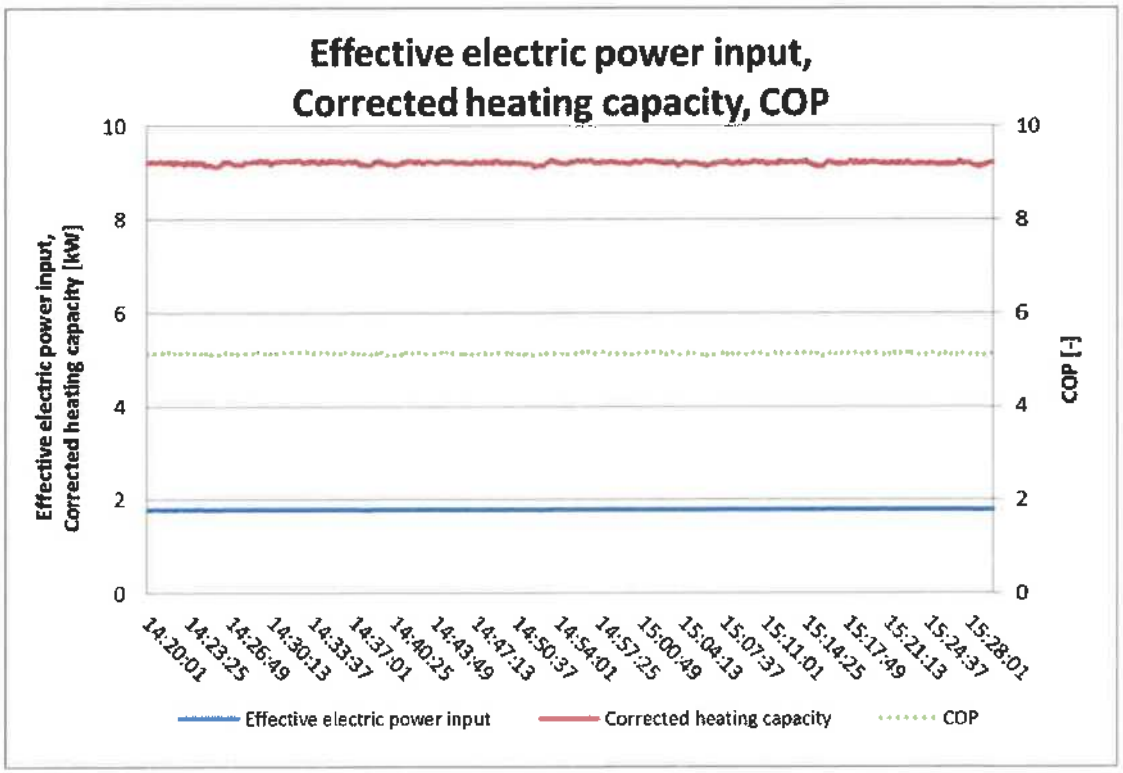
A2/W32.06



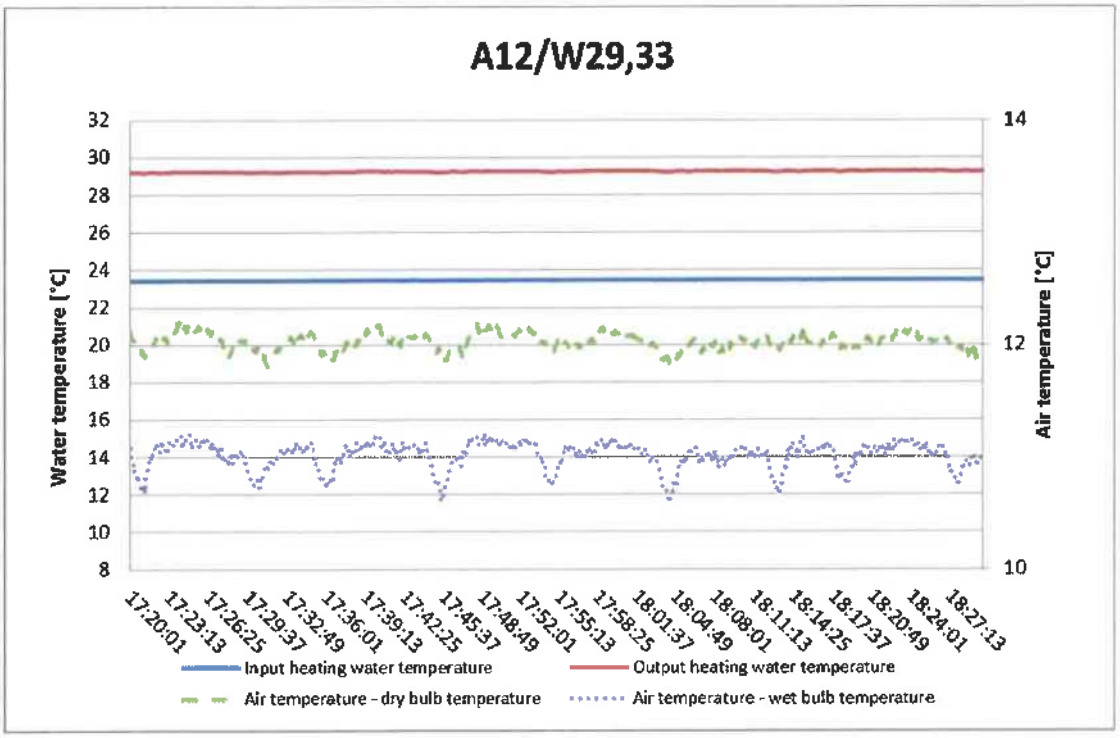


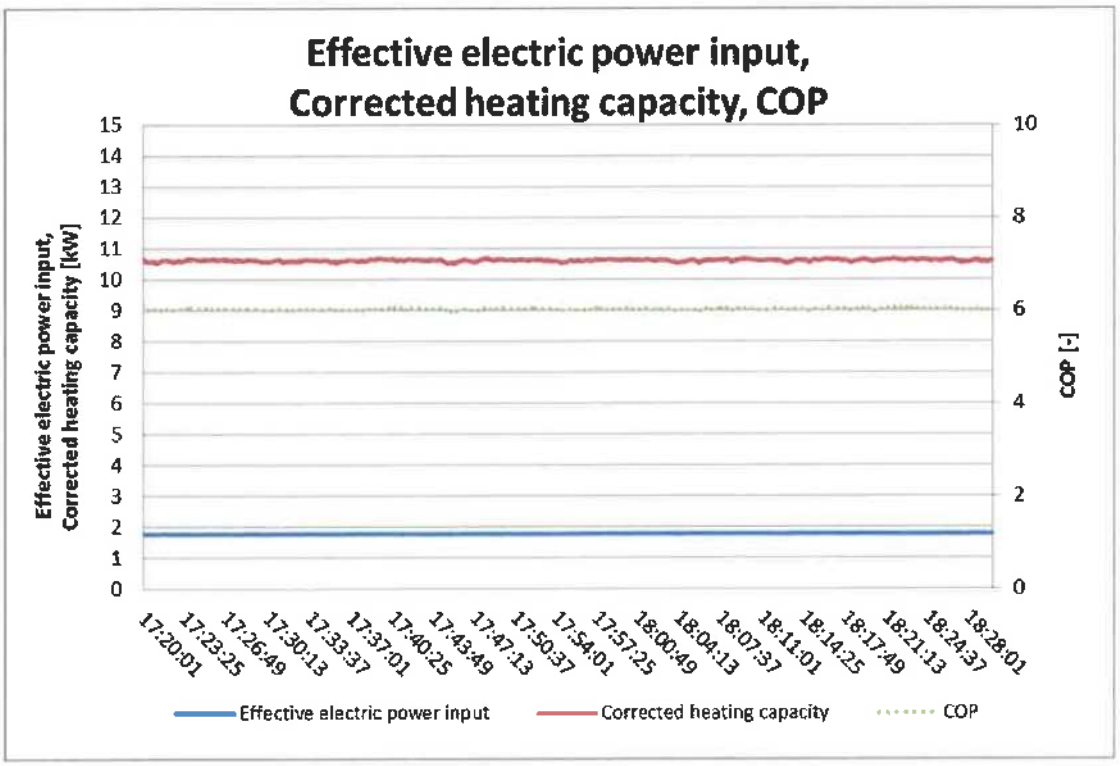
A7/W30.9


A7/W30,9
Water temperature [°C]
Air temperature [°C]
35
33
31
29
27
25
23
21
19
17
15
10
9
8
7
6
5
14:20:01
14:23:13
14:26:25
14:29:37
14:32:49
14:36:01
14:39:13
14:42:25
14:45:37
14:48:49
14:52:01
14:55:13
14:58:25
15:01:37
15:04:49
15:08:01
15:11:13
15:14:25
15:17:37
15:20:49
15:24:01
15:27:13
Input heating water temperature
Output heating water temperature
Air temperature - dry bulb temperature
Air temperature - wet bulb temperature

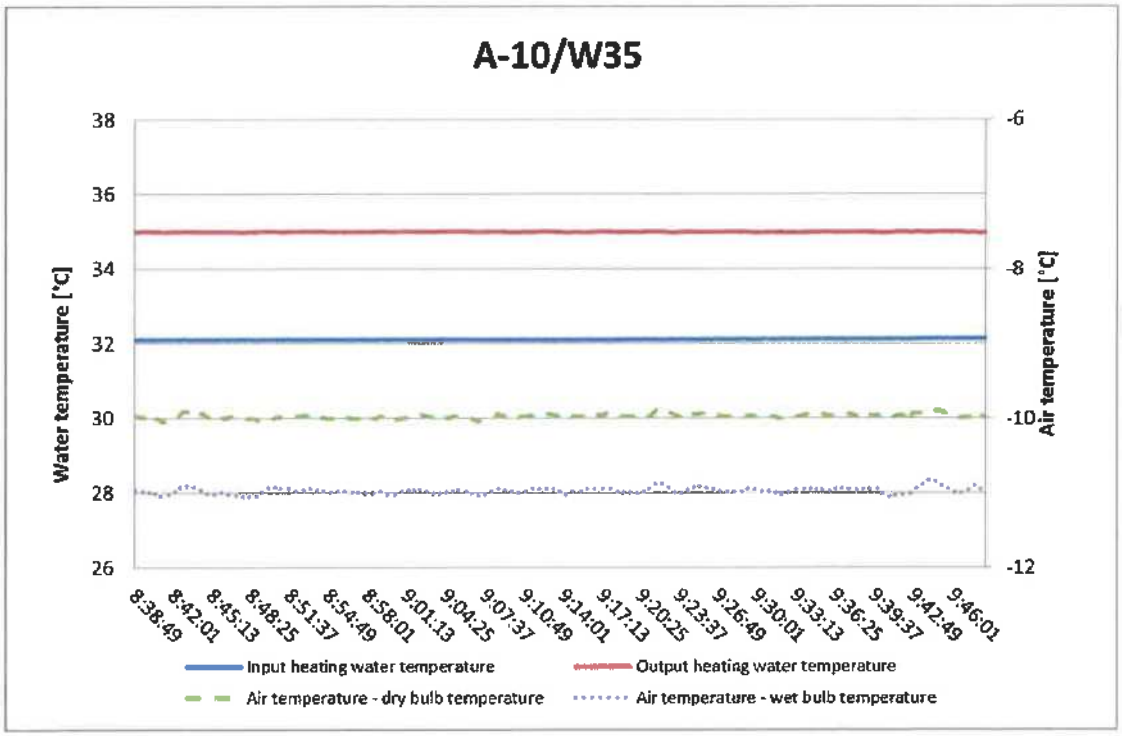

Effective electric power input,
Corrected heating capacity, COP
Effective electric power input, Corrected heating capacity [kW]
COP [-]
10
8
6
4
2
0
14:20:01
14:23:25
14:26:49
14:30:13
14:33:37
14:37:01
14:40:25
14:43:49
14:47:13
14:50:37
14:54:01
14:57:25
15:00:49
15:04:13
15:07:37
15:11:01
15:14:25
15:17:49
15:21:13
15:24:37
15:28:01
Effective electric power input
Corrected heating capacity
COP

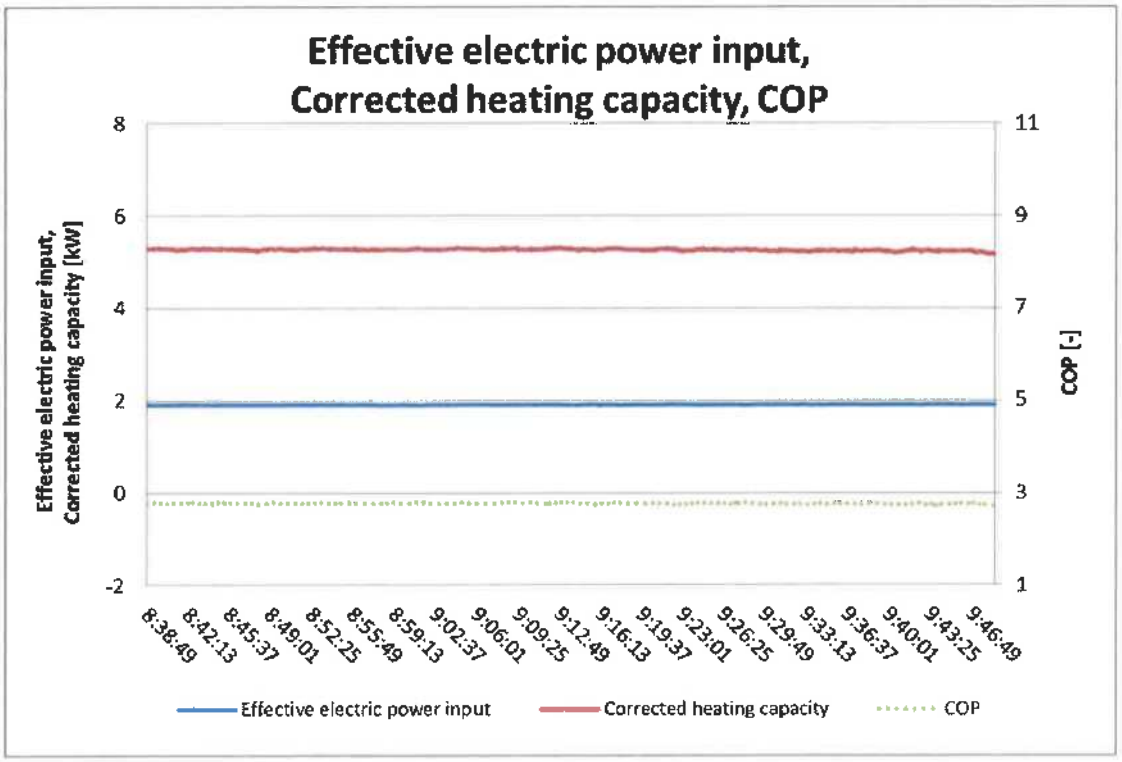
A12/W29.33


A12/W29,33
Water temperature [°C]
Air temperature [°C]
Input heating water temperature
Output heating water temperature
Air temperature - dry bulb temperature
Air temperature - wet bulb temperature

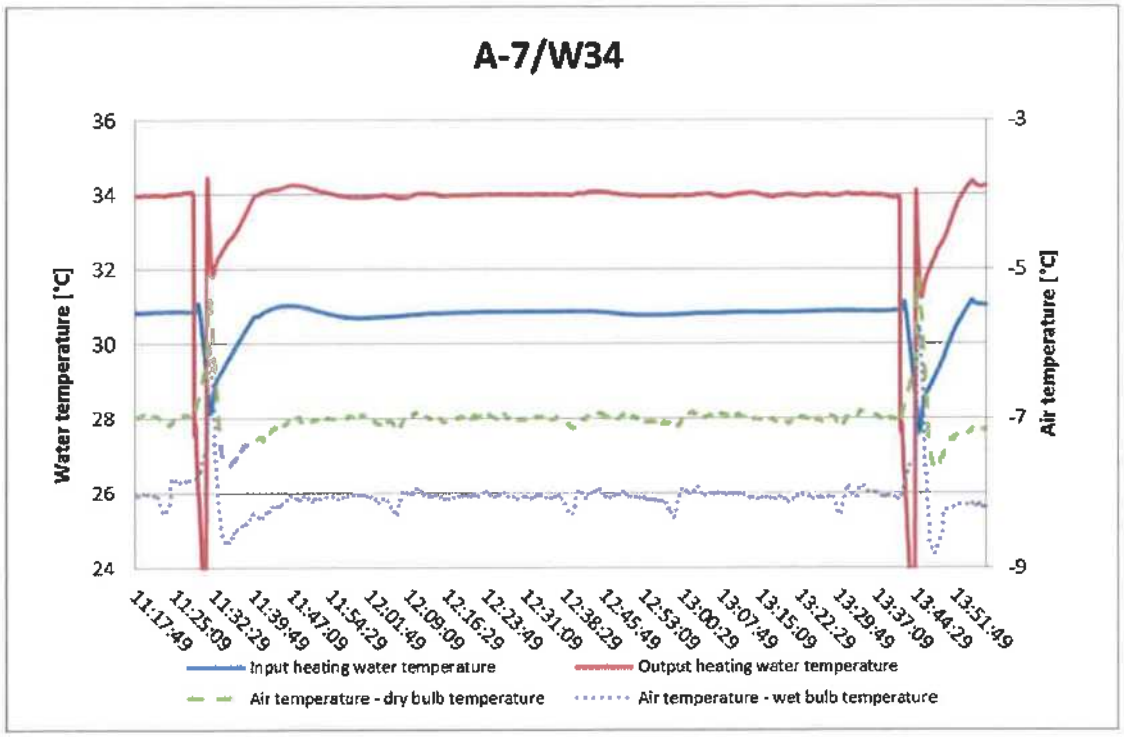

Effective electric power input,
Corrected heating capacity, COP
Effective electric power input, Corrected heating capacity [kW]
COP [-]
Effective electric power input
Corrected heating capacity
COP

