

TEST REPORT

Report no.:
300-KLAB-22-032



**DANISH
TECHNOLOGICAL
INSTITUTE**

Teknologiparken
Kongsvang Allé 29
DK-8000 Aarhus C
+45 72 20 20 00
Info@teknologisk.dk
www.teknologisk.dk

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Init: PRES/RTHI/KAMA
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Customer: Company: Panasonic Marketing Europe GmbH
Address: Hagenauer Str. 43
City: 65203 Wiesbaden
Tel.: +49 611 2350

Component: Brand: Panasonic
Type: Air to water heat pump
Model: Outdoor unit: WH-UXZ09KE5
Indoor unit: WH-ADC0912K6E5
Series no.: Outdoor unit: 5624500001
Indoor unit: 5707000016
Prod. year: 2022.12

Dates: Component tested: January – July 2023

Procedure: See objective (page 2) for list of standards.

Remarks: The unit was delivered by the customer. The installation and test settings were done according to the manufacturer's instructions. All tests were done with enabled defrost mode.

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Division/Centre: Danish Technological Institute
Energy and Climate
Heat Pump Laboratory, Aarhus

Date: 2023.08.21

Signature:
Kamalathasan Arumugam
B.Sc. Engineer

Co-reader:
Rasmus Thisgaard
B.TecMan & MarEng



Test Reg. nr. 300



Objective

The objective of this report is to document the following:

The Seasonal Coefficient of Performance (SCOP) at low and medium temperature application for average climate according to EN 14825:2018.

In order to calculate the SCOP, tests were carried out at the part load conditions stated in the tables on page 5 and 6.

COP test conditions (heating mode) according to EN 14511:2018, chosen by the manufacturer.

SEER test, fan cooling application for space cooling according to EN 14825:2018.

Operating requirements according to EN 14511-4:2018

- 4.2.1 Starting and operating tests
- 4.5 Shutting of the heat transfer medium flows
- 4.6 Complete power supply failure

Power consumption of liquid pump for COP and SCOP test points.

Domestic hot water tests according to EN 16147:2017, chosen by the manufacturer.

Sound power measurements according to EN 12102-1:2017 at rating conditions (A7/W35, A7/W55, A-7/W35, and A-7/W55), quiet mode level 3 (A7/W35, A7/W55, A2/W35, A-7/W35, and A-7/W55), and ErP energy label (A7/W55).





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Test conditions

SCOP test conditions for low temperature - EN 14825

Part test conditions for reference SCOP and reference SCOP_{net} calculation of air to water units for low temperature application for the reference heating season.

'A' = average, 'W' = warmer, and 'C' = colder.

Climate	Part load ratio				Reference test conditions		Reference test conditions			
	r (%)				Water side (cooling/heating) temperature (°C)		Flow water (°C)	Variable water (°C)		
	Variable	A	W	C	Reference air	Reference air		A	W	C
A	2/12-18/2 (T _{space} -18)	80	80	80	-12-18	20/15	12/15	12/15	80	12/15
B	2/12-18/2 (T _{space} -18)	80	80	80	20/15	20/15	12/15	12/15	12/15	12/15
C	2/12-18/2 (T _{space} -18)	80	80	80	18/15	20/15	12/15	12/15	12/15	12/15
D	2/12-18/2 (T _{space} -18)	80	80	80	18/15	20/15	12/15	12/15	12/15	12/15
E	18/15-18/2 (T _{space} -18)	80	80	80	18/15	20/15	12/15	12/15	12/15	12/15
F	18/15-18/2 (T _{space} -18)	80	80	80	18/15	20/15	12/15	12/15	12/15	12/15
G	2/12-18/2 (T _{space} -18)	80	80	80	-12	20/15	12/15	80	80	12/15

* With the water flow rate as determined in the standard rating conditions given in EN 14825: 2 or 18/15 conditions for water side - flow water flow rate and with a flow ratio 1 or 1/1 for water side - variable flow rate. If the resulting flow rate is below the minimum flow rate then the minimum flow rate is used with the water temperature.

* Variable water shall be calculated by integration from T_{space} and the temperature which is shown in the table.

* Variable water shall be calculated by integration between the upper and lower temperatures which are shown in the standard integration.

* If the variable water temperature is below the minimum of the operation range of the unit, the minimum should be assumed.

Additional information

Climate	T _{space} (°C)	T _{room} (°C)	T _{db} (°C)	Water temperature	Flow rate
Average	-12	-12	-12	variable	variable



SCOP test conditions for medium temperature - EN 14825

Test test conditions for reference SCOP and reference SCOP_{ref} calculation of air to water units for medium temperature application for the reference testing season.

'W' = average, 'W' = warmer, and 'C' = colder.

Climate	Part load factor p _h				Outdoor test conditions		Outdoor test conditions			
					Outdoor test conditions temperature °C		Test ratio r _h	Variable outdoor °C		
	Average	W	W	C	Outdoor air	Outdoor air		W	W	C
A	$\frac{T_{out,W} - T_{out,C}}{T_{out,W} - T_{out,C}}$	W	W	C	-15/5	20/10	1/10	1/10	W	1/10
B	$\frac{T_{out,W} - T_{out,C}}{T_{out,W} - T_{out,C}}$	W	W	C	5/10	20/10	1/10	1/10	1/10	1/10
C	$\frac{T_{out,W} - T_{out,C}}{T_{out,W} - T_{out,C}}$	W	W	C	15/10	20/10	1/10	1/10	1/10	1/10
D	$\frac{T_{out,W} - T_{out,C}}{T_{out,W} - T_{out,C}}$	W	W	C	15/10	20/10	1/10	1/10	1/10	1/10
E	$\frac{T_{out,W} - T_{out,C}}{T_{out,W} - T_{out,C}}$	W	W	C	15/10	20/10	1/10	1/10	1/10	1/10
F	$\frac{T_{out,W} - T_{out,C}}{T_{out,W} - T_{out,C}}$	W	W	C	15/10	20/10	1/10	1/10	1/10	1/10
G	$\frac{T_{out,W} - T_{out,C}}{T_{out,W} - T_{out,C}}$	W	W	C	15/10	20/10	1/10	1/10	1/10	1/10
H	$\frac{T_{out,W} - T_{out,C}}{T_{out,W} - T_{out,C}}$	W	W	C	15/10	20/10	1/10	1/10	1/10	1/10
I	$\frac{T_{out,W} - T_{out,C}}{T_{out,W} - T_{out,C}}$	W	W	C	15/10	20/10	1/10	1/10	1/10	1/10
J	$\frac{T_{out,W} - T_{out,C}}{T_{out,W} - T_{out,C}}$	W	W	C	15/10	20/10	1/10	1/10	1/10	1/10
K	$\frac{T_{out,W} - T_{out,C}}{T_{out,W} - T_{out,C}}$	W	W	C	15/10	20/10	1/10	1/10	1/10	1/10
L	$\frac{T_{out,W} - T_{out,C}}{T_{out,W} - T_{out,C}}$	W	W	C	15/10	20/10	1/10	1/10	1/10	1/10
M	$\frac{T_{out,W} - T_{out,C}}{T_{out,W} - T_{out,C}}$	W	W	C	15/10	20/10	1/10	1/10	1/10	1/10
N	$\frac{T_{out,W} - T_{out,C}}{T_{out,W} - T_{out,C}}$	W	W	C	15/10	20/10	1/10	1/10	1/10	1/10
O	$\frac{T_{out,W} - T_{out,C}}{T_{out,W} - T_{out,C}}$	W	W	C	15/10	20/10	1/10	1/10	1/10	1/10
P	$\frac{T_{out,W} - T_{out,C}}{T_{out,W} - T_{out,C}}$	W	W	C	15/10	20/10	1/10	1/10	1/10	1/10
Q	$\frac{T_{out,W} - T_{out,C}}{T_{out,W} - T_{out,C}}$	W	W	C	15/10	20/10	1/10	1/10	1/10	1/10
R	$\frac{T_{out,W} - T_{out,C}}{T_{out,W} - T_{out,C}}$	W	W	C	15/10	20/10	1/10	1/10	1/10	1/10
S	$\frac{T_{out,W} - T_{out,C}}{T_{out,W} - T_{out,C}}$	W	W	C	15/10	20/10	1/10	1/10	1/10	1/10
T	$\frac{T_{out,W} - T_{out,C}}{T_{out,W} - T_{out,C}}$	W	W	C	15/10	20/10	1/10	1/10	1/10	1/10
U	$\frac{T_{out,W} - T_{out,C}}{T_{out,W} - T_{out,C}}$	W	W	C	15/10	20/10	1/10	1/10	1/10	1/10
V	$\frac{T_{out,W} - T_{out,C}}{T_{out,W} - T_{out,C}}$	W	W	C	15/10	20/10	1/10	1/10	1/10	1/10
W	$\frac{T_{out,W} - T_{out,C}}{T_{out,W} - T_{out,C}}$	W	W	C	15/10	20/10	1/10	1/10	1/10	1/10
X	$\frac{T_{out,W} - T_{out,C}}{T_{out,W} - T_{out,C}}$	W	W	C	15/10	20/10	1/10	1/10	1/10	1/10
Y	$\frac{T_{out,W} - T_{out,C}}{T_{out,W} - T_{out,C}}$	W	W	C	15/10	20/10	1/10	1/10	1/10	1/10
Z	$\frac{T_{out,W} - T_{out,C}}{T_{out,W} - T_{out,C}}$	W	W	C	15/10	20/10	1/10	1/10	1/10	1/10

NOTE: The water flow rate is determined at the standard rating conditions given in EN 14825-2 at 50 °C conditions for units with a fixed water flow rate, and with a fixed ratio 1 or 1/10 for units with a variable flow rate. If the resulting flow rate is below the minimum flow rate then the minimum flow rate is used with the water temperature.

Variable outdoor air shall be calculated by interpolation $T_{out,W}$ and the temperature effect is based on the TDB.

Variable outdoor air shall be calculated by interpolation between the upper and lower temperatures which are based on the outdoor temperature.

If the variable outdoor temperature is below the minimum of the operation range of the unit, the minimum should be considered.

