

Page 1 of 31

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#### **Login**

Summary of	VWL 75/5 AS 230V	Reg. No.	40049303	
Certificate H	Certificate Holder			
Name	Vaillant Deutschland GmbH & Co KG			
Address	Berghauser Straße 40	Zip	42859	
City	Remscheid	Country	Germany	
Certification Body	VDE Prüf- und Zertifizierungsinstitut GmbH			
Subtype title	VWL 75/5 AS 230V			
Heat Pump Type	Outdoor Air/Water			
Refrigerant	R410A			
Mass of Refrigerant	2.39 kg			
Certification Date	10.03.2021			
Testing basis	DIN EN 14511-1:2019-07; EN 14511-1:2018; DIN EN 14511-2:2019-07; EN 14511-2:2018; DIN EN 14511-3:2019-07; EN 14511-3:2018; DIN EN 14511-4:2019-07; EN 14511-4:2018; DIN EN 14825:2019-07; EN 14825:2018; DIN EN 12102-1:2018-02; EN 12102-1:2017			

# Model: VWL 75/5 AS 230V + VWL 77/5 IS

Configure model		
Model name	VWL 75/5 AS 230V + VWL 77/5 IS	
Application	Heating (medium temp)	
Units	Indoor + Outdoor	
Climate Zone	Colder Climate + Warmer Climate	
Reversibility	Yes	
Cooling mode application (optional)	n/a	

General Data		
Power supply 1x230V 50Hz		

# Heating

EN 14511-4		
Operating range outdoor exchanger/indoor exchanger lower limit/lower limit	passed	
Operating range outdoor exchanger/indoor exchanger upper limit/upper limit	passed	
Shutting off the heat transfer medium flow	passed	
Complete power supply failure	passed	
Defrost test	passed	

EN 14511-2		
	Low temperature	Medium temperature
Heat output	5.78 kW	4.95 kW
El input	1.26 kW	1.84 kW
СОР	4.58	2.69

### Warmer Climate



EN 12102-1		
	Low temperature	Medium temperature
Sound power level indoor	43 dB(A)	43 dB(A)
Sound power level outdoor	54 dB(A)	54 dB(A)

EN 14825		
	Low temperature	Medium temperature
$\eta_{s}$	239 %	159 %
Prated	4.51 kW	3.94 kW
SCOP	6.04	4.05
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	4.51 kW	3.94 kW
COP Tj = +2°C	3.68	2.30
Cdh Tj = +2 °C	0.99	0.99
Pdh Tj = +7°C	2.81 kW	2.45 kW
COP Tj = +7°C	5.55	3.38
Cdh Tj = +7 °C	0.98	0.99
Pdh Tj = 12°C	3.20 kW	3.15 kW
COP Tj = 12°C	7.35	5.43
Cdh Tj = +12 °C	0.98	0.98

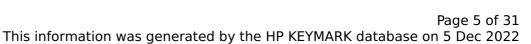




3.94 kW 2.30 3.94 kW
3 94 kW
3.54 KVV
2.30
0.99
55 °C
11 W
11 W
11 W
o w
ty Electricity
0.00 kW
1300 kWh

### Colder Climate

EN 12102-1			
	Low temperature	Medium temperature	
Sound power level indoor	43 dB(A)	43 dB(A)	
Sound power level outdoor	54 dB(A)	54 dB(A)	





	Low temperature	Medium temperature
$\eta_{s}$	156 %	117 %
Prated	6.60 kW	5.36 kW
SCOP	3.96	3.00
Tbiv	-15 °C	-15 °C
TOL	-20 °C	-15 °C
Pdh Tj = -7°C	3.89 kW	3.55 kW
COP Tj = -7°C	3.51	2.53
Cdh Tj = -7 °C	0.990	0.990
Pdh Tj = $+2$ °C	2.31 kW	2.33 kW
COP Tj = +2°C	4.66	3.78
Cdh Tj = +2 °C	0.980	0.980
Pdh Tj = +7°C	2.77 kW	2.77 kW
COP Tj = +7°C	6.19	6.19
Cdh Tj = +7 °C	0.980	0.980
Pdh Tj = 12°C	3.20 kW	3.25 kW
COP Tj = 12°C	7.55	6.81
Cdh Tj = +12 °C	0.980	0.980
Pdh Tj = Tbiv	5.39 kW	4.37 kW
COP Tj = Tbiv	2.48	1.72
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	3.75 kW	4.37 kW





COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.09	1.72
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.990	1.000
WTOL	55 °C	55 °C
Poff	11 W	11 W
PTO	11 W	11 W
PSB	11 W	11 W
PCK	o w	o w
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	6.60 kW	5.36 kW
Annual energy consumption Qhe	4106 kWh	4401 kWh
Pdh Tj = -15°C (if TOL<-20°C)	3.36	4.37
COP Tj = -15°C (if TOL $<$ -20°C)	1.94	1.72
Cdh Tj = -15 °C	0.990	1.000

# Average Climate

EN 12102-1			
Low temperature Medium temperature			
Sound power level indoor	43 dB(A)	43 dB(A)	
Sound power level outdoor	54 dB(A)	54 dB(A)	





	Low temperature	Medium temperature
$\eta_{s}$	173 %	133 %
Prated	7.08 kW	6.36 kW
SCOP	4.40	3.39
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	6.30 kW	5.62 kW
COP Tj = -7°C	2.58	2.00
Cdh Tj = -7 °C	1.000	1.000
Pdh Tj = +2°C	3.90 kW	3.31 kW
$COPTj = +2^{\circ}C$	4.37	3.29
Cdh Tj = +2 °C	0.990	0.990
Pdh Tj = +7°C	2.72 kW	2.69 kW
$COPTj = +7^{\circ}C$	5.86	4.62
Cdh Tj = +7 °C	0.980	0.980
Pdh Tj = 12°C	3.28 kW	3.21 kW
COP Tj = 12°C	7.54	6.27
Cdh Tj = +12 °C	0.980	0.980
Pdh Tj = Tbiv	6.26 kW	5.62 kW
COP Tj = Tbiv	2.57	2.00
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	5.66 kW	4.92 kW



COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.38	1.84
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.000	1.000
WTOL	55 °C	55 °C
Poff	11 W	11 W
РТО	11 W	11 W
PSB	11 W	11 W
PCK	o w	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	1.42 kW	1.44 kW
Annual energy consumption Qhe	3324 kWh	3869 kWh

# Model: VWL 75/5 AS 230V + VWL 78/5 IS

Configure model		
Model name	VWL 75/5 AS 230V + VWL 78/5 IS	
Application	Heating + DHW + low temp	
Units	Indoor + Outdoor	
Climate Zone	Colder Climate + Warmer Climate	
Reversibility	Yes	
Cooling mode application (optional)	n/a	

General Data		
Power supply 1x230V 50Hz		

# Heating

EN 14511-4		
Operating range outdoor exchanger/indoor exchanger lower limit/lower limit	passed	
Operating range outdoor exchanger/indoor exchanger upper limit/upper limit	passed	
Shutting off the heat transfer medium flow	passed	
Complete power supply failure	passed	
Defrost test	passed	

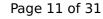
EN 14511-2			
Low temperature Medium temperature			
Heat output	5.78 kW	4.95 kW	
El input	1.26 kW	1.84 kW	
СОР	4.58	2.69	

### Warmer Climate



EN 12102-1		
	Low temperature	Medium temperature
Sound power level indoor	41 dB(A)	44 dB(A)
Sound power level outdoor	54 dB(A)	54 dB(A)

EN 14825		
	Low temperature	Medium temperature
$\eta_{s}$	239 %	159 %
Prated	4.51 kW	3.94 kW
SCOP	6.04	4.05
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = $+2$ °C	4.51 kW	3.94 kW
COP Tj = +2°C	3.68	2.30
Cdh Tj = +2 °C	0.99	0.99
Pdh Tj = $+7$ °C	2.81 kW	2.45 kW
$COP Tj = +7^{\circ}C$	5.55	3.38
Cdh Tj = +7 °C	0.98	0.99
Pdh Tj = 12°C	3.20 kW	3.15 kW
COP Tj = 12°C	7.35	5.43
Cdh Tj = +12 °C	0.98	0.98