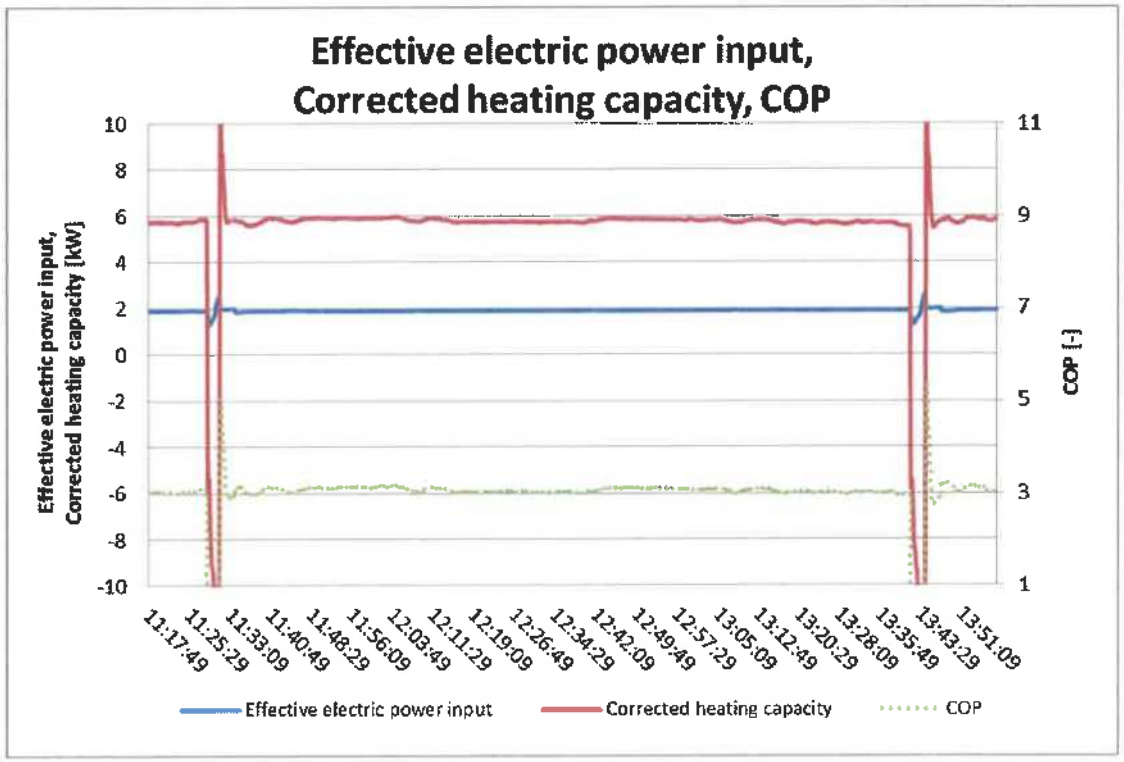
A-10/W35


A-10/W35
Water temperature [°C]
Air temperature [°C]
38
36
34
32
30
28
26
-6
-8
-10
-12
8:38:49
8:42:01
8:45:13
8:48:25
8:51:37
8:54:49
8:58:01
9:01:13
9:04:25
9:07:37
9:10:49
9:14:01
9:17:13
9:20:25
9:23:37
9:26:49
9:30:01
9:33:13
9:36:25
9:39:37
9:42:49
9:46:01
Input heating water temperature
Output heating water temperature
Air temperature - dry bulb temperature
Air temperature - wet bulb temperature

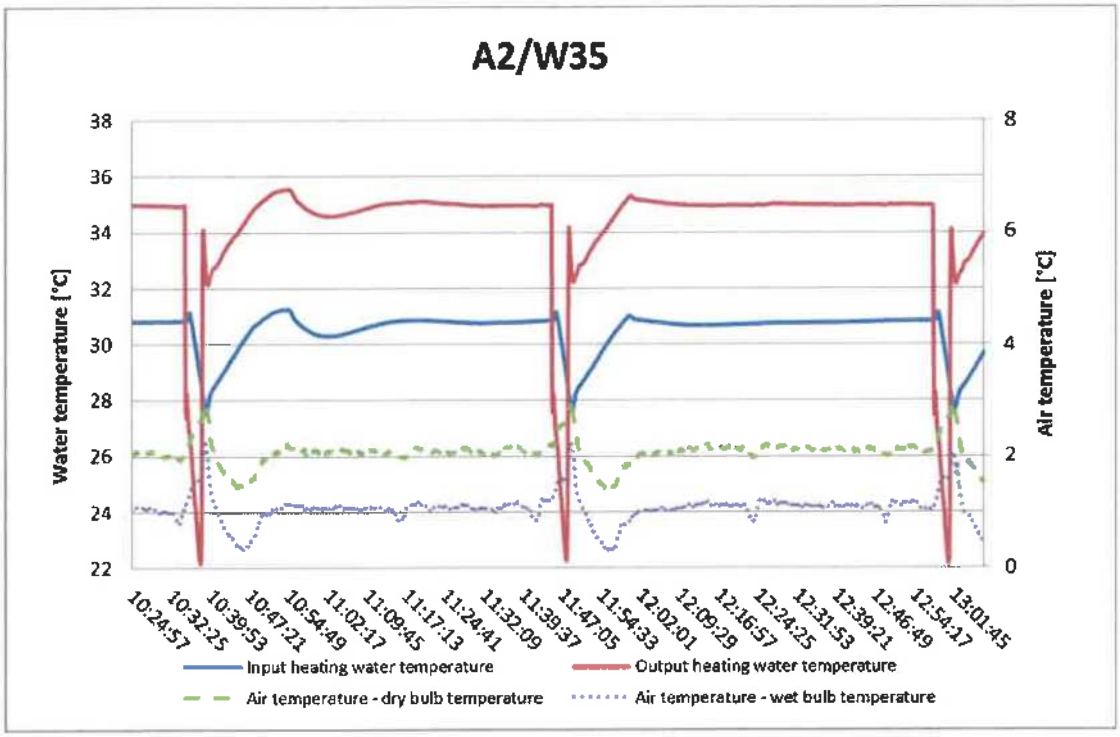

Effective electric power input,
Corrected heating capacity, COP
Effective electric power input, Corrected heating capacity [kW]
COP [-]
8
6
4
2
0
-2
11
9
7
5
3
1
8:38:49
8:42:13
8:45:37
8:49:01
8:52:25
8:55:49
8:59:13
9:02:37
9:06:01
9:09:25
9:12:49
9:16:13
9:19:37
9:23:01
9:26:25
9:29:49
9:33:13
9:36:37
9:40:01
9:43:25
9:46:49
Effective electric power input
Corrected heating capacity
COP

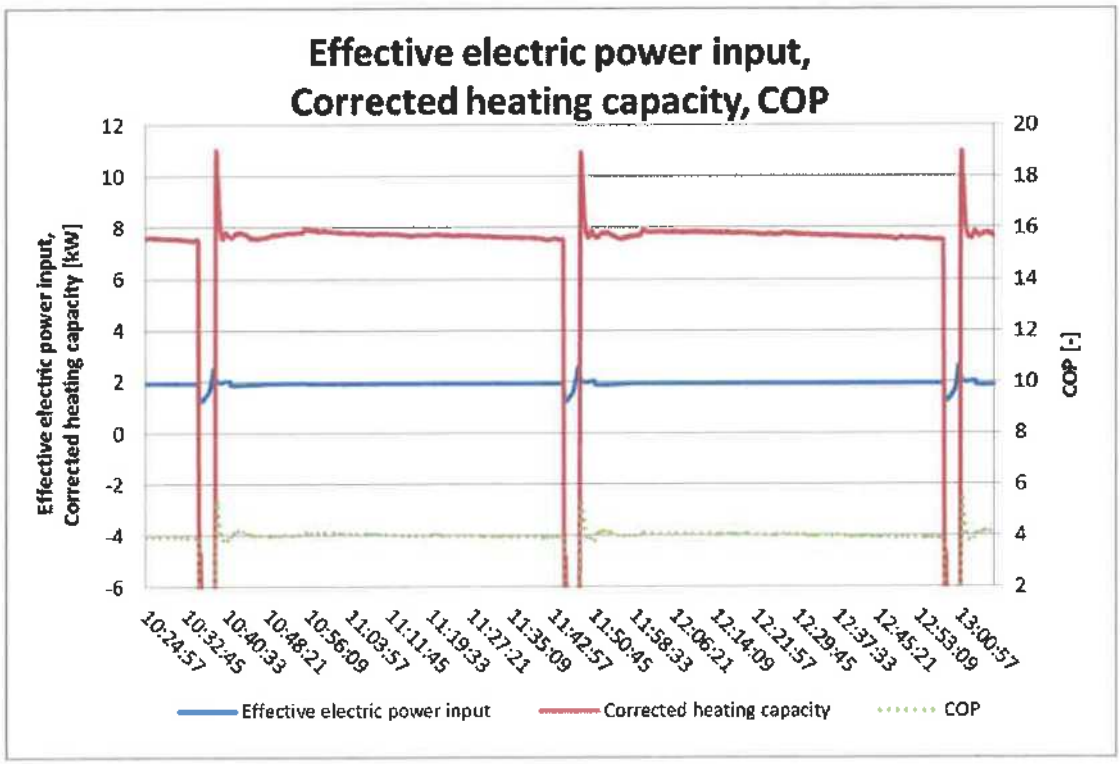
A-7/W34


A-7/W34
Water temperature [°C]
Air temperature [°C]
36
34
32
30
28
26
24
-3
-5
-7
-9
11:17:49
11:25:09
11:32:29
11:39:49
11:47:09
11:54:29
12:01:49
12:09:09
12:16:29
12:23:49
12:31:09
12:38:29
12:45:49
12:53:09
13:00:29
13:07:49
13:15:09
13:22:29
13:29:49
13:37:09
13:44:29
13:51:49
Input heating water temperature
Output heating water temperature
Air temperature - dry bulb temperature
Air temperature - wet bulb temperature

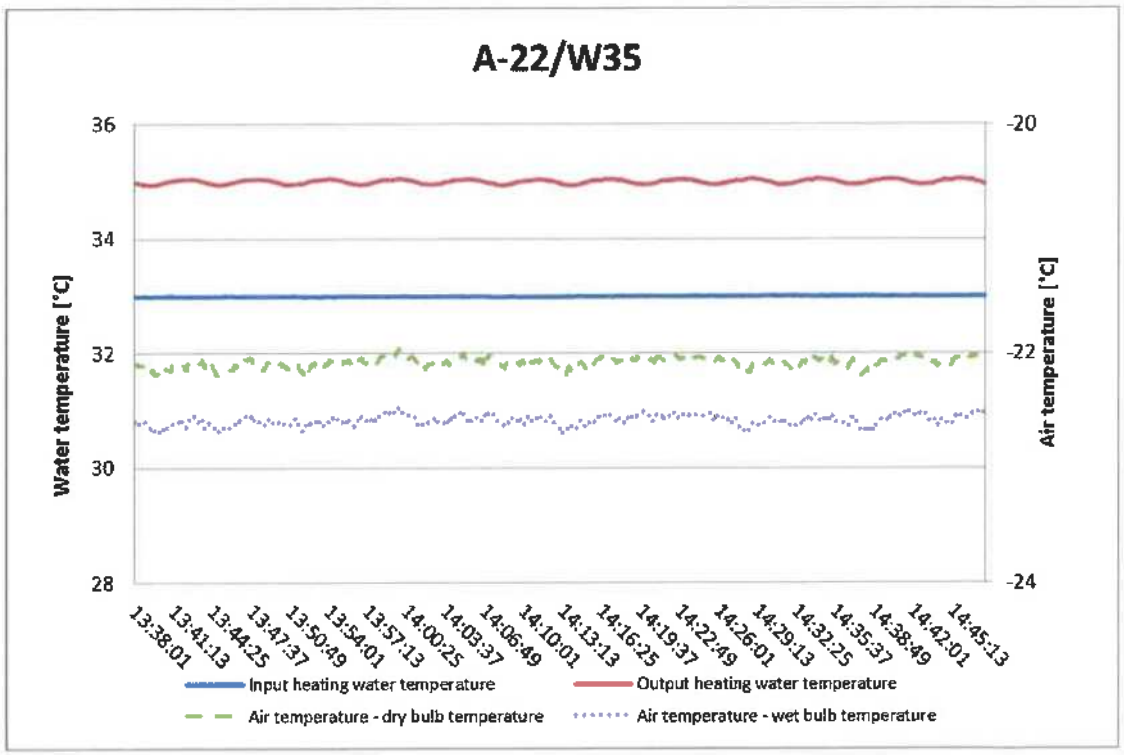

Effective electric power input,
Corrected heating capacity, COP
Effective electric power input, Corrected heating capacity [kW]
COP [-]
10
8
6
4
2
0
-2
-4
-6
-8
-10
11
9
7
5
3
1
11:17:49
11:25:29
11:33:09
11:40:49
11:48:29
11:56:09
12:03:49
12:11:29
12:19:09
12:26:49
12:34:29
12:42:09
12:49:49
12:57:29
13:05:09
13:12:49
13:20:29
13:28:09
13:35:49
13:43:29
13:51:09
Effective electric power input
Corrected heating capacity
COP

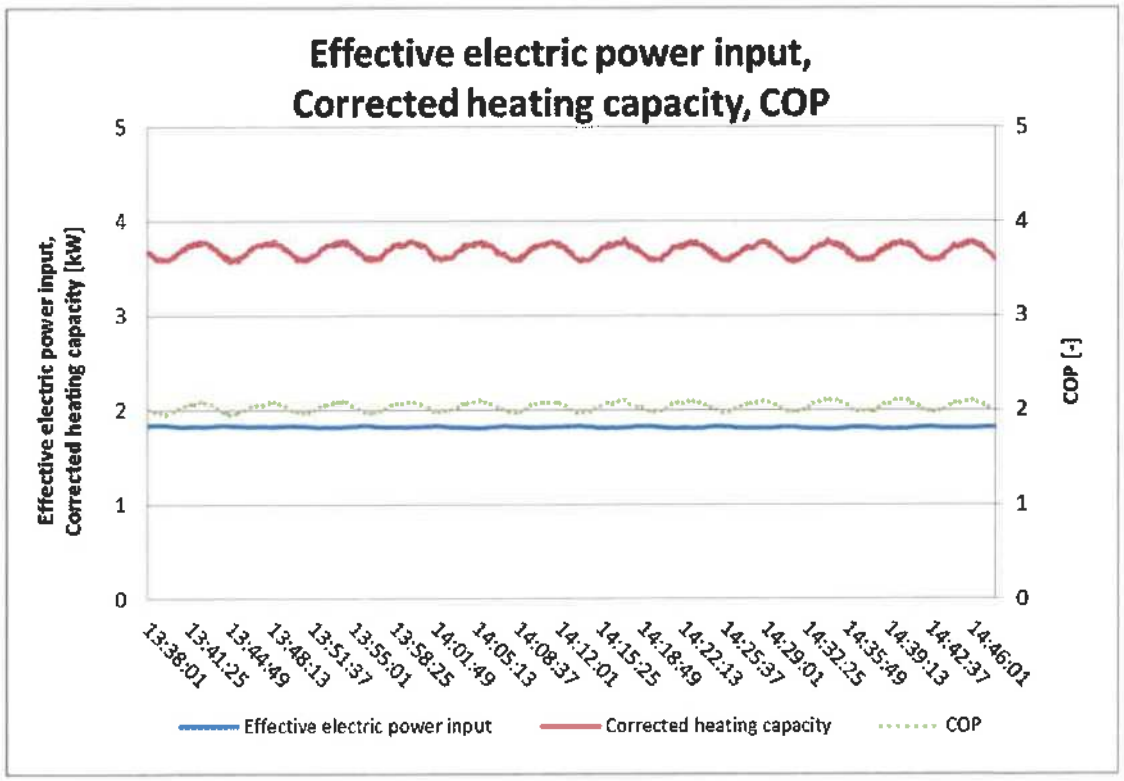
A2/W35


A2/W35
Water temperature [°C]
Air temperature [°C]
38
36
34
32
30
28
26
24
22
8
6
4
2
0
10:24:57
10:32:25
10:39:53
10:47:21
10:54:49
11:02:17
11:09:45
11:17:13
11:24:41
11:32:09
11:39:37
11:47:05
11:54:33
12:02:01
12:09:29
12:16:57
12:24:25
12:31:53
12:39:21
12:46:49
12:54:17
13:01:45
Input heating water temperature
Output heating water temperature
Air temperature - dry bulb temperature
Air temperature - wet bulb temperature