Additional information

Climate	T _{out,W} [°C]	T _{out,C} [°C]	TDB [°C]	Water temperature	Flow rate
Average	-15	-15	-15	variable	variable



EDP test conditions - low temperature - EN 14511

W	Heat source		Heat sink		Heat pump settings
	Heat flow temperature (°C)	Heat sink temperature (°C)	Heat temperature (°C)	Heat temperature (°C)	
2°	2	6	20	20	
2°	2	1	20	20	
2°	-2	6	20	20	
2°	2	1	20	20	Quick mode 1

2° Standard rating condition

6° Refrigeration rating condition

EDP test conditions - medium temperature - EN 14511

W	Heat source		Heat sink		Heat pump settings
	Heat flow temperature (°C)	Heat sink temperature (°C)	Heat temperature (°C)	Heat temperature (°C)	
2°	2	1	47	20	
2°	2	6	47	20	
2°	-2	6	47	20	

2° Standard rating condition

6° Refrigeration rating condition



Test conditions for SEER test points at fan cooling application for space cooling - EN 14825

W	Heat source		Heat sink		Test point
	Evaporator temperature (°C)	Condenser temperature (°C)	Evaporator temperature (°C)	Condenser temperature (°C)	
1	26	-	32	7	A
2	26	-	32.5	6.5	B
3	26	-	33	6	C
4	26	-	33.5	5.5	D

Test conditions for starting and operating tests - EN 14813-4

W	Heat source		Heat sink	Water flow rate at indoor heat exchanger	Test
	Evaporator temperature (°C)	Condenser temperature (°C)	Evaporator temperature (°C)		
1	26	-	33	Minimum	Starting
2	26	-	37	Minimum	Operating



Test conditions for shutting off the heat transfer medium - EN 14511-4

N°	Heat source		Heat sink		Heat exchanger
	Initial dry bulb temperature (°C)	Initial wet bulb temperature (°C)	Initial temperature (°C)	Outlet temperature (°C)	
1	7	6	20	20	Indoor
2	7	6	20	20	Outdoor

Test conditions for complete power supply failure - EN 14511-4

N°	Heat source		Heat sink	
	Initial dry bulb temperature (°C)	Initial wet bulb temperature (°C)	Initial temperature (°C)	Outlet temperature (°C)
1	7	6	20	20

Test conditions for domestic hot water test - EN16147:2017

N°	Test climate	Heat source		Domestic hot water Tapping profile	Tap point temp. (°C)
		Initial dry bulb temperature (°C)	Initial wet bulb temperature (°C)		
1	Average	7	6	1	52/48
2	Average	7	6	20	52/48



Test conditions for sound power measurements - EN 12102-1

SP	Test condition		Test pump setting			
	Receiver speed rev/min (175)	Receiver speed rev/min (175)	Engine speed rev/min (2800)	Flow rate l/min (1000)	Pressure bar (0.5)	Power kW (1.5)
SP	150	30/150	28	400/1000	0.5	1.75
SP	150	30/150	28	270/1000	0.5	1.50
SP	150	40/150	28	400/1000	0.5	2.00
SP	150	40/150	28	280/1000	0.75	1.50
SP	200	30/150	28	400/1000	1.0	1.75
SP	150	30/150	30	1000/1000	0.5	3.00
SP	150	30/150	30	400/1000	0.5	1.50
SP	150	40/150	30	1000/1000	0.5	4.20
SP	150	40/150	30	400/1000	0.5	2.0
SP	150	40/150	30	1000/1000	0.5	1.50

SP: Pumping capacity, 15: Speed mode 1, 2: SP setting, 3: Receiver



Test results

Test results of SCOP test at low temperature - heating season average – EN 14825

Model (Outdoor)	WH-UXZ09KE5
Air-to-water heat pump mono bloc	N
Low-temperature heat pump	N
Equipped with supplementary heater	Y
Heat pump combination heater	Y

Rated heat output ¹⁾	P _{rated}	9 [kW]
Seasonal space heating energy efficiency	η _s	215.1 [%]
	SCOP	5.45 [-]

Measured capacity for heating for part load at outdoor temperature T _j	Average Climate	T _j = -15 °C	P _{dh}	- [kW]	K
	-	T _j = -7 °C	P _{dh}	8.72 [kW]	
	Low temperature application	T _j = 2 °C	P _{dh}	4.85 [kW]	
		T _j = 7 °C	P _{dh}	5.23 [kW]	
		T _j = 12 °C	P _{dh}	6.05 [kW]	
		T _j = bivalent temperature	P _{dh}	8.88 [kW]	
		T _j = operation limit	P _{dh}	8.88 [kW]	K

Measured coefficient of performance at outdoor temperature T _j	Average Climate	T _j = -15 °C	COP _d	- [-]
	-	T _j = -7 °C	COP _d	3.46 [-]
	Low temperature application	T _j = 2 °C	COP _d	5.43 [-]
		T _j = 7 °C	COP _d	6.76 [-]
		T _j = 12 °C	COP _d	8.48 [-]
		T _j = bivalent temperature	COP _d	3.08 [-]
		T _j = operation limit	COP _d	3.08 [-]

Bivalent temperature	T _{bivalent}	-10 [°C]
Operation limit	TOL	-10 [°C]
temperatures	WTOL	- [°C]
Degradation coefficient	C _{dh}	0.99 [-]

Power consumption in modes other than active mode	Off mode	P _{OFF}	0.007 [kW]
	Thermostat-off mode	P _{TO}	0.007 [kW]
	Standby mode	P _{SB}	0.007 [kW]
	Crankcase heater mode	P _{CK}	0.007 [kW]
Supplementary heater ¹⁾	Rated heat output	P _{SUP}	0.00 [kW]
	Type of energy input		Electrical

Other items	Capacity control		Variable
	Water flow control		Variable
	Water flow rate		-
	Annual energy consumption	Q _{HE}	3410 [kWh]

¹⁾For heat pump space heaters and heat pump combination heaters, the rated heat output, P_{rated}, is equal to the design load for heating, P_{designh}, and the rated heat output of a supplementary heater, P_{sup}, is equal to the supplementary capacity for heating, sup(T_j).

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Test results of SCOP test at medium temperature - heating season average – EN 14825

Model (Outdoor)	WH-UXZ09KE5
Air-to-water heat pump mono bloc	N
Low-temperature heat pump	N
Equipped with supplementary heater	Y
Heat pump combination heater	Y

Rated heat output¹⁾	P_{rated}	9 [kW]
Seasonal space heating energy efficiency	η_s	153.7 [%]
	SCOP	3.92 [-]

Measured capacity for heating for part load at outdoor temperature T_j	Average Climate - Medium temperature application	$T_j = -15\text{ °C}$	P_{dh}	- [kW]	K
		$T_j = -7\text{ °C}$	P_{dh}	7.69 [kW]	
		$T_j = 2\text{ °C}$	P_{dh}	4.98 [kW]	
		$T_j = 7\text{ °C}$	P_{dh}	5.08 [kW]	
		$T_j = 12\text{ °C}$	P_{dh}	5.85 [kW]	
		$T_j = \text{bivalent temperature}$	P_{dh}	8.56 [kW]	
		$T_j = \text{operation limit}$	P_{dh}	8.56 [kW]	

Measured coefficient of performance at outdoor temperature T_j	Average Climate - Medium temperature application	$T_j = -15\text{ °C}$	COPd	- [-]
		$T_j = -7\text{ °C}$	COPd	2.46 [-]
		$T_j = 2\text{ °C}$	COPd	3.86 [-]
		$T_j = 7\text{ °C}$	COPd	4.95 [-]
		$T_j = 12\text{ °C}$	COPd	6.30 [-]
		$T_j = \text{bivalent temperature}$	COPd	2.10 [-]
		$T_j = \text{operation limit}$	COPd	2.10 [-]

Bivalent temperature	$T_{bivalent}$	-10 [°C]
Operation limit temperatures	TOL	-10 [°C]
	WTOL	- [°C]
Degradation coefficient	C_{dh}	0.99 [-]

Power consumption in modes other than active mode	Off mode	P_{OFF}	0.007 [kW]
	Thermostat-off mode	P_{TO}	0.007 [kW]
	Standby mode	P_{SB}	0.007 [kW]
	Crankcase heater mode	P_{CK}	0.007 [kW]
Supplementary heater¹⁾	Rated heat output	P_{SUP}	0.00 [kW]
	Type of energy input		Electrical

Other items	Capacity control		Variable
	Water flow control		Variable
	Water flow rate		-
	Annual energy consumption	Q_{HE}	4748 [kWh]

¹⁾For heat pump space heaters and heat pump combination heaters, the rated heat output, P_{rated} , is equal to the design load for heating, $P_{design,h}$, and the rated heat output of a supplementary heater, P_{sup} , is equal to the supplementary capacity for heating, $sup(T_j)$.

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COP test results - low temperature – EN 14511

N#	Test conditions	Heating capacity [kW]	COP
1 ^K	A7/W35	8.904	5.241
2	A2/W35	8.855	3.810
3	A-7/W35	9.495	3.122
4	A2/W35	6.322	3.789

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COP test results - medium temperature – EN 14511

N#	Test conditions	Heating capacity [kW]	COP
1 ^K	A7/W55	9.027	3.159
2	A2/W55	9.441	2.540
3	A-7/W55	9.359	2.256

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Test results for SDB test points at fan cooling application for space cooling - EN 14825

Overall cooling index		Test	Pass	2.00
		Limit	Fail	2.00
	Air to room temperature	20°C	Pass	2.00
		22°C	Pass	2.00
		24°C	Pass	2.00
		26°C	Pass	2.00
		28°C	Pass	2.00
		30°C	Pass	2.00
		32°C	Pass	2.00
		34°C	Pass	2.00
		36°C	Pass	2.00
		38°C	Pass	2.00
Temperature comfort		Test	Pass	2.00
Power consumption in mode other than cooling mode	Off mode	Pass	2.00	
	Thermostat off mode	Pass	2.00	
	Standby mode	Pass	2.00	
	Low power mode	Pass	2.00	
	Low power mode	Pass	2.00	
Regenerative heater	Power test result	Pass	2.00	
	Test of energy test	Pass	2.00	
Other tests	Energy index	Test	Pass	
	Index for energy	Test	Pass	
	Index for CO ₂	Test	Pass	
	Index for energy consumption	Test	Pass	

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Test results for operating requirements - EN 14811-4

ST	Test conditions	Test validation
ST	Starting	Pass
ST	Operating	Pass

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Test results for shutting off the heat transfer medium - EN 14811-4

ST	Test conditions	Test validation
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27	Indoor	Passed
27	Outdoor	Passed

Test results for complete power supply failure - EN 14511-6

28	Test condition	
27	Passed	

Power consumption of liquid pump for SCOP test points - low temperature application - Average climate

29	Test condition	Measured power consumption (W)	Test result no.
A	A-12W30	10 W	5
B	B2W30	10 W	5
C	C1W30	10 W	4
D	D12W30	10 W	5
200	A-12W30	10 W	5

The power consumption of the liquid pump has been measured separately.