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Pdh Tj = Tbiv	4.51 kW	3.94 kW
COP Tj = Tbiv	3.68	2.30
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	4.51 kW	3.94 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.68	2.30
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.99	0.99
WTOL	55 °C	55 °C
Poff	11 W	11 W
PTO	11 W	11 W
PSB	11 W	11 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	997 kWh	1300 kWh

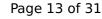
### Colder Climate

EN 12102-1			
	Low temperature	Medium temperature	
Sound power level indoor	41 dB(A)	44 dB(A)	
Sound power level outdoor	54 dB(A)	54 dB(A)	



Page 12 of 31 This information was generated by the HP KEYMARK database on 5 Dec 2022

	Low temperature	Medium temperature
$\eta_{s}$	156 %	117 %
Prated	6.60 kW	5.36 kW
SCOP	3.96	3.00
Tbiv	-15 °C	-15 °C
TOL	-20 °C	-15 °C
Pdh Tj = -7°C	3.89 kW	3.55 kW
COP Tj = -7°C	3.51	2.53
Cdh Tj = -7 °C	0.990	0.990
Pdh Tj = $+2$ °C	2.31 kW	2.33 kW
$COP Tj = +2^{\circ}C$	4.66	3.78
Cdh Tj = +2 °C	0.980	0.980
Pdh Tj = $+7^{\circ}$ C	2.77 kW	2.77 kW
$COPTj = +7^{\circ}C$	6.19	6.19
Cdh Tj = +7 °C	0.980	0.980
Pdh Tj = 12°C	3.20 kW	3.25 kW
COP Tj = 12°C	7.55	6.81
Cdh Tj = +12 °C	0.980	0.980
Pdh Tj = Tbiv	5.39 kW	4.37 kW
COP Tj = Tbiv	2.48	1.72
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	3.75 kW	4.37 kW





COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.09	1.72
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.990	1.000
WTOL	55 °C	55 °C
Poff	11 W	11 W
РТО	11 W	11 W
PSB	11 W	11 W
PCK	o w	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	6.60 kW	5.36 kW
Annual energy consumption Qhe	4106 kWh	4401 kWh
Pdh Tj = -15°C (if TOL<-20°C)	3.36	4.37
COP Tj = -15°C (if TOL $<$ -20°C)	1.94	1.72
Cdh Tj = -15 °C	0.990	1.000

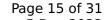
# Average Climate

EN 12102-1		
	Low temperature	Medium temperature
Sound power level indoor	41 dB(A)	44 dB(A)
Sound power level outdoor	54 dB(A)	54 dB(A)



Page 14 of 31 This information was generated by the HP KEYMARK database on 5 Dec 2022

	Low temperature	Medium temperature
$\eta_{s}$	173 %	133 %
Prated	7.08 kW	6.36 kW
SCOP	4.40	3.39
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	6.30 kW	5.62 kW
COP Tj = -7°C	2.58	2.00
Cdh Tj = -7 °C	1.000	1.000
Pdh Tj = +2°C	3.90 kW	3.31 kW
COP Tj = +2°C	4.37	3.29
Cdh Tj = +2 °C	0.990	0.990
Pdh Tj = +7°C	2.72 kW	2.69 kW
$COP Tj = +7^{\circ}C$	5.86	4.62
Cdh Tj = +7 °C	0.980	0.980
Pdh Tj = 12°C	3.28 kW	3.21 kW
COP Tj = 12°C	7.54	6.27
Cdh Tj = +12 °C	0.980	0.980
Pdh Tj = Tbiv	6.26 kW	5.62 kW
COP Tj = Tbiv	2.57	2.00
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	5.66 kW	4.92 kW





COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.38	1.84
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.000	1.000
WTOL	55 °C	55 °C
Poff	11 W	11 W
РТО	11 W	11 W
PSB	11 W	11 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	1.42 kW	1.44 kW
Annual energy consumption Qhe	3324 kWh	3869 kWh