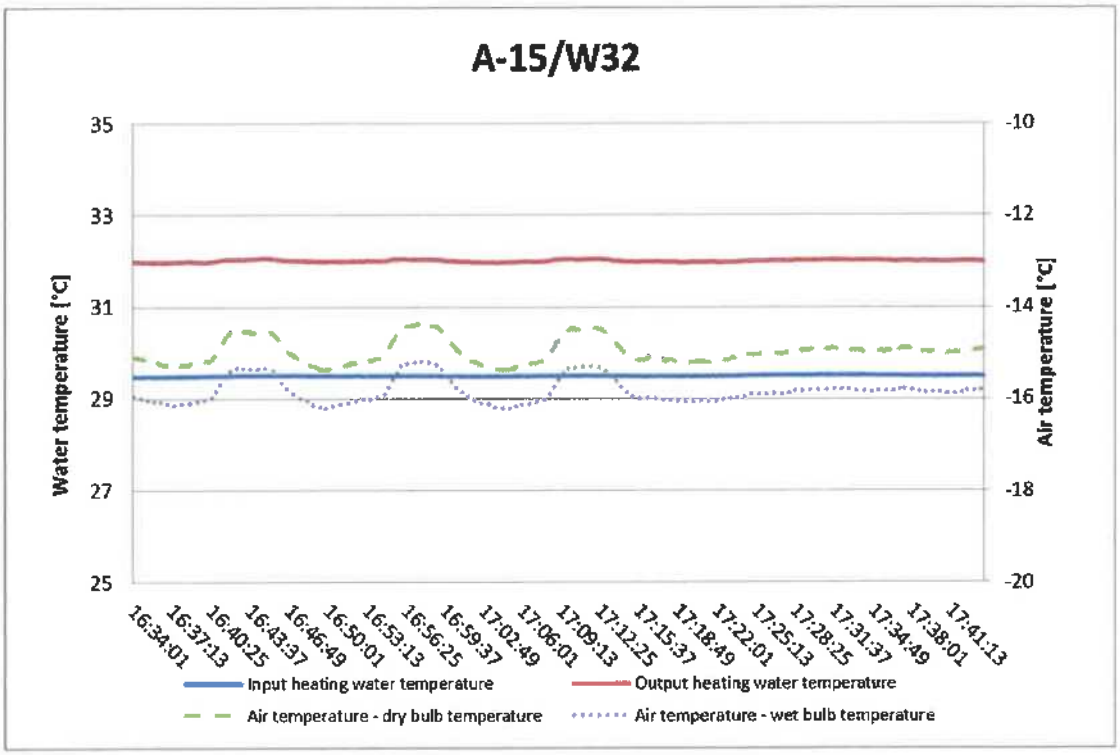

Effective electric power input,
Corrected heating capacity, COP
Effective electric power input, Corrected heating capacity [kW]
COP [-]
12
10
8
6
4
2
0
-2
-4
-6
20
18
16
14
12
10
8
6
4
2
10:24:57
10:32:45
10:40:33
10:48:21
10:56:09
11:03:57
11:11:45
11:19:33
11:27:21
11:35:09
11:42:57
11:50:45
11:58:33
12:06:21
12:14:09
12:21:57
12:29:45
12:37:33
12:45:21
12:53:09
13:00:57
Effective electric power input
Corrected heating capacity
COP

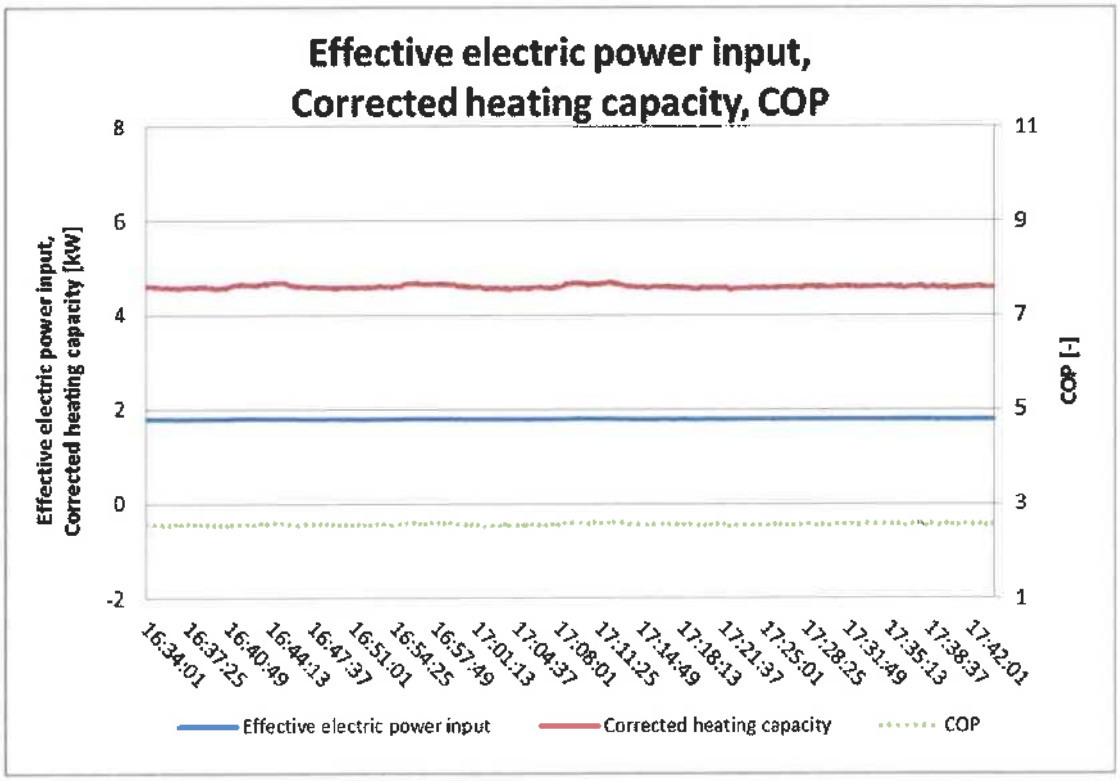
A-22/W35


A-22/W35
Water temperature [°C]
Air temperature [°C]
36
34
32
30
28
-20
-22
-24
13:38:01
13:41:13
13:44:25
13:47:37
13:50:49
13:54:01
13:57:13
14:00:25
14:03:37
14:06:49
14:10:01
14:13:13
14:16:25
14:19:37
14:22:49
14:26:01
14:29:13
14:32:25
14:35:37
14:38:49
14:42:01
14:45:13
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 [-]
5
4
3
2
1
0
13:38:01
13:41:25
13:44:49
13:48:13
13:51:37
13:55:01
13:58:25
14:01:49
14:05:13
14:08:37
14:12:01
14:15:25
14:18:49
14:22:13
14:25:37
14:29:01
14:32:25
14:35:49
14:39:13
14:42:37
14:46:01
Effective electric power input
Corrected heating capacity
COP

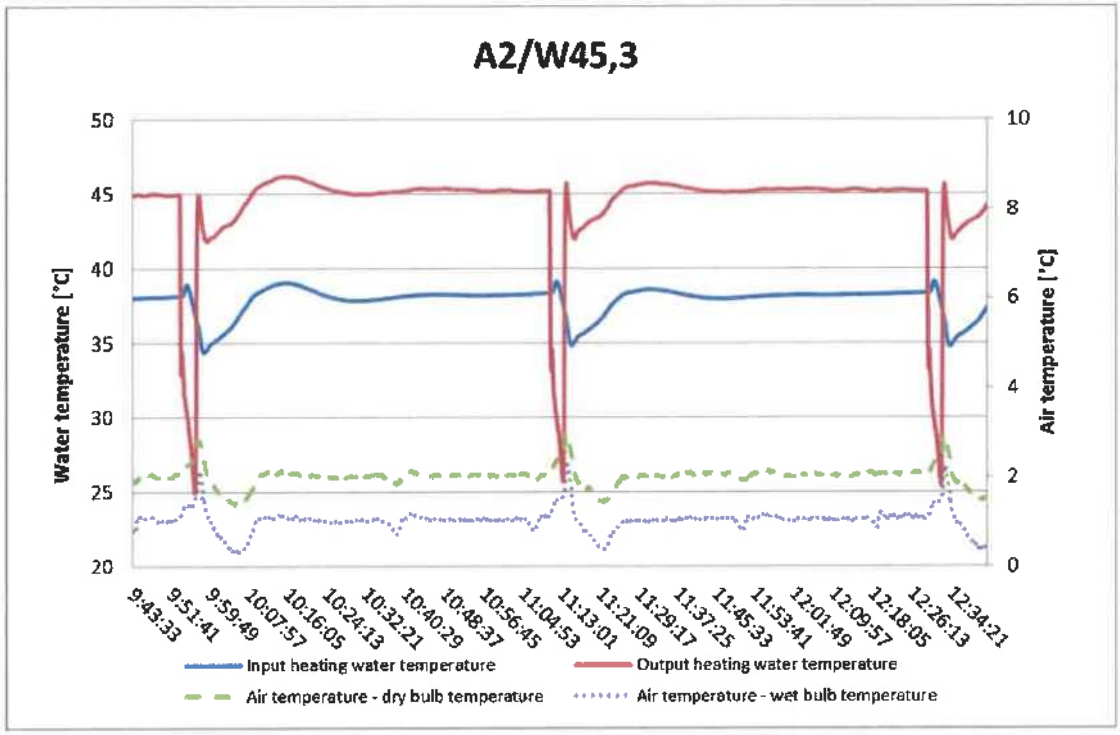
A-15/W32

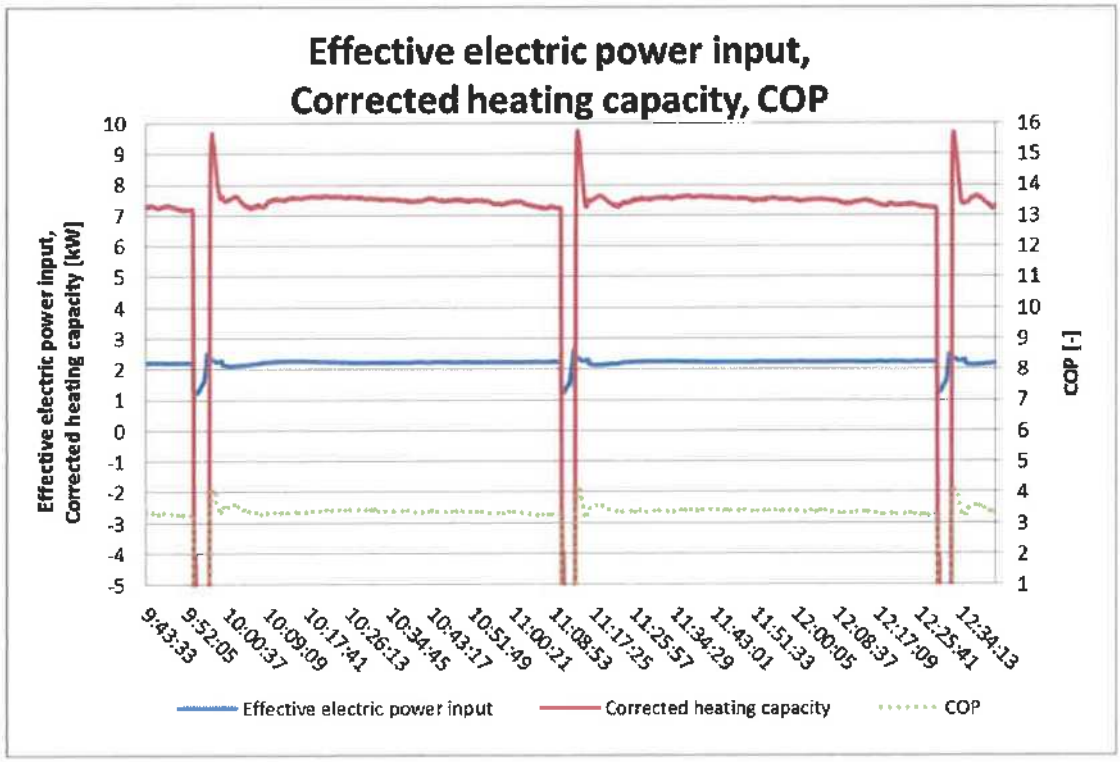

A-15/W32
Water temperature [°C]
Air temperature [°C]
35
33
31
29
27
25
-10
-12
-14
-16
-18
-20
16:34:01
16:37:13
16:40:25
16:43:37
16:46:49
16:50:01
16:53:13
16:56:25
16:59:37
17:02:49
17:06:01
17:09:13
17:12:25
17:15:37
17:18:49
17:22:01
17:25:13
17:28:25
17:31:37
17:34:49
17:38:01
17:41:13
Input heating 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 [-]
8
6
4
2
0
-2
11
9
7
5
3
1
16:34:01
16:37:25
16:40:49
16:44:13
16:47:37
16:51:01
16:54:25
16:57:49
17:01:13
17:04:37
17:08:01
17:11:25
17:14:49
17:18:13
17:21:37
17:25:01
17:28:25
17:31:49
17:35:13
17:38:37
17:42:01
Effective electric power input
Corrected heating capacity
COP

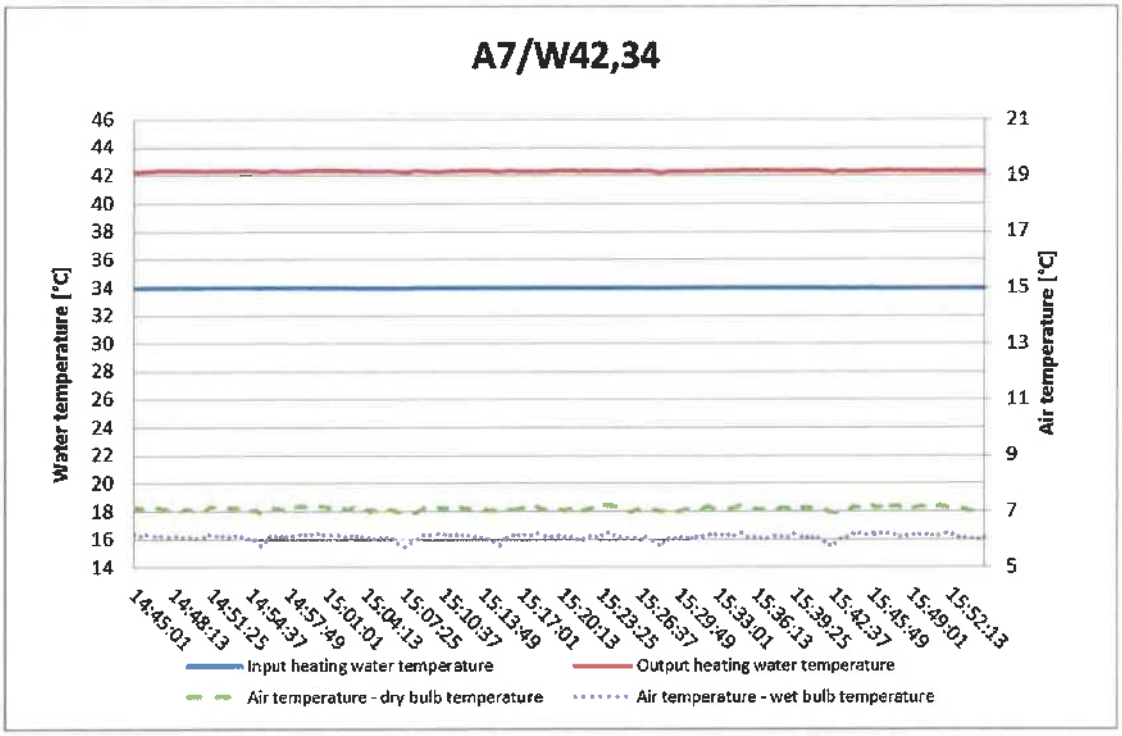
3. Seasonal performance tests and SCOP calculation – Medium temperature application