Power consumption of liquid pump for SCOP test points - medium temperature application - Average climate

29	Test condition	Measured power consumption (W)	Test result no.
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6	A-119452	50-50	10
6	A219452	50-50	10
6	A219452	50-50	5
6	A219452	50-50	5
100	A-1219452	50-50	10

The power consumption of the liquid pump have been measured separately.

Power consumption of liquid pump for EN14511 - low temperature application

ST	Test condition	Measured power consumption (W)	Test mode no.
1	A119452	50-50	1
2	A219452	50-50	1
3	A-119452	50-50	1

The power consumption of the liquid pump have been measured separately.

Power consumption of liquid pump for EN14511 - medium temperature application

ST	Test condition	Measured power consumption (W)	Test mode no.
1	A119452	50-50	1



2	ACROSS	100 W	5
3	A-CROSS	100 W	5

The power consumption of the liquid pump have been measured separately.

Pre and post run time for liquid pump

W	Time (sec)
Pre run	100
Post run	10



Test results of domestic hot water test, average climate, test profile L
- EN16147:2017

Presentation of test results

No.	Symbol	Result	Unit
1) Test profile	-	L	-
2) Settings of the control	-	55	-
3) Heating up time	t_{H}	20:00	h:m
4) Heating up electrical energy consumption	$W_{\text{H,el}}$	2.25	[kWh]
5) Stand-by power input	P_{S}	0.05	[kW]
6) Total water energy content during the test profile	Q_{H}	11.64	[kWh]
7) Total electrical energy consumption during test profile	$W_{\text{H,el}}$	2.40	[kWh]
8) Total electrical energy consumption	$W_{\text{H,el}}$	2.40	[kWh]
9) Coefficient of performance	$\text{COP}_{\text{H,el}}$	4.85	-
10) Water heating energy consumption	Q_{H}	207.45	[Wh]
11) Annual electrical energy consumption	$W_{\text{H,el}}$	484	[kWh/a]
12) Reference hot water temperature	θ_{H}	55.7	[°C]
13) Maximum volume of mixed water at 40°C	V_{H}	249	[L]
14) Rated test output	$P_{\text{H,ref}}$	-	[kW]
15) Seasonal coefficient of performance	$\text{SCOP}_{\text{H,el}}$	-	-

15. Remarks



No.	Thermal properties		Mechanical properties		Electrical properties		Thermal stability		Thermal conductivity		Thermal expansion		Thermal shock		Thermal aging	
	Unit	Value	Unit	Value	Unit	Value	Unit	Value	Unit	Value	Unit	Value	Unit	Value	Unit	Value
1																
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**Test results of domestic hot water test, average climate, test profile M
- EN16147:2017**

Presentation of test results

No.	Symbol	Result	Unit
(1) Test profile	-	M	-
(2) Settings of the control	-	55	-
(3) Heating up time	t_h	4000	s
(4) Heating up electrical energy consumption	$W_{h,el}$	1.36	[kWh]
(5) Stand-by power input	P_{by}	0.05	[kW]
(6) Total water energy content during the test profile	$Q_{h,w}$	1.86	[kWh]
(7) Total electrical energy consumption during test profile	$W_{h,el}$	1.35	[kWh]
(8) Total electrical energy consumption	$W_{tot,el}$	1.35	[kWh]
(9) Coefficient of performance	$COP_{h,w}$	2.06	-
(10) Water heating energy consumption	$Q_{h,w}$	1.86 kWh	[kWh]
(11) Annual electrical energy consumption	$W_{a,el}$	440	[kWh/a]
(12) Reference hot water temperature	θ_{ref}	55.7	[°C]
(13) Maximum volume of mixed water at 40°C	V_{40}	247	[L]
(14) Rated test output	P_{rated}	-	[kW]
(15) Seasonal coefficient of performance	$COP_{s,w}$	-	-



Row	Thermal Conductivity		Thermal Conductivity		Thermal Conductivity		Thermal Conductivity		Thermal Conductivity		Thermal Conductivity		Thermal Conductivity		Thermal Conductivity		Thermal Conductivity	
	Temp	Unit	Temp	Unit	Temp	Unit	Temp	Unit	Temp	Unit	Temp	Unit	Temp	Unit	Temp	Unit	Temp	Unit
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Test results of sound power measurements – EN 12102

N[#]	Test conditions	Sound power level LW(A) [dB re 1pW]	Uncertainty (dB) (weighted value)
1 ^R	A7/W35	61.6	1.0
2 ^Q	A7/W35	56.9	0.5
3 ^R	A7/W55	64.4	1.0
4 ^Q	A7/W55	58.3	0.5
5 ^Q	A2/W35	60.8	1.0
6 ^R	A-7/W35	66.5	1.0
7 ^Q	A-7/W35	63.6	0.5
8 ^R	A-7/W55	68.8	1.0
9 ^Q	A-7/W55	64.2	0.5
10 ^{E-K}	A7/W55	57.8	1.0

R) Rating capacity, Q) Quiet mode 3, E) ERP labelling K) Keymark

The uncertainty value is a weighted value using the level and frequency dependant influence for each 1/1-octave level on the final A-weighted sound power level.

The A-weighted total sound power level is determined for the measured frequency range from 100 Hz to 10 kHz.

The sound power measurements are carried out by Kamalathasan Arumugam (KAMA) and co-read by Birger Bech Jessen (BBJN).





Photo

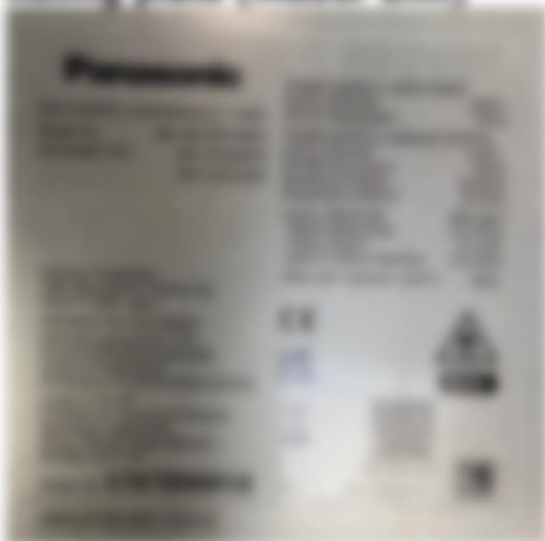
Rating plate (outdoor unit)



Outdoor unit



Rating plate (indoor unit)



Indoor unit



SCOP - detailed calculation

Detailed SCOP calculation of low temperature and average climate conditions - EN 14825

	Group 10									
	100%	90%	80%	70%	60%	50%	40%	30%	20%	10%

Heating load of the building at design temperature, kW

Number of hours for which this unit is considered to work is determined off-peak, standby, on-peak, maintenance, holiday, on-call and off-call. I, respectively,

Herbivore consumption during harvesting of roots, standing roots, rootless trees, roots and off roots, etc. respectively.

[illegible]

Strong arguments for the case of equity of risk reduction have been made

	Year	2000	2001	2002	2003	2004
2000	100	100	100	100	100	100
2001	100	100	100	100	100	100
2002	100	100	100	100	100	100
2003	100	100	100	100	100	100
2004	100	100	100	100	100	100



Table with 12 columns and 10 rows. The table contains technical data, likely related to material properties or test results. The columns are labeled with various parameters, and the rows represent different test conditions or materials. The data is presented in a structured grid format.

	1	2	3	4	5	6	7	8	9	10	11
1											
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Detailed SCOP calculation of medium temperature and average climate conditions - EN 14825

Calculation of reference SCOP

$$SCOP_{ref} = \frac{Q_{h,ref}}{W_{h,ref}}$$

$Q_{h,ref}$

$Q_{h,ref} =$

$Q_{h,ref} =$

$Q_{h,ref} = Q_{h,ref} + Q_{h,ref} + Q_{h,ref}$

Heating load of the building at design temperature, kWh

Number of equivalent heating hours, 2000 h

Number of hours for which the unit is considered to work in the modes of all modes, standby mode, condenser heater mode and off mode, h, respectively

$W_{h,ref} = W_{h,ref} + W_{h,ref} + W_{h,ref}$

Electricity consumption during the modes of all modes, standby mode,

condenser heater mode and off mode, kWh, respectively

See EN 14825

	Heating load Q _{h,ref} kWh	Standby mode Q _{h,ref} kWh	Condenser heater mode Q _{h,ref} kWh	Off mode Q _{h,ref} kWh	Heating load Q _{h,ref} kWh	Standby mode Q _{h,ref} kWh	Condenser heater mode Q _{h,ref} kWh	Off mode Q _{h,ref} kWh	Electricity consumption W _{h,ref} kWh	Standby mode W _{h,ref} kWh	Condenser heater mode W _{h,ref} kWh	Off mode W _{h,ref} kWh	SCOP _{ref}
EN	12000	12000	12000	12000	12000	12000	12000	12000	12000	12000	12000	12000	12000

Energy consumption for the modes of all modes, off mode, condenser heater mode

	Standby mode W _{h,ref} kWh	Condenser heater mode W _{h,ref} kWh	Off mode W _{h,ref} kWh	Electricity consumption W _{h,ref} kWh
EN	12000	12000	12000	12000



Table 1: Summary of Data											
ID	Category A		Category B		Category C		Category D		Category E		Total
	Sub A1	Sub A2	Sub B1	Sub B2	Sub C1	Sub C2	Sub D1	Sub D2	Sub E1	Sub E2	
1	10	20	30	40	50	60	70	80	90	100	500
2	15	25	35	45	55	65	75	85	95	105	550
3	20	30	40	50	60	70	80	90	100	110	600
4	25	35	45	55	65	75	85	95	105	115	650
5	30	40	50	60	70	80	90	100	110	120	700
6	35	45	55	65	75	85	95	105	115	125	750
7	40	50	60	70	80	90	100	110	120	130	800
8	45	55	65	75	85	95	105	115	125	135	850
9	50	60	70	80	90	100	110	120	130	140	900
10	55	65	75	85	95	105	115	125	135	145	950
11	60	70	80	90	100	110	120	130	140	150	1000
12	65	75	85	95	105	115	125	135	145	155	1050
13	70	80	90	100	110	120	130	140	150	160	1100
14	75	85	95	105	115	125	135	145	155	165	1150
15	80	90	100	110	120	130	140	150	160	170	1200
16	85	95	105	115	125	135	145	155	165	175	1250
17	90	100	110	120	130	140	150	160	170	180	1300
18	95	105	115	125	135	145	155	165	175	185	1350
19	100	110	120	130	140	150	160	170	180	190	1400
20	105	115	125	135	145	155	165	175	185	195	1450
21	110	120	130	140	150	160	170	180	190	200	1500
22	115	125	135	145	155	165	175	185	195	205	1550
23	120	130	140	150	160	170	180	190	200	210	1600
24	125	135	145	155	165	175	185	195	205	215	1650
25	130	140	150	160	170	180	190	200	210	220	1700
26	135	145	155	165	175	185	195	205	215	225	1750
27	140	150	160	170	180	190	200	210	220	230	1800
28	145	155	165	175	185	195	205	215	225	235	1850
29	150	160	170	180	190	200	210	220	230	240	1900
30	155	165	175	185	195	205	215	225	235	245	1950
31	160	170	180	190	200	210	220	230	240	250	2000
32	165	175	185	195	205	215	225	235	245	255	2050
33	170	180	190	200	210	220	230	240	250	260	2100
34	175	185	195	205	215	225	235	245	255	265	2150
35	180	190	200	210	220	230	240	250	260	270	2200
36	185	195	205	215	225	235	245	255	265	275	2250
37	190	200	210	220	230	240	250	260	270	280	2300
38	195	205	215	225	235	245	255	265	275	285	2350
39	200	210	220	230	240	250	260	270	280	290	2400
40	205	215	225	235	245	255	265	275	285	295	2450
41	210	220	230	240	250	260	270	280	290	300	2500
42	215	225	235	245	255	265	275	285	295	305	2550
43	220	230	240	250	260	270	280	290	300	310	2600
44	225	235	245	255	265	275	285	295	305	315	2650
45	230	240	250	260	270	280	290	300	310	320	2700
46	235	245	255	265	275	285	295	305	315	325	2750
47	240	250	260	270	280	290	300	310	320	330	2800
48	245	255	265	275	285	295	305	315	325	335	2850
49	250	260	270	280	290	300	310	320	330	340	2900
50	255	265	275	285	295	305	315	325	335	345	2950
51	260	270	280	290	300	310	320	330	340	350	3000
52	265	275	285	295	305	315	325	335	345	355	3050
53	270	280	290	300	310	320	330	340	350	360	3100
54	275	285	295	305	315	325	335	345	355	365	3150
55	280	290	300	310	320	330	340	350	360	370	3200
56	285	295	305	315	325	335	345	355	365	375	3250
57	290	300	310	320	330	340	350	360	370	380	3300
58	295	305	315	325	335	345	355	365	375	385	3350
59	300	310	320	330	340	350	360	370	380	390	3400
60	305	315	325	335	345	355	365	375	385	395	3450
61	310	320	330	340	350	360	370	380	390	400	3500
62	315	325	335	345	355	365	375	385	395	405	3550
63	320	330	340	350	360	370	380	390	400	410	3600
64	325	335	345	355	365	375	385	395	405	415	3650
65	330	340	350	360	370	380	390	400	410	420	3700
66	335	345	355	365	375	385	395	405	415	425	3750
67	340	350	360	370	380	390	400	410	420	430	3800
68	345	355	365	375	385	395	405	415	425	435	3850
69	350	360	370	380	390	400	410	420	430	440	3900
70	355	365	375	385	395	405	415	425	435	445	3950
71	360	370	380	390	400	410	420	430	440	450	4000
72	365	375	385	395	405	415	425	435	445	455	4050
73	370	380	390	400	410	420	430	440	450	460	4100
74	375	385	395	405	415	425	435	445	455	465	4150
75	380	390	400	410	420	430	440	450	460	470	4200
76	385	395	405	415	425	435	445	455	465	475	4250
77	390	400	410	420	430	440	450	460	470	480	4300
78	395	405	415	425	435	445	455	465	475	485	4350
79	400	410	420	430	440	450	460	470	480	490	4400
80	405	415	425	435	445	455	465	475	485	495	4450
81	410	420	430	440	450	460	470	480	490	500	4500
82	415	425	435	445	455	465	475	485	495	505	4550
83	420	430	440	450	460	470	480	490	500	510	4600
84	425	435	445	455	465	475	485	495	505	515	4650
85	430	440	450	460	470	480	490	500	510	520	4700
86	435	445	455	465	475	485	495	505	515	525	4750
87	440	450	460	470	480	490	500	510	520	530	4800
88	445	455	465	475	485	495	505	515	525	535	4850
89	450	460	470	480	490	500	510	520	530	540	4900
90	455	465	475	485	495	505	515	525	535	545	4950
91	460	470	480	490	500	510	520	530	540	550	5000
92	465	475	485	495	505	515	525	535	545	555	5050
93	470	480	490	500	510	520	530	540	550	560	5100
94	475	485	495	505	515	525	535	545	555	565	5150
95	480	490	500	510	520	530	540	550	560	570	5200
96	485	495	505	515	525	535	545	555	565	575	5250
97	490	500	510	520	530	540	550	560	570	580	5300
98	495	505	515	525	535	545	555	565	575	585	5350
99	500	510	520	530	540	550	560	570	580	590	5400
100	505	515	525	535	545	555	565	575	585	595	5450





SEER - detailed calculations

See to 300

	Summer		Winter		Summer		Winter		Summer		Winter		Summer		Winter		Summer		Winter		Summer		Winter	
	h	W	h	W	h	W	h	W	h	W	h	W	h	W	h	W	h	W	h	W	h	W	h	W
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Energy consumption for the purpose of the monthly off mode, monthly on mode and off mode

	Monthly on mode		Monthly off mode		Off mode		Total	
	h	W	h	W	h	W	h	W
1								
2								
3								
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Table 1: Test results