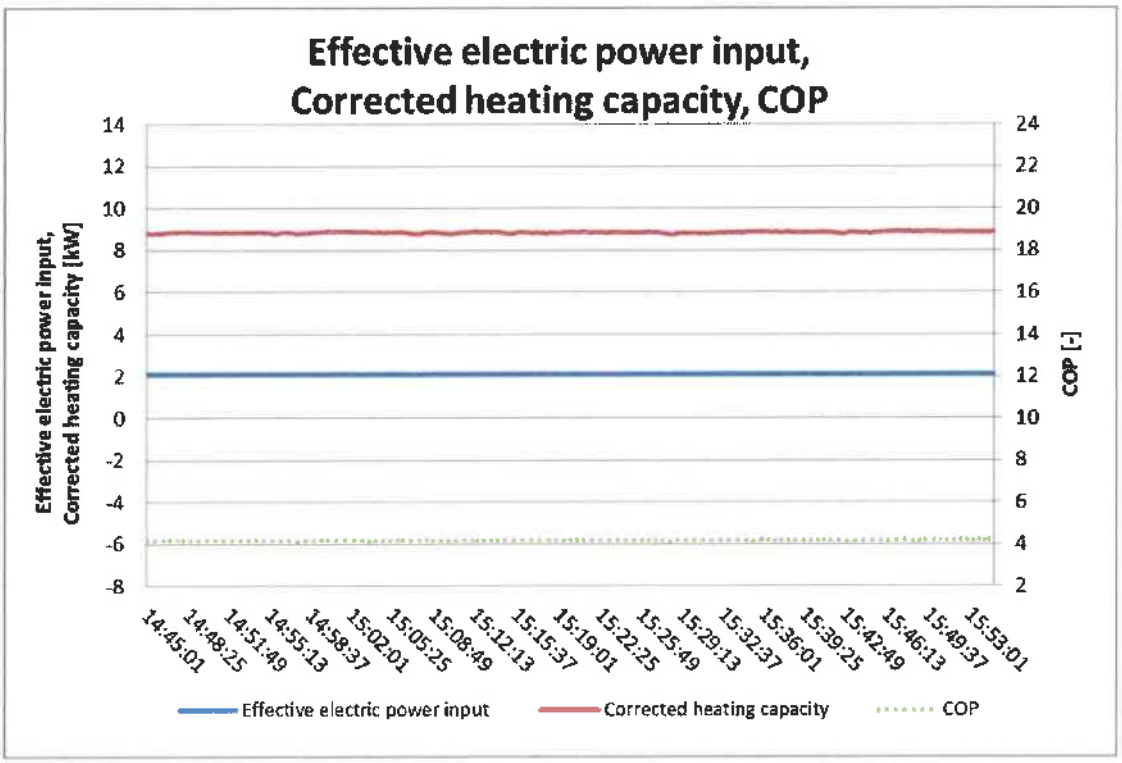
A2/W45.3



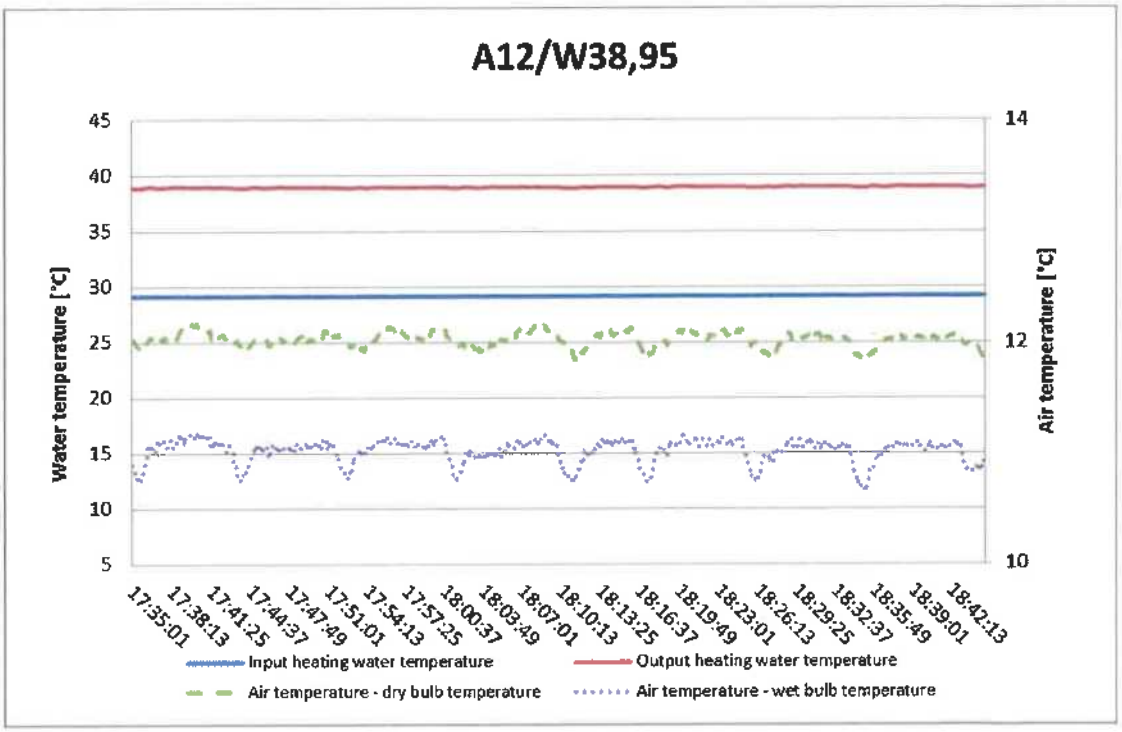


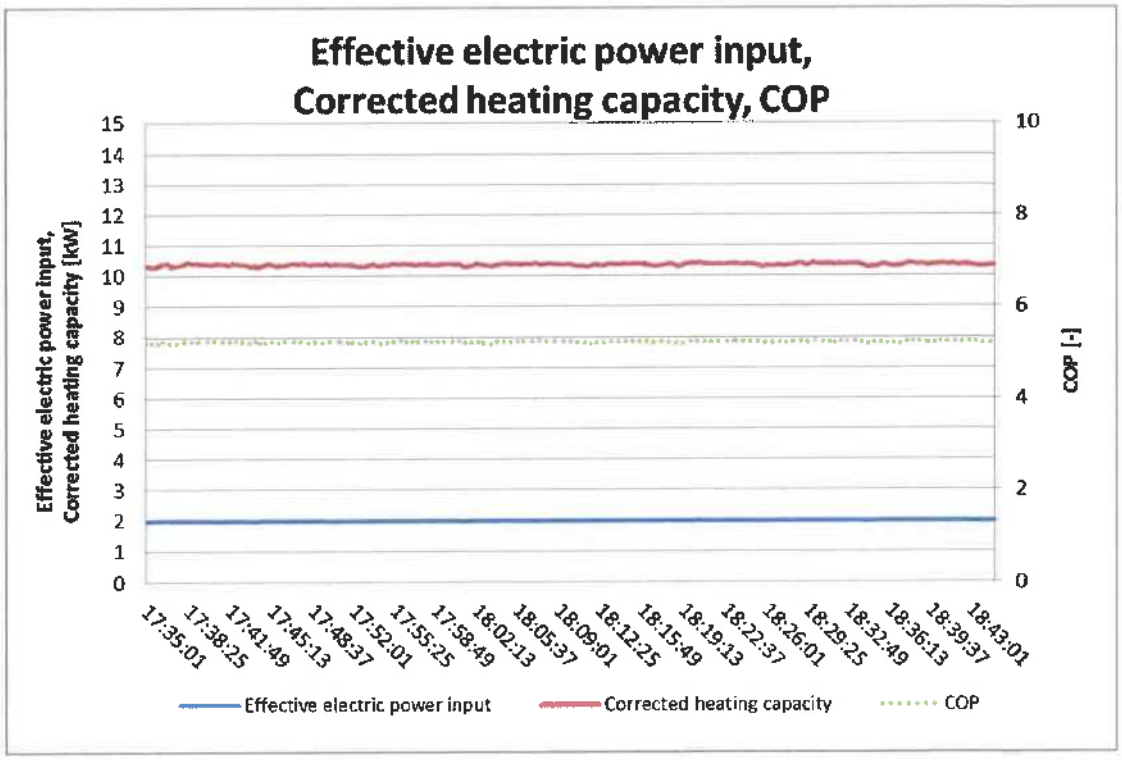
A7/W42.34


A7/W42,34
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
14:45:01
14:48:13
14:51:25
14:54:37
14:57:49
15:01:01
15:04:13
15:07:25
15:10:37
15:13:49
15:17:01
15:20:13
15:23:25
15:26:37
15:29:49
15:33:01
15:36:13
15:39:25
15:42:37
15:45:49
15:49:01
15:52:13
Input heating water temperature
Output heating water temperature
Air temperature - dry bulb temperature
Air temperature - wet bulb temperature

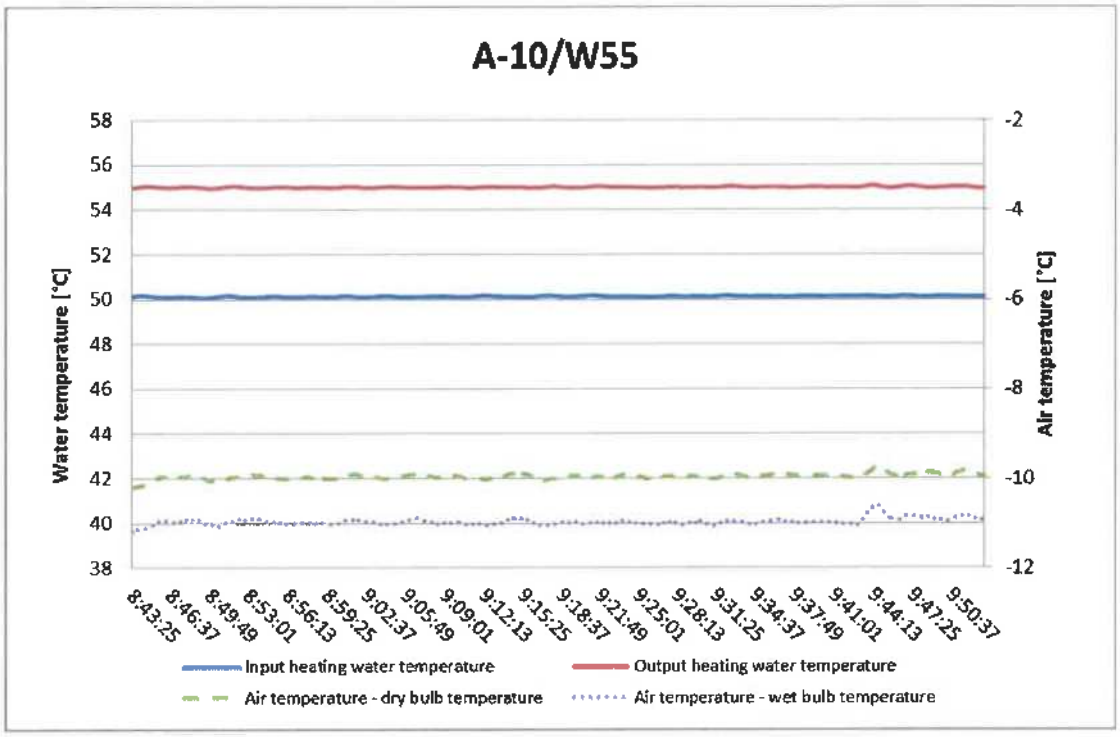

Effective electric power input,
Corrected heating capacity, COP
Effective electric power input, Corrected heating capacity [kW]
COP [-]
14
12
10
8
6
4
2
0
-2
-4
-6
-8
24
22
20
18
16
14
12
10
8
6
4
2
14:45:01
14:48:25
14:51:49
14:55:13
14:58:37
15:02:01
15:05:25
15:08:49
15:12:13
15:15:37
15:19:01
15:22:25
15:25:49
15:29:13
15:32:37
15:36:01
15:39:25
15:42:49
15:46:13
15:49:37
15:53:01
Effective electric power input
Corrected heating capacity
COP

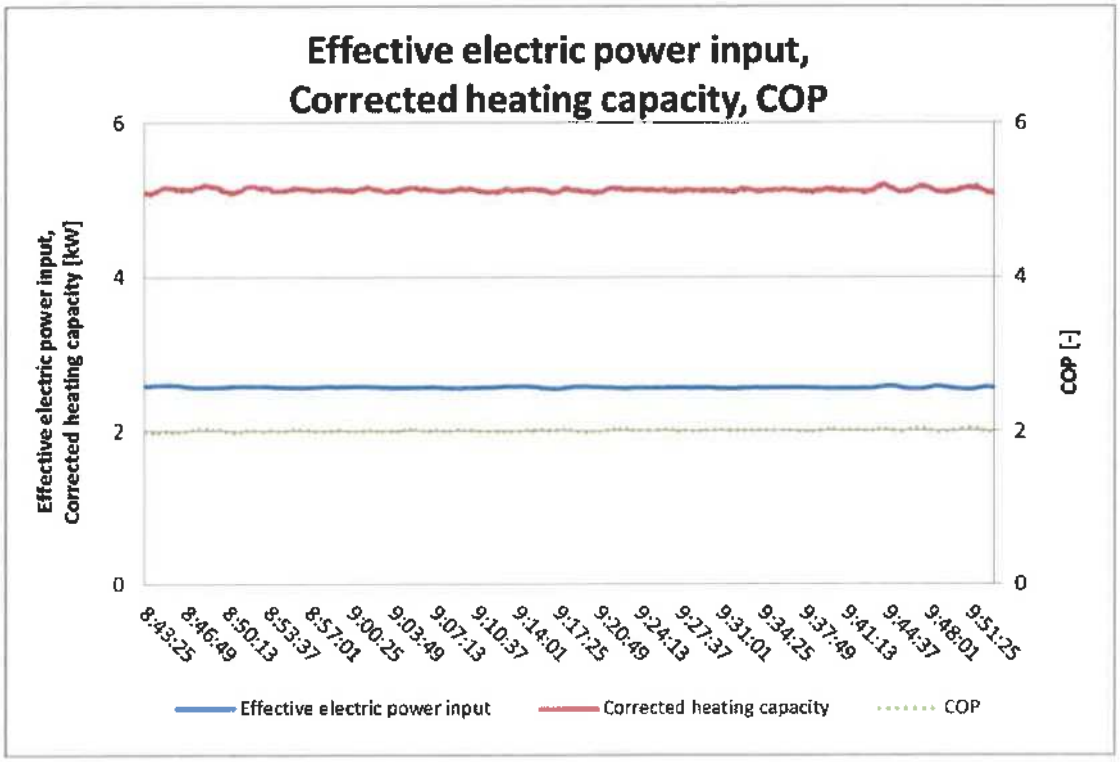
A12/W38.95


A12/W38,95
Water temperature [°C]
Air temperature [°C]
45
40
35
30
25
20
15
10
5
14
12
10
17:35:01
17:38:13
17:41:25
17:44:37
17:47:49
17:51:01
17:54:13
17:57:25
18:00:37
18:03:49
18:07:01
18:10:13
18:13:25
18:16:37
18:19:49
18:23:01
18:26:13
18:29:25
18:32:37
18:35:49
18:39:01
18:42:13
Input heating water temperature
Output heating water temperature
Air temperature - dry bulb temperature
Air temperature - wet bulb temperature