Test	Test results	Test results	Test results	Test results	Test results	Test results	Test results	Test results
1	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8
2	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8
3	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8
4	4.1	4.2	4.3	4.4	4.5	4.6	4.7	4.8
5	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8
6	6.1	6.2	6.3	6.4	6.5	6.6	6.7	6.8
7	7.1	7.2	7.3	7.4	7.5	7.6	7.7	7.8
8	8.1	8.2	8.3	8.4	8.5	8.6	8.7	8.8
9	9.1	9.2	9.3	9.4	9.5	9.6	9.7	9.8
10	10.1	10.2	10.3	10.4	10.5	10.6	10.7	10.8
11	11.1	11.2	11.3	11.4	11.5	11.6	11.7	11.8
12	12.1	12.2	12.3	12.4	12.5	12.6	12.7	12.8
13	13.1	13.2	13.3	13.4	13.5	13.6	13.7	13.8
14	14.1	14.2	14.3	14.4	14.5	14.6	14.7	14.8
15	15.1	15.2	15.3	15.4	15.5	15.6	15.7	15.8
16	16.1	16.2	16.3	16.4	16.5	16.6	16.7	16.8
17	17.1	17.2	17.3	17.4	17.5	17.6	17.7	17.8
18	18.1	18.2	18.3	18.4	18.5	18.6	18.7	18.8
19	19.1	19.2	19.3	19.4	19.5	19.6	19.7	19.8
20	20.1	20.2	20.3	20.4	20.5	20.6	20.7	20.8
21	21.1	21.2	21.3	21.4	21.5	21.6	21.7	21.8
22	22.1	22.2	22.3	22.4	22.5	22.6	22.7	22.8
23	23.1	23.2	23.3	23.4	23.5	23.6	23.7	23.8
24	24.1	24.2	24.3	24.4	24.5	24.6	24.7	24.8
25	25.1	25.2	25.3	25.4	25.5	25.6	25.7	25.8
26	26.1	26.2	26.3	26.4	26.5	26.6	26.7	26.8
27	27.1	27.2	27.3	27.4	27.5	27.6	27.7	27.8
28	28.1	28.2	28.3	28.4	28.5	28.6	28.7	28.8
29	29.1	29.2	29.3	29.4	29.5	29.6	29.7	29.8
30	30.1	30.2	30.3	30.4	30.5	30.6	30.7	30.8
31	31.1	31.2	31.3	31.4	31.5	31.6	31.7	31.8
32	32.1	32.2	32.3	32.4	32.5	32.6	32.7	32.8
33	33.1	33.2	33.3	33.4	33.5	33.6	33.7	33.8
34	34.1	34.2	34.3	34.4	34.5	34.6	34.7	34.8
35	35.1	35.2	35.3	35.4	35.5	35.6	35.7	35.8
36	36.1	36.2	36.3	36.4	36.5	36.6	36.7	36.8
37	37.1	37.2	37.3	37.4	37.5	37.6	37.7	37.8
38	38.1	38.2	38.3	38.4	38.5	38.6	38.7	38.8
39	39.1	39.2	39.3	39.4	39.5	39.6	39.7	39.8
40	40.1	40.2	40.3	40.4	40.5	40.6	40.7	40.8
41	41.1	41.2	41.3	41.4	41.5	41.6	41.7	41.8
42	42.1	42.2	42.3	42.4	42.5	42.6	42.7	42.8
43	43.1	43.2	43.3	43.4	43.5	43.6	43.7	43.8
44	44.1	44.2	44.3	44.4	44.5	44.6	44.7	44.8
45	45.1	45.2	45.3	45.4	45.5	45.6	45.7	45.8
46	46.1	46.2	46.3	46.4	46.5	46.6	46.7	46.8
47	47.1	47.2	47.3	47.4	47.5	47.6	47.7	47.8
48	48.1	48.2	48.3	48.4	48.5	48.6	48.7	48.8
49	49.1	49.2	49.3	49.4	49.5	49.6	49.7	49.8
50	50.1	50.2	50.3	50.4	50.5	50.6	50.7	50.8
51	51.1	51.2	51.3	51.4	51.5	51.6	51.7	51.8
52	52.1	52.2	52.3	52.4	52.5	52.6	52.7	52.8
53	53.1	53.2	53.3	53.4	53.5	53.6	53.7	53.8
54	54.1	54.2	54.3	54.4	54.5	54.6	54.7	54.8
55	55.1	55.2	55.3	55.4	55.5	55.6	55.7	55.8
56	56.1	56.2	56.3	56.4	56.5	56.6	56.7	56.8
57	57.1	57.2	57.3	57.4	57.5	57.6	57.7	57.8
58	58.1	58.2	58.3	58.4	58.5	58.6	58.7	58.8
59	59.1	59.2	59.3	59.4	59.5	59.6	59.7	59.8
60	60.1	60.2	60.3	60.4	60.5	60.6	60.7	60.8
61	61.1	61.2	61.3	61.4	61.5	61.6	61.7	61.8
62	62.1	62.2	62.3	62.4	62.5	62.6	62.7	62.8
63	63.1	63.2	63.3	63.4	63.5	63.6	63.7	63.8
64	64.1	64.2	64.3	64.4	64.5	64.6	64.7	64.8
65	65.1	65.2	65.3	65.4	65.5	65.6	65.7	65.8
66	66.1	66.2	66.3	66.4	66.5	66.6	66.7	66.8
67	67.1	67.2	67.3	67.4	67.5	67.6	67.7	67.8
68	68.1	68.2	68.3	68.4	68.5	68.6	68.7	68.8
69	69.1	69.2	69.3	69.4	69.5	69.6	69.7	69.8
70	70.1	70.2	70.3	70.4	70.5	70.6	70.7	70.8
71	71.1	71.2	71.3	71.4	71.5	71.6	71.7	71.8
72	72.1	72.2	72.3	72.4	72.5	72.6	72.7	72.8
73	73.1	73.2	73.3	73.4	73.5	73.6	73.7	73.8
74	74.1	74.2	74.3	74.4	74.5	74.6	74.7	74.8
75	75.1	75.2	75.3	75.4	75.5	75.6	75.7	75.8
76	76.1	76.2	76.3	76.4	76.5	76.6	76.7	76.8
77	77.1	77.2	77.3	77.4	77.5	77.6	77.7	77.8
78	78.1	78.2	78.3	78.4	78.5	78.6	78.7	78.8
79	79.1	79.2	79.3	79.4	79.5	79.6	79.7	79.8
80	80.1	80.2	80.3	80.4	80.5	80.6	80.7	80.8
81	81.1	81.2	81.3	81.4	81.5	81.6	81.7	81.8
82	82.1	82.2	82.3	82.4	82.5	82.6	82.7	82.8
83	83.1	83.2	83.3	83.4	83.5	83.6	83.7	83.8
84	84.1	84.2	84.3	84.4	84.5	84.6	84.7	84.8
85	85.1	85.2	85.3	85.4	85.5	85.6	85.7	85.8
86	86.1	86.2	86.3	86.4	86.5	86.6	86.7	86.8
87	87.1	87.2	87.3	87.4	87.5	87.6	87.7	87.8
88	88.1	88.2	88.3	88.4	88.5	88.6	88.7	88.8
89	89.1	89.2	89.3	89.4	89.5	89.6	89.7	89.8
90	90.1	90.2	90.3	90.4	90.5	90.6	90.7	90.8
91	91.1	91.2	91.3	91.4	91.5	91.6	91.7	91.8
92	92.1	92.2	92.3	92.4	92.5	92.6	92.7	92.8
93	93.1	93.2	93.3	93.4	93.5	93.6	93.7	93.8
94	94.1	94.2	94.3	94.4	94.5	94.6	94.7	94.8
95	95.1	95.2	95.3	95.4	95.5	95.6	95.7	95.8
96	96.1	96.2	96.3	96.4	96.5	96.6	96.7	96.8
97	97.1	97.2	97.3	97.4	97.5	97.6	97.7	97.8
98	98.1	98.2	98.3	98.4	98.5	98.6	98.7	98.8
99	99.1	99.2	99.3	99.4	99.5	99.6	99.7	99.8
100	100.1	100.2	100.3	100.4	100.5	100.6	100.7	100.8



Detailed test results

Detailed SCOP test results - low temperature application
- average climate - EN 14825

Detailed result for EN16015 2018 Average Low A 7 2018		
Test according to	Result 2018 and 2019	Average
Climate zone		Average
Temperature application		10
Condition water		10
Condition temperature	10	10
Test load	10	10
Power demand	10	10
Energy	10	10
Energy	10	10
Heating demand	10	10
CO ₂	1	1
Minimum flow required	1	1
Measurement type		Static flow
Energy flow measurement point		10
Included variables (final result)		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10
Measured		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10
During heating		
ΔT temperature in bulk	10	10
ΔT temperature in bulk	10	10
ΔT temperature in bulk water	10	10
Water temperature	10	10
Water temperature	10	10
Water temperature (flow average)	10	10
Available energy		
Measured static differential pressure (approx.)	10	10
Estimated hydraulic power	10	10
Estimated gross efficiency	1	1
Estimated capacity correction	10	10
Estimated power correction	10	10
Result type	10	10





Detailed result for STRAIGHT 2017 Average Line 20.4.2.0000			December 2016 and December 2017
Tested according to			Average
Climate zone			
Temperature application			1.1
Condition name			
Condition temperature	1.1		
Test type	1.1		
Test - Method	1.1		
Test type	1.1		
Test type	1.1		
Testing Method	1.1		
ISO	1		
Minimum flow method	1		
Measurement type			Static
Integrated condition point			1.1
Related conditions (Test result)			
Testing capacity	100		100
ISO	1		1
Power consumption	100		100
Method			
Testing capacity	100		100
ISO	1		1
Power consumption	100		100
Spring testing			
ISO temperature dry bulb	1.1		1.1
ISO temperature wet bulb	1.1		1.1
ISO temperature dry bulb wet bulb	1.1		1.1
Test temperature	1.1		1.1
Test temperature	1.1		1.1
Test temperature (Flow averaged)	1.1		1.1
Condition point			
Maximum static differential pressure, report point	1.1		1.1
Estimated hydraulic power	1.1		1.1
Estimated global efficiency	1		1
Estimated input to conversion	1.1		1.1
Estimated power conversion	1.1		1.1
Notes, Date	1.1		1.1

[illegible]



Detailed result for STRA025 2018 Average Low J20 A 12 MW		
Tested according to	Stratix 2018 and Stratix 2019	
Climate zone		Average
Temperature application		12.0
Condition name		STR-025
Condition temperature	12	12.0
Part load	100	100.0
Power demand	12	12.0
Energy	12	12.0
Energy	12	12.0
Heating demand	12	12.0
Q _h	1	1.0
Minimum flow needed	1	1.0
Measurement type		Static
Integrated simulation period		10
Heating capacity (Heat result)		
Heating capacity	100	100.0
Q _h	1	1.0
Power consumption	100	100.0
Heating		
Heating capacity	100	100.0
Q _h	1	1.0
Power consumption	100	100.0
Spring heating		
W _h temperature dry bulb	12	12.0
W _h temperature wet bulb	12	12.0
W _h temperature dry bulb wet	12	12.0
Water temperature	12	12.0
Heating temperature	12	12.0
Heating temperature (Flow averaged)	12	12.0
Simulation pump		
Maximum static differential pressure, liquid pump	10	10.0
Consumed hydraulic power	10	10.0
Consumed gross efficiency	1	1.0
Consumed capacity correction	10	10.0
Consumed Power correction	10	10.0
Static Type	10	10.0



Detailed result for STR0025 2018 Average Load B and P, A 10 MW		
Tested according to	Condition 2018 and Condition 2019	
Climate zone		Average
Temperature application		100%
Condition name		100%
Condition temperature	10	100%
Test load	10	100%
Power demand	10	100%
Energy	10	100%
Energy	10	100%
Heating demand	10	100%
CO ₂	1	100%
Minimum flow needed	1	100%
Measurement type		Static
Integrated simulation period		10
Detailed simulation (Final result)		
Heating capacity	100	100%
CO ₂	1	100%
Power consumption	100	100%
Detailed		
Heating capacity	100	100%
CO ₂	1	100%
Power consumption	100	100%
During heating		
W ₁ temperature dry bulb	10	100%
W ₁ temperature wet bulb	10	100%
W ₁ temperature dry bulb wet	10	100%
Water temperature	10	100%
Water temperature	10	100%
Water temperature (Flow averaged)	10	100%
Simulation pump		
Measured static differential pressure, heating pump	10	100%
Calculated hydraulic power	10	100%
Calculated pump efficiency	1	100%
Calculated capacity correction	10	100%
Calculated flow correction	10	100%
Static type	10	100%

Detailed SCOP test results - medium temperature application
- average climate - EN 14825

Detailed result for 2019/2020 Average Method (A, A, 7 MW)		
Test according to	Standard EN16142:2016	Standard EN16142:2016
Climate zone		Average
Temperature application		Medium
Condition name		A
Condition temperature	15	15
Part load	100	100
Power demand	100	100
Energy	100	100
Energy	100	100
Heating demand	100	100
CO ₂	1	1
Minimum flow method	1	1
Measurement type		Steady State
Integrated uncertainty factor		1.0
Detailed condition (Heat result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Heating result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Heating result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Heating result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Heating result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Heating result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Heating result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Heating result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Heating result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Heating result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Heating result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Heating result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Heating result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Heating result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Heating result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Heating result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Heating result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Heating result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Heating result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Heating result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Heating result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Heating result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Heating result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Heating result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Heating result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Heating result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Heating result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Heating result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Heating result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Heating result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Heating result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Heating result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Heating result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Heating result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Heating result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Heating result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Heating result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
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Power consumption	100	100
Detailed condition (Heating result)		
Heating capacity	100	100
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Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
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Heating capacity	100	100
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Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
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Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
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Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
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Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
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Heating capacity	100	100
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Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
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Heating capacity	100	100
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Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
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Heating capacity	100	100
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Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
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Heating capacity	100	100
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Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
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Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
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Power consumption	100	100
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Heating capacity	100	100
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Power consumption	100	100
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Heating capacity	100	100
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Heating capacity	100	100
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Power consumption	100	100
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Heating capacity	100	100
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Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
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Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
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Power consumption	100	100
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Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
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Heating capacity	100	100
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Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
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Power consumption	100	100
Detailed condition (Heating result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Heating result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Heating result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Heating result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Heating result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Heating result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Cooling result)		
Heating capacity	100	100
CO ₂	1	1
Power consumption	100	100
Detailed condition (Heating result)		
Heating capacity	100	100
CO ₂	1	





Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Tested according to	EN 15287:2019 and EN 15287:2019	
Climate zone		Average
Temperature application		Medium
Condition name		
Condition temperature	15	
Part load	100	100
Power demand	100	100
Energy	100	100
Energy	100	100
Heating demand	100	100
Q _h	1	1
Minimum flow coefficient	1	1
Measurement type		Static
Integrated circulation pump		Yes
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	100	100
Q _h	1	1
Power consumption	100	100
Detailed result for 2019/2020 2019 Average Medium (B, A, J, M)		
Heating capacity	1	



Detailed result for 2019-02-25 2019 Average Medium (L) A 7 000		
Tested according to:	EN 12831:2003 and EN 12834:2003	
Climate zone:		Average
Temperature application:		Medium
Condition name:		
Condition temperature:	15	
Part load:	100	100
Flow: Standard	15	15
Flow:	15	15
Flow:	15	15
Heating demand:	15	15
U:	1	1
Minimum flow coefficient:	1	1
Measurement type:		Static
Integrated circulation pump:		0
<hr/>		
Detailed result for 2019-02-25 2019 Average Medium (L) A 7 000		
Heating capacity:	15	15
U:	1	1
Power consumption:	15	15
<hr/>		
Detailed result for 2019-02-25 2019 Average Medium (L) A 7 000		
Heating capacity:	15	15
U:	1	1
Power consumption:	15	15
<hr/>		
Detailed result for 2019-02-25 2019 Average Medium (L) A 7 000		
Heating capacity:	15	15
U:	1	1
Power consumption:	15	15
<hr/>		
Detailed result for 2019-02-25 2019 Average Medium (L) A 7 000		
Heating capacity:	15	15
U:	1	1
Power consumption:	15	15
<hr/>		
Detailed result for 2019-02-25 2019 Average Medium (L) A 7 000		
Heating capacity:	15	15
U:	1	1
Power consumption:	15	15
<hr/>		
Detailed result for 2019-02-25 2019 Average Medium (L) A 7 000		
Heating capacity:	15	15
U:	1	1
Power consumption:	15	15
<hr/>		
Detailed result for 2019-02-25 2019 Average Medium (L) A 7 000		
Heating capacity:	15	15
U:	1	1
Power consumption:	15	15
<hr/>		
Detailed result for 2019-02-25 2019 Average Medium (L) A 7 000		
Heating capacity:	15	15
U:	1	1
Power consumption:	15	15
<hr/>		
Detailed result for 2019-02-25 2019 Average Medium (L) A 7 000		
Heating capacity:	15	15
U:	1	1
Power consumption:	15	15
<hr/>		
Detailed result for 2019-02-25 2019 Average Medium (L) A 7 000		
Heating capacity:	15	15
U:	1	1
Power consumption:	15	15
<hr/>		
Detailed result for 2019-02-25 2019 Average Medium (L) A 7 000		
Heating capacity:	15	15
U:	1	1
Power consumption:	15	15
<hr/>		
Detailed result for 2019-02-25 2019 Average Medium (L) A 7 000		
Heating capacity:	15	15
U:	1	1
Power consumption:	15	15
<hr/>		
Detailed result for 2019-02-25 2019 Average Medium (L) A 7 000		
Heating capacity:	15	15
U:	1	1
Power consumption:	15	15
<hr/>		
Detailed result for 2019-02-25 2019 Average Medium (L) A 7 000		
Heating capacity:	15	15
U:	1	1
Power consumption:	15	15
<hr/>		
Detailed result for 2019-02-25 2019 Average Medium (L) A 7 000		
Heating capacity:	15	15
U:	1	1
Power consumption:	15	15
<hr/>		
Detailed result for 2019-02-25 2019 Average Medium (L) A 7 000		
Heating capacity:	15	15
U:	1	1
Power consumption:	15	15
<hr/>		
Detailed result for 2019-02-25 2019 Average Medium (L) A 7 000		
Heating capacity:	15	15
U:	1	1
Power consumption:	15	15
<hr/>		
Detailed result for 2019-02-25 2019 Average Medium (L) A 7 000		
Heating capacity:	15	15
U:	1	1
Power consumption:	15	15
<hr/>		
Detailed result for 2019-02-25 2019 Average Medium (L) A 7 000		
Heating capacity:	15	15
U:	1	1
Power consumption:	15	15
<hr/>		
Detailed result for 2019-02-25 2019 Average Medium (L) A 7 000		
Heating capacity:	15	15
U:	1	1
Power consumption:	15	15
<hr/>		
Detailed result for 2019-02-25 2019 Average Medium (L) A 7 000		
Heating capacity:	15	15
U:	1	1
Power consumption:	15	15
<hr/>		
Detailed result for 2019-02-25 2019 Average Medium (L) A 7 000		
Heating capacity:	15	15
U:	1	1
Power consumption:	15	15
<hr/>		
Detailed result for 2019-02-25 2019 Average Medium (L) A 7 000		
Heating capacity:	15	15
U:	1	1
Power consumption:	15	15
<hr/>		
Detailed result for 2019-02-25		