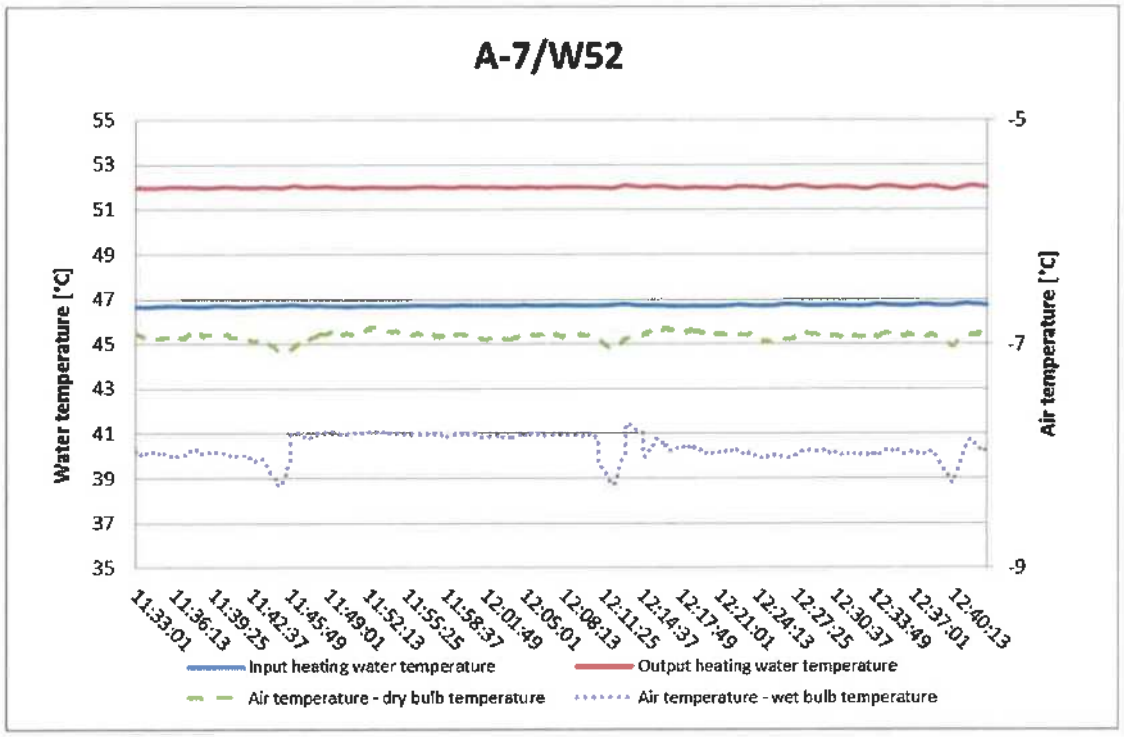

Effective electric power input,
Corrected heating capacity, COP
Effective electric power input, Corrected heating capacity [kW]
COP [-]
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
10
8
6
4
2
0
17:35:01
17:38:25
17:41:49
17:45:13
17:48:37
17:52:01
17:55:25
17:58:49
18:02:13
18:05:37
18:09:01
18:12:25
18:15:49
18:19:13
18:22:37
18:26:01
18:29:25
18:32:49
18:36:13
18:39:37
18:43:01
Effective electric power input
Corrected heating capacity
COP

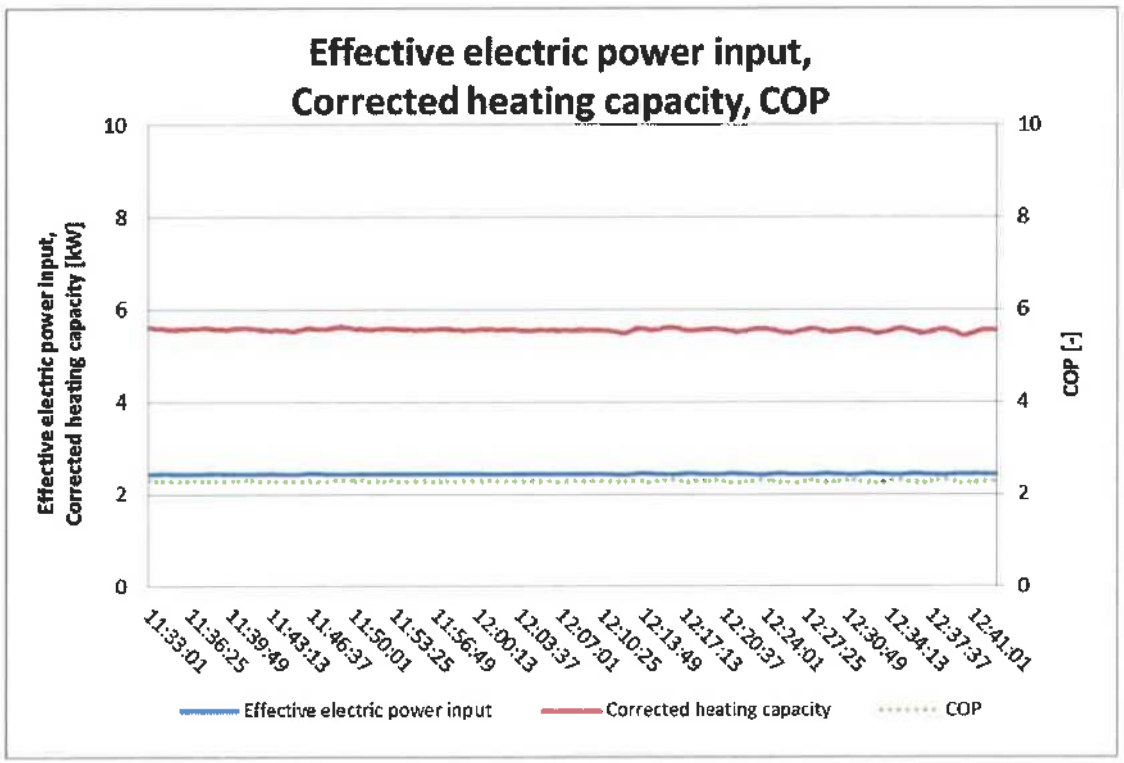
A-10/W55


A-10/W55
Water temperature [°C]
Air temperature [°C]
58
56
54
52
50
48
46
44
42
40
38
-2
-4
-6
-8
-10
-12
8:43:25
8:46:37
8:49:49
8:53:01
8:56:13
8:59:25
9:02:37
9:05:49
9:09:01
9:12:13
9:15:25
9:18:37
9:21:49
9:25:01
9:28:13
9:31:25
9:34:37
9:37:49
9:41:01
9:44:13
9:47:25
9:50:37
Input heating water temperature
Output heating water temperature
Air temperature - dry bulb temperature
Air temperature - wet bulb temperature

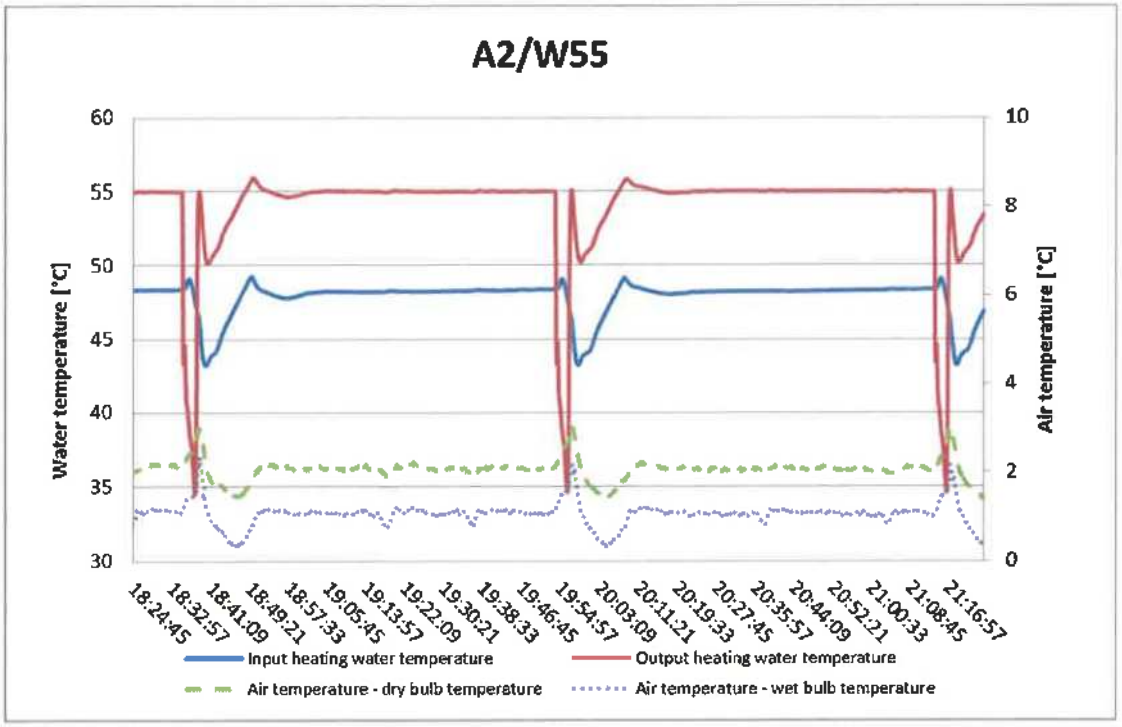

Effective electric power input,
Corrected heating capacity, COP
Effective electric power input, Corrected heating capacity [kW]
COP [-]
6
4
2
0
8:43:25
8:46:49
8:50:13
8:53:37
8:57:01
9:00:25
9:03:49
9:07:13
9:10:37
9:14:01
9:17:25
9:20:49
9:24:13
9:27:37
9:31:01
9:34:25
9:37:49
9:41:13
9:44:37
9:48:01
9:51:25
Effective electric power input
Corrected heating capacity
COP

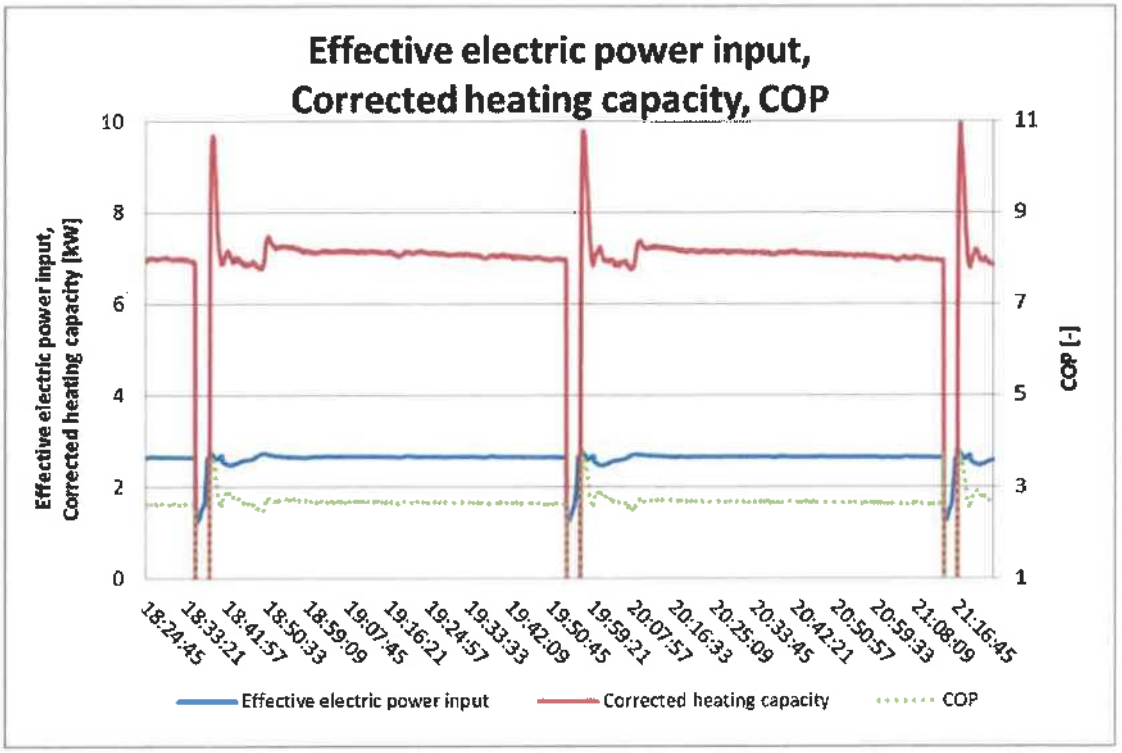
A-7/W52


A-7/W52
Water temperature [°C]
Air temperature [°C]
55
53
51
49
47
45
43
41
39
37
35
-5
-7
-9
11:33:01
11:36:13
11:39:25
11:42:37
11:45:49
11:49:01
11:52:13
11:55:25
11:58:37
12:01:49
12:05:01
12:08:13
12:11:25
12:14:37
12:17:49
12:21:01
12:24:13
12:27:25
12:30:37
12:33:49
12:37:01
12:40:13
Input heating water temperature
Output heating water temperature
Air temperature - dry bulb temperature
Air temperature - wet bulb temperature

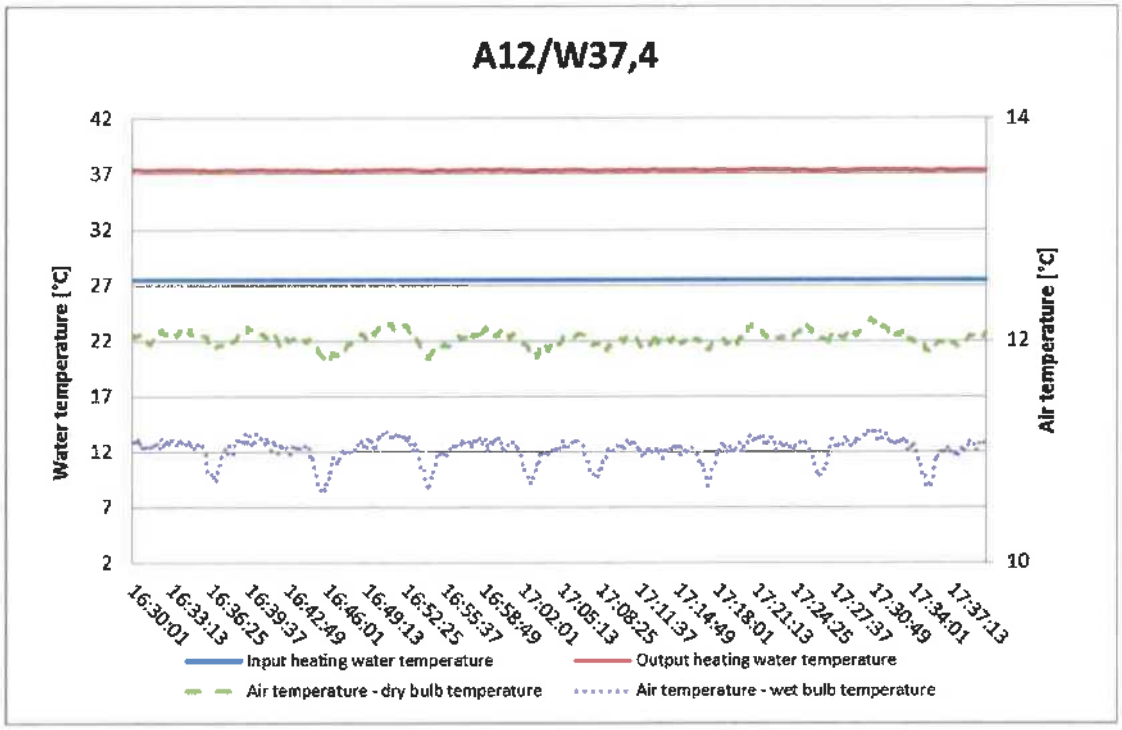

Effective electric power input,
Corrected heating capacity, COP
Effective electric power input, Corrected heating capacity [kW]
COP [-]
10
8
6
4
2
0
11:33:01
11:36:25
11:39:49
11:43:13
11:46:37
11:50:01
11:53:25
11:56:49
12:00:13
12:03:37
12:07:01
12:10:25
12:13:49
12:17:13
12:20:37
12:24:01
12:27:25
12:30:49
12:34:13
12:37:37
12:41:01
Effective electric power input
Corrected heating capacity
COP

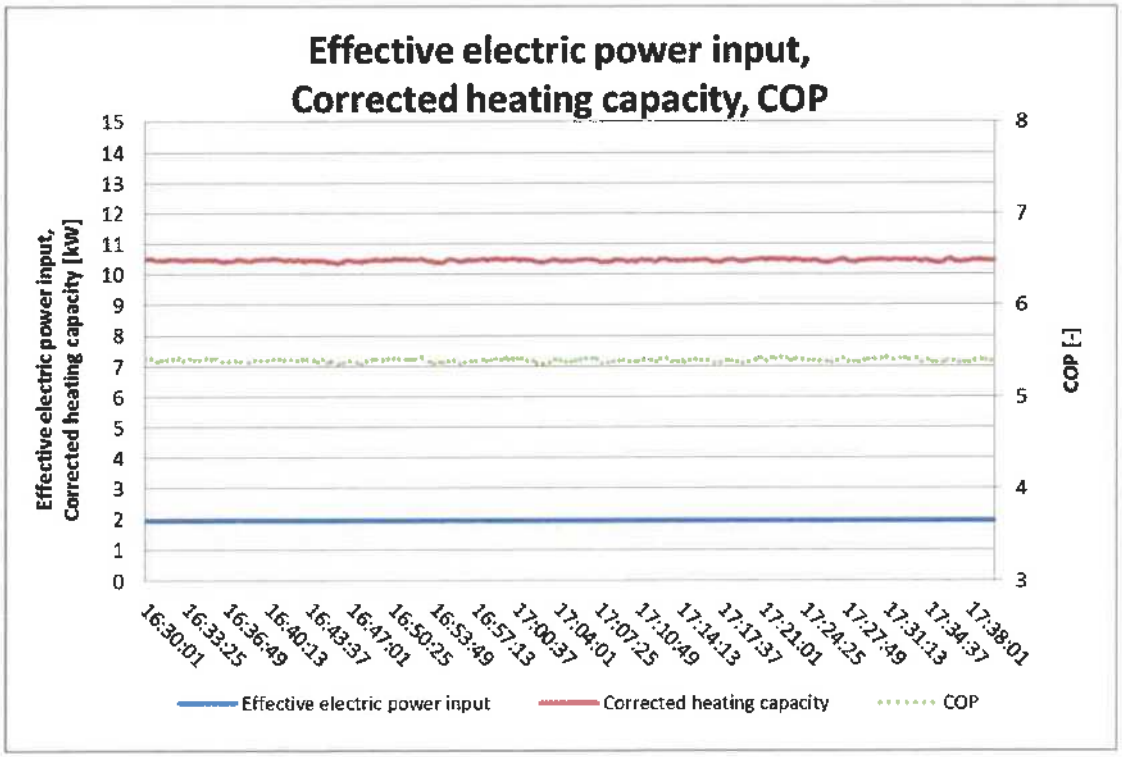
A2/W55


A2/W55
Water temperature [°C]
Air temperature [°C]
60
55
50
45
40
35
30
10
8
6
4
2
0
18:24:45
18:32:57
18:41:09
18:49:21
18:57:33
19:05:45
19:13:57
19:22:09
19:30:21
19:38:33
19:46:45
19:54:57
20:03:09
20:11:21
20:19:33
20:27:45
20:35:57
20:44:09
20:52:21
21:00:33
21:08:45
21:16:57
Input heating water temperature
Output heating water temperature
Air temperature - dry bulb temperature
Air temperature - wet bulb temperature