Detailed result for 2019-02-20 Average Medium (2) A 12 000		
Tested according to	EN 15213:2010 and EN 15213:2011	
Climate zone		Average
Temperature application		Medium
Condition name		
Condition temperature	15	15.0.15.0
Test load	100	100.0.100.0
Power demand	100	100.0.100.0
Energy	100	100.0.100.0
Energy	100	100.0.100.0
Heating demand	100	100.0.100.0
U _g	1	1.0.1.0
Minimum flow coefficient	1	1.0.1.0
Measurement type		Static
Integrated circulation pump		0
Detailed result for 2019-02-20 Average Medium (2) A 12 000		
Heating capacity	100	100.0.100.0
U _g	1	1.0.1.0
Power consumption	100	100.0.100.0
Detailed result for 2019-02-20 Average Medium (2) A 12 000		
Heating capacity	100	100.0.100.0
U _g	1	1.0.1.0
Power consumption	100	100.0.100.0
Detailed result for 2019-02-20 Average Medium (2) A 12 000		
Heating capacity	100	100.0.100.0
U _g	1	1.0.1.0
Power consumption	100	100.0.100.0
Detailed result for 2019-02-20 Average Medium (2) A 12 000		
Heating capacity	100	100.0.100.0
U _g	1	1.0.1.0
Power consumption	100	100.0.100.0
Detailed result for 2019-02-20 Average Medium (2) A 12 000		
Heating capacity	100	100.0.100.0
U _g	1	1.0.1.0
Power consumption	100	100.0.100.0
Detailed result for 2019-02-20 Average Medium (2) A 12 000		
Heating capacity	100	100.0.100.0
U _g	1	1.0.1.0
Power consumption	100	100.0.100.0
Detailed result for 2019-02-20 Average Medium (2) A 12 000		
Heating capacity	100	100.0.100.0
U _g	1	1.0.1.0
Power consumption	100	100.0.100.0
Detailed result for 2019-02-20 Average Medium (2) A 12 000		
Heating capacity	100	100.0.100.0
U _g	1	1.0.1.0
Power consumption	100	100.0.100.0
Detailed result for 2019-02-20 Average Medium (2) A 12 000		
Heating capacity	100	100.0.100.0
U _g	1	1.0.1.0
Power consumption	100	100.0.100.0
Detailed result for 2019-02-20 Average Medium (2) A 12 000		
Heating capacity	100	100.0.100.0
U _g	1	1.0.1.0
Power consumption	100	100.0.100.0
Detailed result for 2019-02-20 Average Medium (2) A 12 000		
Heating capacity	100	100.0.100.0
U _g	1	1.0.1.0
Power consumption	100	100.0.100.0
Detailed result for 2019-02-20 Average Medium (2) A 12 000		
Heating capacity	100	100.0.100.0
U _g	1	1.0.1.0
Power consumption	100	100.0.100.0
Detailed result for 2019-02-20 Average Medium (2) A 12 000		
Heating capacity	100	100.0.100.0
U _g	1	1.0.1.0
Power consumption	100	100.0.100.0
Detailed result for 2019-02-20 Average Medium (2) A 12 000		
Heating capacity	100	100.0.100.0
U _g	1	1.0.1.0
Power consumption	100	100.0.100.0
Detailed result for 2019-02-20 Average Medium (2) A 12 000		
Heating capacity	100	100.0.100.0
U _g	1	1.0.1.0
Power consumption	100	100.0.100.0
Detailed result for 2019-02-20 Average Medium (2) A 12 000		
Heating capacity	100	100.0.100.0
U _g	1	1.0.1.0
Power consumption	100	100.0.100.0
Detailed result for 2019-02-20 Average Medium (2) A 12 000		
Heating capacity	100	100.0.100.0
U _g	1	1.0.1.0
Power consumption	100	100.0.100.0
Detailed result for 2019-02-20 Average Medium (2) A 12 000		
Heating capacity	100	100.0.100.0
U _g	1	1.0.1.0
Power consumption	100	100.0.100.0
Detailed result for 2019-02-20 Average Medium (2) A 12 000		
Heating capacity	100	100.0.100.0
U _g	1	1.0.1.0
Power consumption	100	100.0.100.0
Detailed result for 2019-02-20 Average Medium (2) A 12 000		
Heating capacity	100	100.0.100.0
U _g	1	1.0.1.0
Power consumption	100	100.0.100.0
Detailed result for 2019-02-20 Average Medium (2) A 12 000		
Heating capacity	100	100.0.100.0
U _g	1	1.0.1.0
Power consumption	100	100.0.100.0
Detailed result for 2019-02-20 Average Medium (2) A 12 000		
Heating capacity	100	100.0.100.0
U _g	1	1.0.1.0
Power consumption	100	100.0.100.0
Detailed result for 2019-02-20 Average Medium (2) A 12 000		
Heating capacity	100	100.0.100.0
U _g	1	1.0.1.0
Power consumption	100	100.0.100.0
Detailed result for 2019-02-20 Average Medium (2) A 12 000		
Heating capacity	100	100.0.100.0
U _g	1	1.0.1.0
Power consumption	100	100.0.100.0
Detailed result for 2019-02-20 Average Medium (2) A 12 000		
Heating capacity	100	100.0.100.0
U _g	1	1.0.1.0
Power consumption	100	100.0.100.0
Detailed result for 2019-02-20 Average Medium (2) A 12 000		
Heating capacity	100	100.0.100.0
U _g	1	1.0.1.0
Power consumption	100	100.0.100.0
Detailed result for 2019-02-20 Average Medium (2) A 12 000		
Heating capacity	100	100.0.100.0
U _g	1	1.0.1.0
Power consumption	100	100.0.100.0
Detailed result for 2019-02-20 Average Medium (2) A 12 000		
Heating capacity	100	100.0.100.0
U _g	1	1.0.1.0
Power consumption	100	100.0.100.0
Detailed result for 2019-02-20 Average Medium (2) A 12 000		
Heating capacity	100	100.0.100.0
U _g	1	1.0.1.0
Power consumption	100	100.0.100.0
Detailed result for 2019-02-20 Average Medium (2) A 12 000		
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U _g	1	1.0.1.0
Power consumption	100	100.0.100.0
Detailed result for 2019-02-20 Average Medium (2) A 12 000		
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Detailed result for 2019-02-20 Average Medium (2) A 12 000		
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Power consumption	100	100.0.100.0
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Power consumption	100	100.0.100.0
Detailed result for 2019-02-20 Average Medium (2) A 12 000		
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Power consumption	100	100.0.100.0
Detailed result for 2019-02-20 Average Medium (2) A 12 000		
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Power consumption	100	100.0.100.0
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Power consumption	100	100.0.100.0
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Detailed result for 2019-02-20 Average Medium (2) A 12 000		
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Power consumption	100	100.0.100.0
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Power consumption	100	100.0.100.0
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Power consumption	100	100.0.100.0
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Power consumption	100	100.0.100.0
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U _g	1	1.0.1.0
Power consumption	100	100.0.100.0
Detailed result for 2019-02-20 Average Medium (2) A 12 000		
Heating capacity	100	100.0.100.0
U _g	1	1.0.1.0
Power consumption	100	100.0.100.0
Detailed result for 2019-02-20 Average Medium (2) A 12 000		
Heating capacity	100	100.0.100.0
U _g	1	1.0.1.0
Power consumption	100	100.0.100.0
Detailed result for 2019-02-20 Average Medium (2) A 12 000		
Heating capacity	100	100.0.100.0
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Power consumption	100	100.0.100.0
Detailed result for 2019-02-20 Average Medium (2) A 12 000		
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Power consumption	100	100.0.100.0
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Power consumption	100	100.0.100.0
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Power consumption	100	100.0.100.0
Detailed result for 2019-02-20 Average Medium (2) A 12 000		
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Power consumption	100	100.0.100.0
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Power consumption	100	100.0.100.0
Detailed result for 2019-02-20 Average Medium (2) A 12 000		
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Power consumption	100	100.0.100.0
Detailed result for 2019-02-20 Average Medium (2) A 12 000		
Heating capacity	100	100.0.100.0
U _g	1	1.0.1.0
Power consumption	100	100.0.100.0
Detailed result for 2019-02-20 Average Medium (2) A 12 000		
Heating capacity	100	100.0.100.0
U _g	1	1.0.1.0
Power consumption	100	100.0.100.0
Detailed result for 2019-02-20 Average Medium (2) A 12 000		
Heating capacity	100	100.0.100.0
U _g	1	1.0.1.0
Power consumption		





Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Tested according to:	EN 15210 and EN 15211	
Climate zone		Average
Temperature application		Medium
Condition name		10 MW
Condition temperature	10	10
Test load	10	10
Power demand	10	10
Energy	10	10
Energy	10	10
Heating demand	10	10
CO ₂	1	1
Minimum flow needed	1	1
Measurement type		Static
Integrated circulation pump		0
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Heating capacity	10	10
CO ₂	1	1
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Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
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CO ₂	1	1
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Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
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Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
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Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
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Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
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CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
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CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
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CO ₂	1	1
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Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
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Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
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Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
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Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
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Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
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Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
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CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
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CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
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CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
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CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
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CO ₂	1	1
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CO ₂	1	1
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Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
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CO ₂	1	1
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Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
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CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
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CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10
Detailed result for 2019-2020 2019 Average Medium B and P.A. 10 MW		
Heating capacity	10	10
CO ₂	1	1
Power consumption	10	10</



Detailed COP test results - low temperature - EN 14813

Detailed result for EN14813 2012 A1W05		
Tested according to		EN14813 2012
Minimum flow coefficient		10
Measurement type		Steady State
Integrated circulation pump		Yes
Heating section (Heat output)		
Heating capacity	100	10.000
Load	-	10.000
Power consumption	100	1.000
Cooling section		
Heating capacity	100	10.000
Load	-	10.000
Power consumption	100	1.000
During testing		
Air temperature dry bulb	15	17.00
Air temperature wet bulb	15	12.00
Air temperature dry bulb cooled	15	12.00
Water temperature	15	12.00
Outdoor temperature	15	12.00
Circulation pump		
Measured static differential pressure (pump only)	10	10.00
Estimated hydraulic power	10	10.00
Estimated gross efficiency	10	10.00
Estimated capacity correction	10	10.00
Estimated Power correction	10	10.00
Static loss	10	10.00



Detailed result for: 300-KLAB-22-032		
Tested according to		EN 12550-2
Minimum flow method		Yes
Measurement type		Flow
Integrated correction factor		Yes
Included corrections (final result)		
Flowing capacity	100	0.000
Loss	-	0.000
Flow consumption	100	0.000
Revised		
Flowing capacity	100	0.000
Loss	-	0.000
Flow consumption	100	0.000
Testing facility		
Air temperature dry bulb	15.0	15.0
Air temperature wet bulb	15.0	15.0
Air temperature dry bulb wet bulb	15.0	15.0
Room temperature	15.0	15.0
Water temperature	15.0	15.0
Correction factor		
Measured static differential pressure, liquid pump	100	0.000
Corrected hydraulic power	100	0.000
Corrected gross efficiency	100	0.000
Corrected capacity correction	100	0.000
Corrected Power correction	100	0.000
Water flow	100	0.000



Detailed result for: 300-KLAB-22-032 A-TWSS			Result
Tested according to			EN 12556-2
Minimum flow method			Yes
Measurement type			Flow
Integrated correction factor			Yes
Included corrections (final result)			
Flowing capacity	100		10.000
Loss	-		0.000
Flow consumption	100		10.000
Measured			
Flowing capacity	100		10.000
Loss	-		0.000
Flow consumption	100		10.000
Working condition			
Air temperature dry bulb	15		15.00
Air temperature wet bulb	15		15.00
Air temperature dry bulb wet bulb	15		15.00
Room temperature	15		15.00
Water temperature	15		15.00
Correction factor			
Measured static differential pressure, liquid pump	10		10.00
Corrected hydraulic power	10		10.00
Corrected global efficiency	10		10.00
Corrected capacity correction	10		10.00
Corrected flow correction	10		10.00
Water flow	10		10.00



Detailed result for: 300-KLAB-22-032 (Jule)			Unit
Tested according to			EN 12550-2
Minimum flow method			Yes
Measurement type			Flow
Integrated correction factor			Yes
Included correction (flow result)			
Flowing capacity	100		0.000
Loss	-		0.000
Flow consumption	100		0.000
Measured			
Flowing capacity	100		0.000
Loss	-		0.000
Flow consumption	100		0.000
Working condition			
Air temperature dry bulb	15		1.5
Air temperature wet bulb	15		1.5
Air temperature dry bulb wet bulb	15		1.5
Water temperature	15		1.5
Water temperature	15		1.5
Correction factor			
Measured static differential pressure, liquid pump	10		0.000
Corrected hydraulic power	10		0.000
Corrected global efficiency	10		0.000
Corrected capacity correction	10		0.000
Corrected flow correction	10		0.000
Water flow	10		0.000



Detailed COP test results - medium temperature - EN 14515

Detailed result for EN14515 2012 A1W05		
Tested according to		EN14515 2012
Minimum flow method		Yes
Measurement type		Steady State
Integrated circulation pump		Yes
Heating section (Heat meter)		
Heating capacity	100	9.000
Loss	-	0.000
Power consumption	100	0.000
Cooling section		
Heating capacity	100	9.000
Loss	-	0.000
Power consumption	100	0.000
During testing		
Air temperature dry bulb	15	15.00
Air temperature wet bulb	15	11.00
Air temperature dry bulb cooled	15	15.00
Water temperature	15	15.00
Outdoor temperature	15	15.00
Circulation pump		
Measured static differential pressure (pump/piping)	75	0.00
Estimated hydraulic power	90	0.00
Estimated gross efficiency	100	10.00
Estimated capacity correction	100	10.00
Estimated Power correction	100	10.00
Static Loss	100	0.000



Detailed result for: 300-KLAB-22-032		
Tested according to		EN 12550-2
Minimum flow method		Yes
Measurement type		Flow
Integrated correction factor		Yes
Included corrections (flow result)		
Flowing capacity	100	100
Loss	-	0.0000
Flow consumption	100	100
Pressure		
Flowing capacity	100	100
Loss	-	0.0000
Flow consumption	100	100
Working condition		
Air temperature dry bulb	15	15
Air temperature wet bulb	15	15
Air temperature dry bulb wet bulb	15	15
Water temperature	15	15
Water temperature	15	15
Correction factor		
Measured static differential pressure, liquid pump	10	10
Corrected hydraulic power	10	10
Corrected global efficiency	10	10
Corrected capacity correction	10	10
Corrected flow correction	10	10
Water flow	10	10