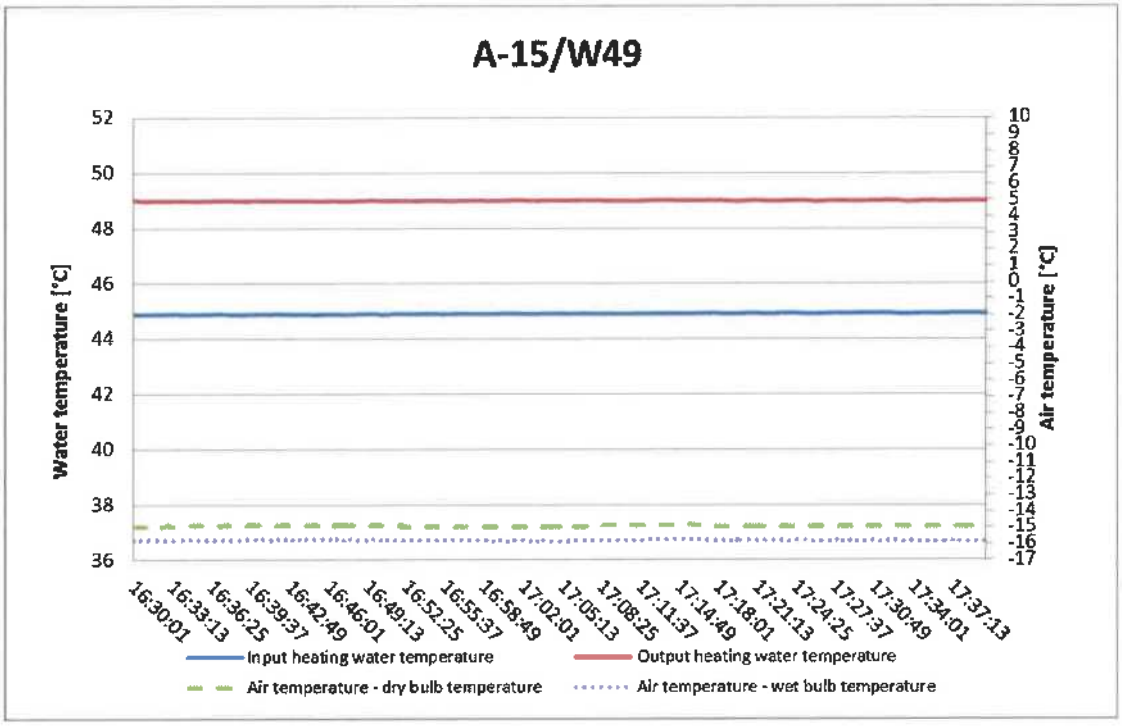

Effective electric power input,
Corrected heating capacity, COP
Effective electric power input, Corrected heating capacity [KW]
COP [-]
10
8
6
4
2
0
11
9
7
5
3
1
18:24:45
18:33:21
18:41:57
18:50:33
18:59:09
19:07:45
19:16:21
19:24:57
19:33:33
19:42:09
19:50:45
19:59:21
20:07:57
20:16:33
20:25:09
20:33:45
20:42:21
20:50:57
20:59:33
21:08:09
21:16:45
Effective electric power input
Corrected heating capacity
COP

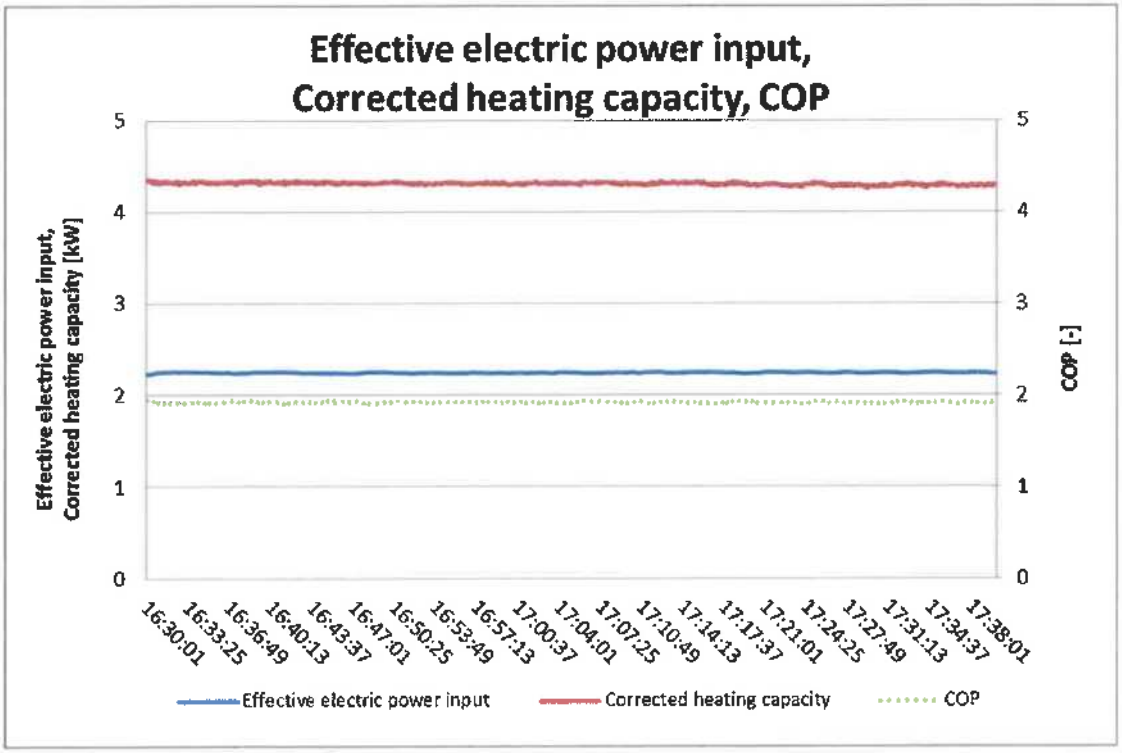
A12/W37.4


A12/W37,4
Water temperature [°C]
Air temperature [°C]
42
37
32
27
22
17
12
7
2
14
12
10
16:30:01
16:33:13
16:36:25
16:39:37
16:42:49
16:46:01
16:49:13
16:52:25
16:55:37
16:58:49
17:02:01
17:05:13
17:08:25
17:11:37
17:14:49
17:18:01
17:21:13
17:24:25
17:27:37
17:30:49
17:34:01
17:37:13
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 [-]
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
8
7
6
5
4
3
16:30:01
16:33:25
16:36:49
16:40:13
16:43:37
16:47:01
16:50:25
16:53:49
16:57:13
17:00:37
17:04:01
17:07:25
17:10:49
17:14:13
17:17:37
17:21:01
17:24:25
17:27:49
17:31:13
17:34:37
17:38:01
Effective electric power input
Corrected heating capacity
COP

A-15/W49


A-15/W49
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

VI. A list of referenced documents

- Order of 2022-06-29 (Order reg. no. B-76791, received on 2022-06-29)
- Contract B-76791/39
- ČSN EN 14511-2:2019 - 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 14511-3:2019 - 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 14511-4:2019 - Air conditioners, liquid chilling packages and heat pumps for space heating and cooling and process chillers, with electrically driven compressors - Part 4: Requirements
- ČSN EN 14825:2020 - 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 seasonal performance
- EHPA Testing regulation – Testing of Air/Water Heat Pumps – Additional requirements for granting the international quality label for heat pumps – Version 2.4a

Test Report compiled by: Ing. Michal Faltýnek

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

Test Report approved by: Milan Holomek
Head of Heat and Environment-Friendly Equipment Test Station

– 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-01496-22 rev.1**

Customer	KOŁTON SPÓŁKA KOMANDYTOWA ul. Sosnowa 2 34-480 Jabłonka POLSKA
Product	Air/water heat pump – monobloc
Type designation / Trade mark	**Airkompakt p0916**
Test methods	ČSN EN 14511-3:2019, ČSN EN 14825:2020; ČSN EN 12102-1:2018, EHPA Testing regulation – Testing of Air/Water Heat Pumps, version 2.4a
Basis of certificate	Test reports: 39-16511/T *of* 2022-09-16 39-16511/H *of* 2022-09-16 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)		
6.20	**$P_{designh}$ [kW]** … Full load heating				**6.28**
4.00	**SCOP [–]** … Seasonal coefficient of performance				**3.25**
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	5.482	2.902	T_j = -7	5.558	2.285
T_j = +2	7.066	3.878	T_j = +2	6.865	3.125
T_j = +7	9.209	5.130	T_j = +7	8.854	4.189
T_j = +12	10.611	6.025	T_j = +12	10.398	5.230
T_j = TOL = -10	5.260	2.765	T_j = TOL = -10	5.127	2.003
$T_j = T_{bivalent}$ = -7	5.482	2.902	$T_j = T_{bivalent}$ = -7	5.558	2.285

LOW TEMPERATURE (Reference water temperature 35 °C)				MEDIUM TEMPERATURE (Reference water temperature 55 °C)
Power consumption in modes other than „active mode“:				
14.8	Off mode	P_{OFF}	[W]	**14.8**
14.7	Thermostat off mode	P_{TO}	[W]	**14.7**
14.8	Standby mode	P_{SB}	[W]	**14.8**
0.0	Crankcase heater mode	P_{CK}	[W]	**0.0**
Annual electricity consumption for heating according to:				
3197	ČSN EN 14825:2020	Q_{HE}	[kWh]	**3995**
Seasonal Space heating energy efficiency				
157.2	ČSN EN 14825:2020	η_s	[%]	**127.0**
Liquid flow rate in outdoor heating exchanger:				
–	Source liquid	Min/Max	[m^3/h]	**–**
Liquid flow rate in indoor heating exchanger:				
0.9142/1.5814	Heating water	Min/Max	[m^3/h]	**0.9142/1.5814**

Sound power level at condition A7W55* :

Airkompakt p0916	L_{WA}	62.9 ± 1.5	dB(A)	Accuracy class 2 (Engineering)

(*) Comment to abbreviated marking:
„A“ air, „7“ inlet temperature (dry-bulb temperature) in °C, „W“ water, „35“ outlet temperature in °C.

[a] The technical data were declared by the manufacturer or calculated of data declared by the manufacturer and were not tested by the Testing Laboratory.

Specification of conditions:

Compressor speed control	**Fixed**	Heating water volume flow rate (indoor heat exchanger)	**Fixed**
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, 2022-09-30

Milan Holomek
Head of Heat and Environment-Friendly Equipment Test Station

– 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-01497-22 rev.1**

Customer	KOŁTON SPÓŁKA KOMANDYTOWA ul. Sosnowa 2 34-480 Jabłonka POLSKA
Product	Air/water heat pump – monobloc
Type designation / Trade mark	**Airkompakt p0916**
Test methods	ČSN EN 14511-3:2019, ČSN EN 14825:2020; ČSN EN 12102-1:2018, EHPA Testing regulation – Testing of Air/Water Heat Pumps, version 2.4a
Basis of certificate	Test reports: 39-16511/T *of* 2022-09-16 39-16511/H *of* 2022-09-16 Technical documents of KOŁTON SPÓŁKA KOMANDYTOWA
Reference heating season	**„W" = warmer** (Reference design temperature $T_{designh}$ = +2 °C)

Results:

LOW TEMPERATURE (Reference water temperature 35 °C)		MEDIUM TEMPERATURE (Reference water temperature 55 °C)
7.00	**$P_{designh}$ [kW]** ... Full load heating	**6.52**
5.00 (a)	**SCOP [–]** ... Seasonal coefficient of performance	**4.03** (a)

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	–	–	T_j =-7	–	–
T_j = +2	6.996	3.660	T_j = +2	6.521	2.500
T_j = +7 (a)	8.900	4.790	T_j = +7 (a)	8.300	3.500
T_j = +12 (a)	10.500	5.700	T_j = +12 (a)	10.500	5.160
T_j = TOL = +2	6.996	3.660	T_j = TOL = +2	6.521	2.500
T_j = $T_{bivalent}$ = +2	6.996	3.660	T_j = $T_{bivalent}$ = +2	6.521	2.500

LOW TEMPERATURE (Reference water temperature 35 °C)				MEDIUM TEMPERATURE (Reference water temperature 55 °C)
Power consumption in modes other than „active mode“:				
14.8	Off mode	P_{OFF}	[W]	**14.8**
14.7	Thermostat off mode	P_{TO}	[W]	**14.7**
14.8	Standby mode	P_{SB}	[W]	**14.8**
0.0	Crankcase heater mode	P_{CK}	[W]	**0.0**
Annual electricity consumption for heating according to:				
1870 (a)	ČSN EN 14825:2020	Q_{HE}	[kWh]	**2159** (a)
Seasonal Space heating energy efficiency				
196.9 (a)	ČSN EN 14825:2020	η_s	[%]	**158.4** (a)
Liquid flow rate in outdoor heating exchanger:				
–	Source liquid	Min/Max	[m^3/h]	–
Liquid flow rate in indoor heating exchanger:				
0.9142/1.5814	Heating water	Min/Max	[m^3/h]	**0.9142/1.5814**

Sound power level at condition A7W55*

Airkompakt p0916	L_{WA}	62.9 ± 1.5	dB(A)	Accuracy class 2 (Engineering)

(*) Comment to abbreviated marking:
„A" air, „7" inlet temperature (dry-bulb temperature) in °C, „W" water, „35" outlet temperature in °C.

(a) The technical data were declared by the manufacturer or calculated of data declared by the manufacturer and were not tested by the Testing Laboratory.

Specification of conditions:

Compressor speed control	**Fixed**	Heating water volume flow rate (indoor heat exchanger)	**Fixed**
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, 2022-09-30

Milan Holomek
Head of Heat and Environment-Friendly Equipment Test Station

– 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-01498-22 rev.1**

Customer	KOŁTON SPÓŁKA KOMANDYTOWA ul. Sosnowa 2 34-480 Jabłonka POLSKA
Product	Air/water heat pump – monobloc
Type designation / Trade mark	**Airkompakt p0916**
Test methods	ČSN EN 14511-3:2019, ČSN EN 14825:2020; ČSN EN 12102-1:2018, EHPA Testing regulation – Testing of Air/Water Heat Pumps, version 2.4a
Basis of certificate	Test reports: 39-16511/T *of* 2022-09-16 39-16511/H *of* 2022-09-16 Technical documents of KOŁTON SPÓŁKA KOMANDYTOWA
Reference heating season	**„C" = colder** (Reference design temperature $T_{designh}$ = -22 °C)

Results:

LOW TEMPERATURE (Reference water temperature 35 °C)		MEDIUM TEMPERATURE (Reference water temperature 55 °C)
5.65	**$P_{designh}$ [kW]** … Full load heating	**5.29**
3.54 (a)	**SCOP [–]** … Seasonal coefficient of performance	**2.82** (a)

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 (a)	6.800	3.150	T_j = -7 (a)	6.600	2.400
T_j = +2 (a)	6.900	4.050	T_j = +2 (a)	6.900	3.300
T_j = +7 (a)	9.300	5.190	T_j = +7 (a)	8.700	4.610
T_j = +12 (a)	10.580	5.840	T_j = +12	10.461	5.394
T_j = TOL = -22	3.686	2.031	T_j = TOL = -19 (a)	3.600	1.670
T_j = $T_{bivalent}$ = -15	4.606	2.573	T_j = $T_{bivalent}$ = -15	4.314	1.921
T_j = -15	4.606	2.573	T_j = -15	4.314	1.921

LOW TEMPERATURE (Reference water temperature 35 °C)				MEDIUM TEMPERATURE (Reference water temperature 55 °C)
Power consumption in modes other than „active mode“:				
14.8	Off mode	P_{OFF}	[W]	**14.8**
14.7	Thermostat off mode	P_{TO}	[W]	**14.7**
14.8	Standby mode	P_{SB}	[W]	**14.8**
0.0	Crankcase heater mode	P_{CK}	[W]	**0.0**
Annual electricity consumption for heating according to:				
3930 (a)	ČSN EN 14825:2020	Q_{HE}	[kWh]	**4624** (a)
Seasonal Space heating energy efficiency				
138.7 (a)	ČSN EN 14825:2020	η_s	[%]	**109.8** (a)
Liquid flow rate in outdoor heating exchanger:				
–	Source liquid	Min/Max	[m^3/h]	–
Liquid flow rate in indoor heating exchanger:				
0.9142/1.5814	Heating water	Min/Max	[m^3/h]	**0.9142/1.5814**

Sound power level at condition A7W55*

Airkompakt p0916	L_{WA}	62.9 ± 1.5	dB(A)	Accuracy class 2 (Engineering)

(*) Comment to abbreviated marking:
„A" air, „7" inlet temperature (dry-bulb temperature) in °C, „W" water, „35" outlet temperature in °C.