Detailed result for: 300-KLAB-22-032 A-TWSS		
Tested according to		EN 12556-2:2010
Minimum flow method		Yes
Measurement type		Steady flow
Integrated correction factor		Yes
Included corrections (final result)		
Flowing capacity	100	0.0000
Loss	-	0.0000
Flow consumption	100	0.0000
Measured		
Flowing capacity	100	0.0000
Loss	-	0.0000
Flow consumption	100	0.0000
Testing facility		
Air temperature dry bulb	15.15	17.00
Air temperature wet bulb	15.15	17.00
Air temperature dry bulb outside	15.15	17.00
Room temperature	15.15	17.00
Water temperature	15.15	17.00
Correction factor		
Measured static differential pressure, liquid pump	100	0.0000
Corrected hydraulic power	100	0.0000
Corrected gross efficiency	100	0.0000
Corrected capacity correction	100	0.0000
Corrected power correction	100	0.0000
Water flow	100	0.0000









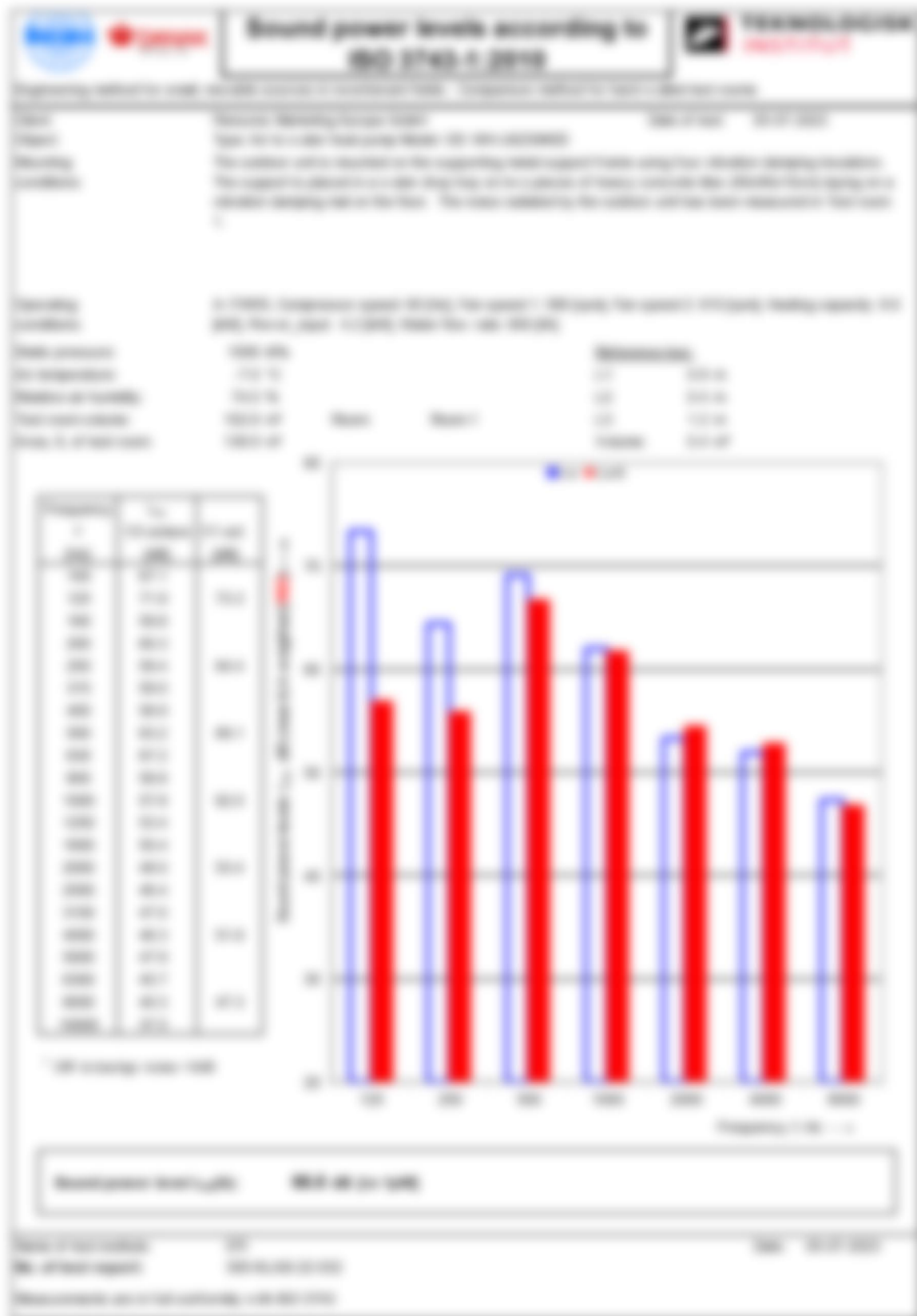






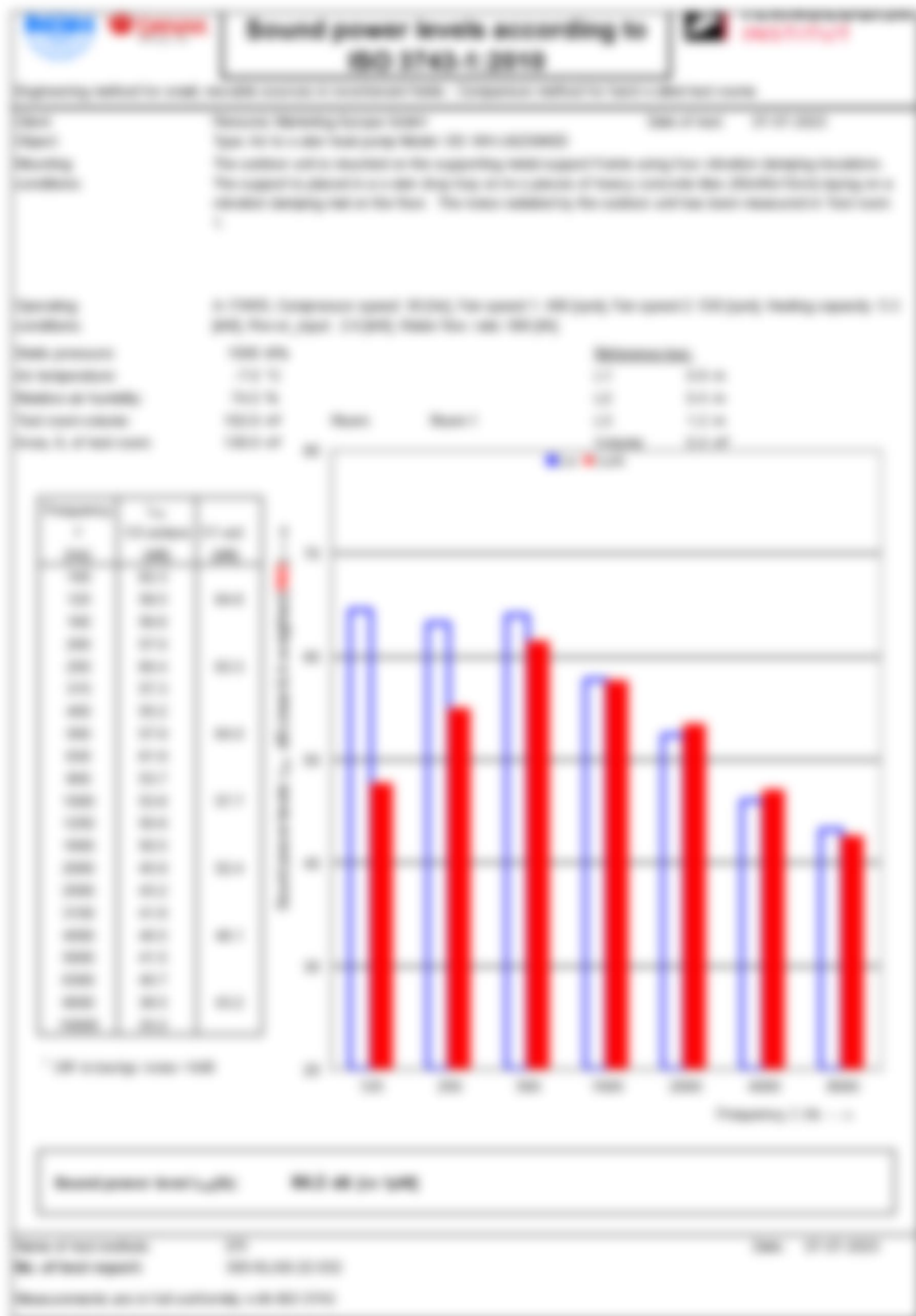


Detailed test results of sound power measurement - Test N°9





Detailed test results of sound power measurement - Test N°9







Appendix 1: Test Procedure

The measurements of the emitted sound power level from the test pump are carried out according to the following:

- ISO 9614-1:2018
- EN 12502-1:2017
- ISO 9614-2:2018

The basic acoustic measurement standard ISO 9614-1 is a comparison method using a calibrated reference sound source. Two series of sound pressure measurements are made under exactly the same acoustic conditions, e.g., the same microphone positions, temperature and air humidity. The calibrated sound power levels are known for the reference sound source at each frequency band, and they are used in the estimation of the acoustical correction factor for the calculation of the sound power emitted from the tested test pump. The background noise levels are measured and used for relevant corrections.

The final total A-weighted sound power level is based on measurements and calculations in 1/3 octave levels, which then are summed into 1/3 octave levels. The uncertainty is estimated on the weighted standard deviations in 1/3 octave levels.

The actual microphone positions and correction values are saved in data files linked to the complete project documentation according to the DIBAH accreditation.

The complete measurement system is documented and regularly calibrated according to DIBAH.

The detailed description of the measurement method is given in Danish in the quality database system "Q8-Net" at Danish Technological Institute, which is accessible to DIBAH.