(a) The technical data were declared by the manufacturer or calculated of data declared by the manufacturer and were not tested by the Testing Laboratory.

Specification of conditions:

Compressor speed control	**Fixed**	Heating water volume flow rate (indoor heat exchanger)	**Fixed**
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, 2022-09-30

Milan Holomek
Head of Heat and Environment-Friendly Equipment Test Station

– 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
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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-01499-22 rev.1**

Customer	KOŁTON SPÓŁKA KOMANDYTOWA ul. Sosnowa 2 34-480 Jabłonka POLSKA
Product	Air/water heat pump – monobloc
Type designation / Trade mark	**Airkompakt p0916**
Test methods	ČSN EN 14511-2:2019, ČSN EN 14511-3:2019, ČSN EN 14511-4:2019, ČSN EN 12102-1:2018, EHPA Testing regulation – Testing of Air/Water Heat Pumps, version 2.4a
Basis of certificate	Test reports: 39-16511/T *of* 2022-09-16 39-16511/H *of* 2022-09-16 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 heat capacity [kW]	9.062	8.428
Effective electric power input [kW]	1.950	2.678
Coefficient of performance [–]	4.647	3.148
Compressor settings [–]	–	–

(*) 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).

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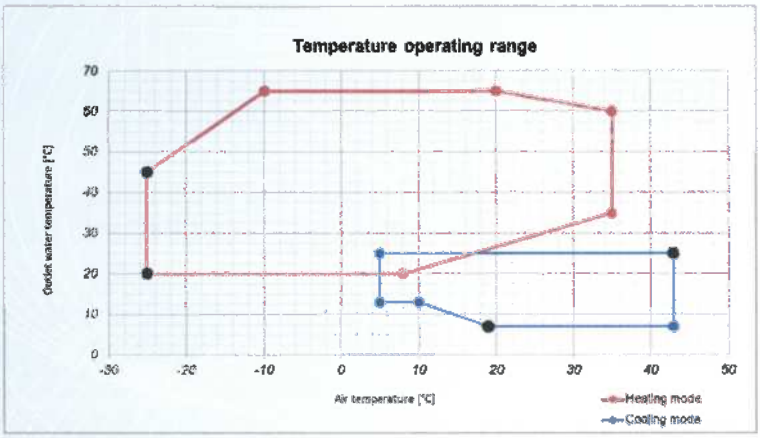
Sound power level at temperature condition A7/W55*:

Air/Water Heat Pump – monobloc	**Airkompakt p0916**		
Sound power level	L_{WA}	62.9 ± 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).

Temperature operating range:



Liquid flow rate in:

outdoor heating exchanger

Minimum	–	m³/h
Maximum	–	m³/h

indoor heating exchanger

Minimum	0.9142	m³/h
Maximum	1.5814	m³/h

Complies with
ČSN EN 14511-4:2019, articles: 4.2.1.2, 4.2.1.3, 4.5

Specification of conditions:

Compressor speed control	**Fixed**	Heating water volume flow rate (indoor heat exchanger)	**Fixed**
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, 2022-09-30

Milan Holomek
Head of Heat and Environment-Friendly Equipment Test Station

– 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-01500-22 rev.1**

Customer	KOŁTON SPÓŁKA KOMANDYTOWA ul. Sosnowa 2 34-480 Jabłonka POLSKA
Product	Air/water heat pump – monobloc
Type designation / Trade mark	**Airkompakt p0916** **Airkompakt p1118** **Airkompakt p1522** **Airkompakt p1926**
Test methods	ČSN EN 14511-3:2019, ČSN EN 14825:2020; EHPA Testing regulation – Testing of Air/Water Heat Pumps, version 2.4a
Basis of certificate	Test reports: 39-16511/T *of* 2022-09-16 39-16511/H *of* 2022-09-16 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)	**Fixed**
Outlet water temperature (indoor heat exchanger)	**Variable**	Source liquid volume flow rate (outdoor heat exchanger)	–
Function	**Reversible**		

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Results:

Low temperature application

(Reference water temperature 35 °C)

Model names			Airkompakt p0916 (Tested)	Airkompakt p1118 (Not tested)	Airkompakt p1522 (Not tested)	Airkompakt p1926 (Not tested)
Full load heating	$P_{designh}$ [kW]	A	6.20	8.59	12.10	14.58
		W	7.00	9.40	13.50	14.40
		C	5.65	7.97	9.68	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	4.08	4.08
		W	5.00 *(Not tested)*	5.16	4.96	5.13
		C	3.54 *(Not tested)*	3.61	3.55	3.53
Seasonal Space heating energy efficiency	η_s [%]	A	157.2	159.1	160.1	160.2
		W	196.9 *(Not tested)*	203.3	195.3	202.3
		C	138.7 *(Not tested)*	141.2	139.1	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.

Brno, 2022-09-30

STROJÍRENSKÝ ZKUŠEBNÍ ÚSTAV, s.p. CZ 1

Milan Holomek

Head of Heat and Environment-Friendly Equipment Test Station

– END OF TEST CERTIFICATE –

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Strojírenský zkušební ústav, s.p., Brno, Česká republika
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TEST CERTIFICATE

Number **O-B-01501-22 rev.1**

Customer	KOŁTON SPÓŁKA KOMANDYTOWA ul. Sosnowa 2 34-480 Jabłonka POLSKA
Product	Air/water heat pump – monobloc
Type designation / Trade mark	**Airkompakt p0916** **Airkompakt p1118** **Airkompakt p1522** **Airkompakt p1926**
Test methods	ČSN EN 14511-3:2019, ČSN EN 14825:2020; EHPA Testing regulation – Testing of Air/Water Heat Pumps, version 2.4a
Basis of certificate	Test reports: 39-16511/T *of* 2022-09-16 39-16511/H *of* 2022-09-16 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)	**Fixed**
Outlet water temperature (indoor heat exchanger)	**Variable**	Source liquid volume flow rate (outdoor heat exchanger)	–
Function	**Reversible**		

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Results:

Medium temperature application

(Reference water temperature 55 °C)

Model names			Airkompakt p0916 (Tested)	Airkompakt p1118 (Not tested)	Airkompakt p1522 (Not tested)	Airkompakt p1926 (Not tested)
Full load heating	$P_{designh}$ [kW]	A	6.28	8.59	11.42	13.90
		W	6.52	8.90	11.60	14.40
		C	5.29	7.72	9.68	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	3.20	3.35
		W	4.03 *(Not tested)*	4.07	4.13	4.10
		C	2.82 *(Not tested)*	2.97	2.93	2.94
Seasonal Space heating energy efficiency	η_s [%]	A	127.0	132.8	125.0	131.2
		W	158.4 *(Not tested)*	159.8	162.4	161.1
		C	109.8 *(Not tested)*	116.0	114.2	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.

Brno, 2022-09-30

Milan Holomek

Head of Heat and Environment-Friendly Equipment Test Station

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Strojírenský zkušební ústav, s.p., Brno, Česká republika
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TEST CERTIFICATE

Number **O-B-01502-22 rev.1**

Customer	KOŁTON SPÓŁKA KOMANDYTOWA ul. Sosnowa 2 34-480 Jabłonka POLSKA
Product	Air/water heat pump – monobloc
Type designation / Trade mark	**Airkompakt p0916** **Airkompakt p1118** **Airkompakt p1522** **Airkompakt p1926**
Test methods	ČSN EN 14511-2:2019, ČSN EN 14511-3:2019, ČSN EN 14511-4:2019, ČSN EN 12102-1:2018, EHPA Testing regulation – Testing of Air/Water Heat Pumps, version 2.4a
Basis of certificate	Test reports: 39-16511/T *of* 2022-09-16 39-16511/H *of* 2022-09-16 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)	**Fixed**
Outlet water temperature (indoor heat exchanger)	**Variable**	Source liquid volume flow rate (outdoor heat exch.)	–
Function	**Reversible**		

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Results:

	Model names		Airkompakt p0916 (Tested)	Airkompakt p1118 (Not tested)	Airkompakt p1522 (Not tested)	Airkompakt p1926 (Not tested)
	Temperature condition*					
A7/W35	Corrected heat capacity	[kW]	9.062	11.200	15.180	19.650
	Effective power input	[kW]	1.950	2.599	3.667	4.226
	Coefficient of performance	[–]	4.647	4.310	4.140	4.650
	Control settings	[–]	–	–	–	–
A7/W55	Corrected heat capacity	[kW]	8.428	11.200	12.890	17.400
	Effective power input	[kW]	2.678	3.478	4.901	5.918
	Coefficient of performance	[–]	3.148	3.220	2.630	2.940
	Control settings	[–]	–	–	–	–
A2/W35	Corrected heat capacity	[kW]	6.996	9.400	13.500	14.400
	Effective power input	[kW]	1.911	2.473	3.562	3.891
	Coefficient of performance	[–]	3.660	3.800	3.790	3.700
	Control settings	[–]	–	–	–	–
	Sound power level at condition A7/W55*:					
	L_{WA}	[dB(A)]	62.9 ± 1.5	66.0 ± 1.5	68.0 ± 1.5	69.0 ± 1.5
	Accuracy class			Engineering (2)		

(*) Comment to abbreviated marking e.g. A7W35 B0/W35:

„A" air, „7" inlet temperature (dry-bulb temperature) in °C, „W" water, „35" 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.

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Brno, 2022-09-30

STROJÍRENSKÝ ZKUŠEBNÍ ÚSTAV, s.p. CZ 1

Milan Holomek

Head of Heat and Environment-Friendly Equipment Test Station

– END OF TEST CERTIFICATE –

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Tłumaczenie przysięgłe z jęz. angielskiego na jęz. polski

Instytut Testów Inżynieryjnych, Przedsiębiorstwo Publiczne, Brno, Republika Czeska

CERTYFIKAT TESTÓW
Numer: O-B-01496-22 rev.1

Klient	KOŁTON SPÓŁKA KOMANDYTOWA ul. Sosnowa 2 34-480 Jabłonka POLSKA
Produkt	Pompa ciepła typu powietrze/woda – monoblok
Oznaczenie typu/ znak towarowy	**Airkompakt p0916**
Metody testowe	ČSN EN 14511-3:2019, ČSN EN 14825:2020; ČSN EN 12102-1:2018, Przepisy dotyczące badań EHPA – Badanie pomp ciepła typu powietrze/woda, wersja 2.4a
Podstawa certyfikatu	Raporty z testów: 39-16511/T z 2022-09-16 39-16511/H z 2022-09-16 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)

6,20	$P_{designh}$ **[kW]** ... Znamionowa moc cieplna				**6,28**
4,00	**SCOP** [-] ... Sezonowy współczynnik efektywności				**3,25**
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	5,482	2,902	Tj= -7	5,558	2,285
Tj= +2	7,066	3,878	Tj= +2	6,865	3,125
Tj=+7	9,209	5,130	Tj= +7	8,854	4,189
Tj= +12	10,611	6,025	Tj= +12	10,398	5,230
Tj= TOL= -10	5,260	2,765	Tj= TOL = -10	5,127	2,003
Tj= $T_{bivalent}$= -7	5,482	2,902	Tj = $T_{bivalent}$= -7	5,558	2,285

[okrągła pieczęć]

[Hologram]

Instytut Testów Inżynieryjnych, Przedsiębiorstwo Publiczne,
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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"		
14,8	Tryb wyłączony P_{OFF} (W)	14,8
14,7	Tryb wyłączonego termostatu P_{TO} [W]	14,7
14,8	Tryb czuwania P_{SB} [W]	14,8
0,00	Tryb grzałki karteru P_{CK} [W]	0,00
Roczne zużycie energii elektrycznej na ogrzewanie według:		
3197	ČSN EN 14825:2020 Q_{HE} [kWh]	3995
Sezonowa efektywność energetyczna ogrzewania pomieszczeń η_s		
157,2	ČSN EN 14825:2020 η_s [%]	127,0
Natężenie przepływu cieczy w zewnętrznym wymienniku ciepła:		
-	Źródło cieczy Min./Maks. [m³/h]	-
Natężenie przepływu cieczy w wewnętrznym wymienniku ciepła:		
0,9142/1,5814	Woda grzewcza Min./Maks. [m³/h]	0,9142/1,5814

Poziom mocy akustycznej w warunku A7W55*:

Airkompakt p0916 L_{WA} 62,9±1,5 dB(A) Klasa dokładności 2 (inżynieria)

(*) Komentarz do skróconego oznaczenia:

„A" = powietrze, „7" = temperatura na wlocie (temperatura termometru suchego) w °C, „W" = woda, „35" = temperatura na wylocie w °C.

(a) Dane techniczne zostały zadeklarowane przez producenta lub obliczone na podstawie danych zadeklarowanych przez producenta i nie były badane przez Laboratorium Badawcze.

Specyfikacja warunków:

Sterowanie prędkością sprężarki	Stałe	Przepływ objętościowy wody grzewczej (wewnętrzny wymiennik ciepła)	Stały
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, 30.09.2022 r.

[nieczytelny podpis]
Milan Holomek
Kierownik Stacji Badań Urządzeń Cieplnych i Przyjaznych Środowisku
- KONIEC CERTYFIKATU TESTÓW -
[okrągła pieczęć]

Instytut Testów Inżynieryjnych, Przedsiębiorstwo Publiczne,
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Nr rep. 572/24
Stwierdzam zgodność powyższego przekładu z oryginałem
Tytułem wynagrodzenia pobrano -
Augustów, dnia: 20.03.2024 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-01497-22 rev.1

Klient	KOŁTON SPÓŁKA KOMANDYTOWA ul. Sosnowa 2 34-480 Jabłonka POLSKA
Produkt	Pompa ciepła typu powietrze/woda – monoblok
Oznaczenie typu/ znak towarowy	**Airkompakt p0916**
Metody testowe	ČSN EN 14511-3:2019, ČSN EN 14825:2020; ČSN EN 12102-1:2018, Przepisy dotyczące badań EHPA – Badanie pomp ciepła typu powietrze/woda, wersja 2.4a
Podstawa certyfikatu	Raporty z testów: 39-16511/T z 2022-09-16 39-16511/H z 2022-09-16 Dokumentacja techniczna KOŁTON SPÓŁKA KOMANDYTOWA
Referencyjny sezon grzewczy	**„W" = ciepły** (Referencyjna temperatura projektowa $T_{designh}$ = +2 °C)

Wyniki:

NISKA TEMPERATURA (Referencyjna temperatura wody 35°C)

ŚREDNIA TEMPERATURA (Referencyjna temperatura wody 55°C)

7,00	$P_{designh}$ **[kW]** ... Znamionowa moc cieplna				**6,52**
5,00 (a)	**SCOP** [-] ... Sezonowy współczynnik efektywności				**4,03** (a)
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	-	-	Tj= -7	-	-
Tj= +2	6,996	3,660	Tj= +2	6,521	2,500
Tj=+7 (a)	8,900	4,790	Tj= +7(a)	8,300	3,500
Tj= +12 (a)	10,500	5,700	Tj= +12 (a)	10,500	5,160
Tj= TOL= +2	6,996	3,660	Tj= TOL = +2	6,521	2,500
Tj= $T_{bivalent}$= +2	6,996	3,660	Tj = $T_{bivalent}$= +2	6,521	2,500

[okrągła pieczęć]

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

[Hologram]

NISKA TEMPERATURA (Referencyjna temperatura wody 35°C)		ŚREDNIA TEMPERATURA (Referencyjna temperatura wody 55°C)
Pobór mocy w trybach innych niż „tryb aktywny"		
14,8	Tryb wyłączony P_{OFF} (W)	14,8
14,7	Tryb wyłączonego termostatu P_{TO} [W]	14,7
14,8	Tryb czuwania P_{SB} [W]	14,8
0,00	Tryb grzałki karteru P_{CK} [W]	0,00
Roczne zużycie energii elektrycznej na ogrzewanie według:		
1870 [a]	ČSN EN 14825:2020 Q_{HE} [kWh]	2159 [a]
Sezonowa efektywność energetyczna ogrzewania pomieszczeń		
196,9 [a]	ČSN EN 14825:2020 η_s [%]	158,4 [a]
Natężenie przepływu cieczy w zewnętrznym wymienniku ciepła:		
-	Źródło cieczy Min./Maks. [m³/h]	-
Natężenie przepływu cieczy w wewnętrznym wymienniku ciepła:		
0,9142/1,5814	Woda grzewcza Min./Maks. [m³/h]	0,9142/1,5814

Poziom mocy akustycznej w warunku A7W55*

Airkompakt p0916 L_{WA} 62,9±1,5 dB(A) Klasa dokładności 2 (inżynieria)

(*) Komentarz do skróconego oznaczenia:

„A" powietrze, „7" = temperatura na wlocie (temperatura termometru suchego) w °C, „W" woda, „35" temperatura na wylocie w °C.

[a] Dane techniczne zostały zadeklarowane przez producenta lub obliczone na podstawie danych zadeklarowanych przez producenta i nie były badane przez Laboratorium Badawcze.

Specyfikacja warunków:

Sterowanie prędkością sprężarki	Stałe	Przepływ objętościowy wody grzewczej (wewnętrzny wymiennik ciepła)	Stały
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, 30.09.2022 r.

[nieczytelny podpis]
Milan Holomek
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. 573/24
Stwierdzam zgodność powyższego przekładu z oryginałem
Tytułem wynagrodzenia pobrano -
Augustów, dnia: 20.03.2024 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-01498-22 rev.1

Klient	KOŁTON SPÓŁKA KOMANDYTOWA ul. Sosnowa 2 34-480 Jabłonka POLSKA
Produkt	Pompa ciepła typu powietrze/woda – monoblok
Oznaczenie typu/ znak towarowy	**Airkompakt p0916**
Metody testowe	ČSN EN 14511-3:2019, ČSN EN 14825:2020; ČSN EN 12102-1:2018, Przepisy dotyczące badań EHPA – Badanie pomp ciepła typu powietrze/woda, wersja 2.4a
Podstawa certyfikatu	Raporty z testów: 39-16511/T z 2022-09-16 39-16511/H z 2022-09-16 Dokumentacja techniczna KOŁTON SPÓŁKA KOMANDYTOWA
Referencyjny sezon grzewczy	**„C" = chłodny** (Referencyjna temperatura projektowa $T_{designh}$ = -22 °C)

Wyniki:

NISKA TEMPERATURA (Referencyjna temperatura wody 35°C)			**ŚREDNIA TEMPERATURA** (Referencyjna temperatura wody 55°C)		
5,65	$P_{designh}$ **[kW]** ... Znamionowa moc cieplna				**5,29**
3,54 [(a)]	**SCOP** [-] ... Sezonowy współczynnik efektywności				**2,82** [(a)]
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[(a)]	6,800	3,150	Tj= -7 [(a)]	6,600	2,400
Tj= +2[(a)]	6,900	4,050	Tj= +2 [(a)]	6,900	3,300
Tj=+7[(a)]	9,300	5,190	Tj= +7 [(a)]	8,700	4,610
Tj= +12[(a)]	10,580	5,840	Tj= +12	10,461	5,394
Tj= TOL= -22	3,686	2,031	Tj=TOL =-19[(a)]	3,600	1,670
Tj= $T_{bivalent}$= -15	4,606	2,573	Tj=$T_{bivalent}$=-15	4,314	1,921
Tj=-15	4,606	2,573	Tj= -15	4,314	1,921

[okrągła pieczęć]

[Hologram]

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

NISKA TEMPERATURA (Referencyjna temperatura wody 35°C)		ŚREDNIA TEMPERATURA (Referencyjna temperatura wody 55°C)
Pobór mocy w trybach innych niż „tryb aktywny"		
14,8	Tryb wyłączony P_{OFF} (W)	14,8
14,7	Tryb wyłączonego termostatu P_{TO} [W]	14,7
14,8	Tryb czuwania P_{SB} [W]	14,8
0,00	Tryb grzałki karteru P_{CK} [W]	0,00
Roczne zużycie energii elektrycznej na ogrzewanie według:		
3930 [a]	ČSN EN 14825:2020 Q_{HE} [kWh]	4624 [a]
Sezonowa efektywność energetyczna ogrzewania pomieszczeń		
138,7[a]	ČSN EN 14825:2020 ηs [%]	109,8 [a]
Natężenie przepływu cieczy w zewnętrznym wymienniku ciepła:		
-	Źródło cieczy Min./Maks. [m³/h]	-
Natężenie przepływu cieczy w wewnętrznym wymienniku ciepła:		
0,9142/1,5814	Woda grzewcza Min./Maks. [m³/h]	0,9142/1,5814

Poziom mocy akustycznej w warunku A7W55*

Airkompakt p0916 L_{WA} 62,9±1,5 dB(A) Klasa dokładności 2 (inżynieria)

(*) Komentarz do skróconego oznaczenia:
„A" powietrze, „7" = temperatura na wlocie (temperatura termometru suchego) w °C, „W" woda, „35" temperatura na wylocie w °C.
[a] Dane techniczne zostały zadeklarowane przez producenta lub obliczone na podstawie danych zadeklarowanych przez producenta i nie były badane przez Laboratorium Badawcze.

Specyfikacja warunków:

Sterowanie prędkością sprężarki	Stałe	Przepływ objętościowy wody grzewczej (wewnętrzny wymiennik ciepła)	Stały
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, 30.09.2022 r.

[nieczytelny podpis]
Milan Holomek
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. 574/24
Stwierdzam zgodność powyższego przekładu z oryginałem
Tytułem wynagrodzenia pobrano -
Augustów, dnia: 20.03.2024 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-01499-22 rev.1

Klient	KOŁTON SPÓŁKA KOMANDYTOWA ul. Sosnowa 2 34-480 Jabłonka POLSKA
Produkt	Pompa ciepła typu powietrze/woda – monoblok
Oznaczenie typu/ znak towarowy	**Airkompakt p0916**
Metody testowe	ČSN EN 14511-2:2019, ČSN EN 14511-3:2019; ČSN EN 14511:4:2019, ČSN EN 12102-1:2018, Przepisy dotyczące badań EHPA – Badanie pomp ciepła typu powietrze/woda, wersja 2.4a
Podstawa certyfikatu	Raporty z testów: 39-16511/T z 2022-09-16 39-16511/H z 2022-09-16 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]	9,062	8,428
Efektywny pobór mocy elektrycznej [kW]	1,950	2,678
Współczynnik efektywności [-]	4,647	3,148
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]

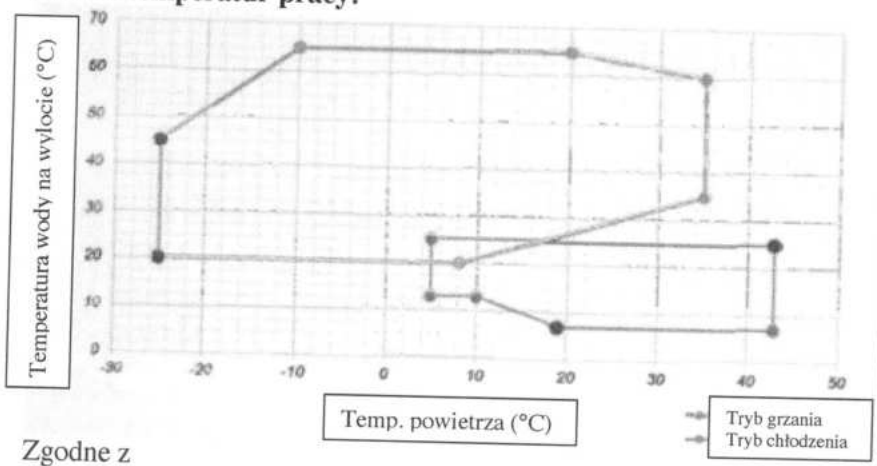
Instytut Testów Inżynieryjnych, Przedsiębiorstwo Publiczne,
Hudcova 424/56b, 621 00 Brno, Republika Czeska
www.szutest.cz

Poziom mocy akustycznej w warunkach temperaturowych A7/W55*:

Pompa ciepła typu powietrze/woda – monoblok	**Airkompakt p0916**
Poziom mocy akustycznej	L_{WA} 62,9 ±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)

Zakres temperatur pracy:



Natężenie przepływu cieczy:
w zewnętrznym wymienniku ciepła
Minimalne – m³/h
Maksymalne – m³/h

w wewnętrznym wymienniku ciepła
Minimalne 0,9142 m³/h
Maksymalne 1,5814 m³/h

Zgodne z
ČSN EN 14511-4:2019, artykuły: 4.2.1.2, 4.2.1.3, 4.5

Specyfikacja warunków:

Sterowanie prędkością sprężarki	Stałe	Przepływ objętościowy wody grzewczej (wewnętrzny wymiennik ciepła)	Stały
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, 30.09.2022 r.

[nieczytelny podpis]
Milan Holomek
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. 576/24
Stwierdzam zgodność powyższego przekładu z oryginałem
Tytułem wynagrodzenia pobrano -
Augustów, dnia: 20.03.2024 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-01500-22 rev.1

Klient	KOŁTON SPÓŁKA KOMANDYTOWA ul. Sosnowa 2 34-480 Jabłonka POLSKA
Produkt	Pompa ciepła typu powietrze/woda – monoblok
Oznaczenie typu/ znak towarowy	**Airkompakt p0916** **Airkompakt p1118** **Airkompakt p1522** **Airkompakt p1926**
Metody testowe	ČSN EN 14511-3:2019, ČSN EN 14825:2020; Przepisy dotyczące badań EHPA – Badanie pomp ciepła typu powietrze/woda, wersja 2.4a
Podstawa certyfikatu	Raporty z testów: 39-16511/T z 2022-09-16 39-16511/H z 2022-09-16 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)	Stały
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 (Nietestowany)**	**Airkompakt p1926 (Nietestowany)**
Znamionowa moc cieplna	$P_{designh}$ [kW]	A	6,20	8,59	12,10	14,58
		W	7,00	9,40	13,50	14,40
		C	5,65	7,97	9,68	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	4,08	4,08
		W	5,00 *(Nietestowany)*	5,16	4,96	5,13
		C	3,54 *(Nietestowany)*	3,61	3,55	3,53
Sezonowa efektywność energetyczna ogrzewania pomieszczeń	n_s [%]	A	157,2	159,1	160,1	160,2
		W	196,9 *(Nietestowany)*	203,3	195,3	202,3
		C	138,7 *(Nietestowany)*	141,2	139,1	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.

Brno, 30.09.2022 r.

[nieczytelny podpis]
Milan Holomek
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. 580/24
Stwierdzam zgodność powyższego przekładu z oryginałem
Tytułem wynagrodzenia pobrano -
Augustów, dnia: 20.03.2024 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-01501-22 rev.1

Klient	KOŁTON SPÓŁKA KOMANDYTOWA ul. Sosnowa 2 34-480 Jabłonka POLSKA
Produkt	Pompa ciepła typu powietrze/woda – monoblok
Oznaczenie typu/ znak towarowy	**Airkompakt p0916** **Airkompakt p1118** **Airkompakt p1522** **Airkompakt p1926**
Metody testowe	ČSN EN 14511-3:2019, ČSN EN 14825:2020; Przepisy dotyczące badań EHPA – Badanie pomp ciepła typu powietrze/woda, wersja 2.4a
Podstawa certyfikatu	Raporty z testów: 39-16511/T z 2022-09-16 39-16511/H z 2022-09-16 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)	Stały
Temperatura wody na wylocie (wewnętrzny wymiennik ciepła)	Zmienna	Objętość przepływu cieczy źródłowej (zewnętrzny wymiennik ciepła)	-
Funkcja	Odwracalna		

[okrągła pieczęć]

[Hologram]

Wyniki:

Zastosowanie średniotemperaturowe
(Referencyjna temperatura wody 55°C)

Nazwy modeli			**Airkompakt p0916 (Testowany)**	**Airkompakt p1118 (Nietestowany)**	**Airkompakt p1522 (Nietestowany)**	**Airkompakt p1926 (Nietestowany)**
Znamionowa moc cieplna	**$P_{designh}$ [kW]**	**A**	6,28	8,59	11,42	13,90
		W	6,52	8,90	11,60	14,40
		C	5,29	7,72	9,68	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	3,20	3,35
		W	4,03 *(Nietestowany)*	4,07	4,13	4,10
		C	2,82 *(Nietestowany)*	2,97	2,93	2,94
Sezonowa efektywność energetyczna ogrzewania pomieszczeń	**n_s [%]**	**A**	127,0	132,8	125,0	131,2
		W	158,4 *(Nietestowany)*	159,8	162,4	161,1
		C	109,8 *(Nietestowany)*	116,0	114,2	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.

Brno, 30.09.2022 r.

[nieczytelny podpis]
Milan Holomek
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. 575/24
Stwierdzam zgodność powyższego przekładu z oryginałem
Tytułem wynagrodzenia pobrano -
Augustów, dnia: 20.03.2024 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-01502-22 rev.1

Klient	KOŁTON SPÓŁKA KOMANDYTOWA ul. Sosnowa 2 34-480 Jabłonka POLSKA
Produkt	Pompa ciepła typu powietrze/woda – monoblok
Oznaczenie typu/ znak towarowy	**Airkompakt p0916** **Airkompakt p1118** **Airkompakt p1522** **Airkompakt p1926**
Metody testowe	ČSN EN 14511-2:2019, ČSN EN 14511-3:2019, ČSN EN 14511-4:2019, ČSN EN 12102-1:2018, Przepisy dotyczące badań EHPA – Badanie pomp ciepła typu powietrze/woda, wersja 2.4a
Podstawa certyfikatu	Raporty z testów: 39-16511/T z 2022-09-16 39-16511/H z 2022-09-16 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)	Stały
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 (Nietestowany)	Airkompakt p1926 (Nietestowany)
A7/W35	Skorygowana wydajność grzewcza	[kW]	9,062	11,200	15,180	19,650
	Efektywny pobór mocy	[kW]	1,950	2,599	3,667	4,226
	Współczynnik efektywności	[-]	4,647	4,310	4,140	4,650
	Ustawienia sterowania	[-]	-	-	-	-
A7/W55	Skorygowana wydajność grzewcza	[kW]	8,428	11,200	12,890	17,400
	Efektywny pobór mocy	[kW]	2,678	3,478	4,901	5,918
	Współczynnik efektywności	[-]	3,148	3,220	2,630	2,940
	Ustawienia sterowania	[-]	-	-	-	-
A2/W35	Skorygowana wydajność grzewcza	[kW]	6,996	9,400	13,500	14,400
	Efektywny pobór mocy	[kW]	1,911	2,473	3,562	3,891
	Współczynnik efektywności	[-]	3,660	3,800	3,790	3,700
	Ustawienia sterowania	[-]	-	-	-	-
	Poziom mocy akustycznej w warunku A7/W55*:					
	L_{WA}	[dB(A)]	62,9 ± 1,5	66,0 ± 1,5	68,0 ± 1,5	69,0 ± 1,5
	Klasa dokładności		Inżynieria (2)			

(*) Komentarz do skróconego oznaczenia, np. A7W35 B0/W35:
„A" powietrze, „7" temperatura na wlocie (temperatura termometru suchego) w °C, „W" woda, „35" 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.

Brno, 30.09.2022 r.

[nieczytelny podpis]
Milan Holomek
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. 581/24
Stwierdzam zgodność powyższego przekładu z oryginałem
Tytułem wynagrodzenia pobrano -
Augustów, dnia: 20.03.2024 r.
Tłumacz przysięgły języka angielskiego – mgr Piotr Szlaużys (nr TP/4453/05)

OŚWIADCZENIE

Producent KOŁTON SPÓŁKA KOMANDYTOWA oświadcza, iż pompy ciepła

1) AIRKOMPAKT P0714
Oznaczenie/typ/identyfikator modelu

2) AIRKOMPAKT P0916
Oznaczenie/typ/identyfikator modelu

3) AIRKOMPAKT P1118
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 0000987291

Jabłonka, dn. 10.04.2024 r.
Miejscowość, data

Podpis osoby upoważnionej