# Domestic Hot Water (DHW)

### Warmer Climate

EN 16147		
Declared load profile	XL	
Efficiency ηDHW	134 %	
СОР	3.26	
Heating up time	01:28 h:min	
Standby power input	70.0 W	
Reference hot water temperature	51.2 °C	
Mixed water at 40°C	242	



### Colder Climate

EN 16147		
Declared load profile	XL	
Efficiency ηDHW	102 %	
СОР	2.48	
Heating up time	02:03 h:min	
Standby power input	90.0 W	
Reference hot water temperature	46.9 °C	
Mixed water at 40°C	246	

# Average Climate

EN 16147		
Declared load profile	XL	
Efficiency ηDHW	112 %	
СОР	2.73	
Heating up time	01:45 h:min	
Standby power input	80.0 W	
Reference hot water temperature	50.7 °C	
Mixed water at 40°C	246 I	



# Model: VWL 75/5 AS 230V S2 + VWL 77/5 IS

Configure model		
Model name	VWL 75/5 AS 230V S2 + VWL 77/5 IS	
Application Heating (medium temp)		
Units Indoor + Outdoor		
Climate Zone	nate Zone Colder Climate + Warmer Climate	
Reversibility No		
Cooling mode application (optional) n/a		

General Data		
Power supply	1x230V 50Hz	

# Heating

EN 14511-4		
Operating range outdoor exchanger/indoor exchanger lower limit/lower limit	passed	
Operating range outdoor exchanger/indoor exchanger upper limit/upper limit	passed	
Shutting off the heat transfer medium flow	passed	
Complete power supply failure		
Defrost test	passed	

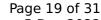
EN 14511-2		
Low temperature Medium temperature		
Heat output	5.78 kW	4.95 kW
El input	1.26 kW	1.84 kW
СОР	4.58	2.69

### Warmer Climate



EN 12102-1		
	Low temperature	Medium temperature
Sound power level indoor	43 dB(A)	43 dB(A)
Sound power level outdoor	54 dB(A)	54 dB(A)

EN 14825		
	Low temperature	Medium temperature
$\eta_{s}$	228 %	153 %
Prated	4.51 kW	3.94 kW
SCOP	5.76	3.90
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	4.51 kW	3.94 kW
COP Tj = +2°C	3.68	2.30
Cdh Tj = +2 °C	0.99	0.99
Pdh Tj = $+7^{\circ}$ C	2.81 kW	2.45 kW
COP Tj = +7°C	5.55	3.38
Cdh Tj = +7 °C	0.98	0.99
Pdh Tj = 12°C	3.20 kW	3.15 kW
COP Tj = 12°C	7.35	5.43
Cdh Tj = +12 °C	0.98	0.98

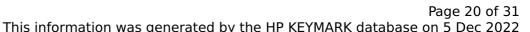




Pdh Tj = Tbiv	4.51 kW	3.94 kW
COP Tj = Tbiv	3.68	2.30
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	4.51 kW	3.94 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.68	2.30
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.99	0.99
WTOL	55 °C	55 °C
Poff	11 W	11 W
PTO	11 W	11 W
PSB	11 W	11 W
PCK	o w	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	1045 kWh	1349 kWh

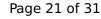
### Colder Climate

EN 12102-1			
Low temperature Medium temperature			
Sound power level indoor	43 dB(A)	43 dB(A)	
Sound power level outdoor	54 dB(A)	54 dB(A)	





	Low temperature	Medium temperature
$\eta_{s}$	155 %	116 %
Prated	6.60 kW	5.36 kW
SCOP	3.94	2.98
Tbiv	-15 °C	-15 °C
TOL	-20 °C	-15 °C
Pdh Tj = -7°C	3.89 kW	3.55 kW
$COP Tj = -7^{\circ}C$	3.51	2.53
Cdh Tj = -7 °C	0.990	0.990
Pdh Tj = +2°C	2.31 kW	2.33 kW
COP Tj = +2°C	4.66	3.78
Cdh Tj = +2 °C	0.980	0.980
Pdh Tj = +7°C	2.77 kW	2.77 kW
COP Tj = +7°C	6.19	6.19
Cdh Tj = +7 °C	0.980	0.980
Pdh Tj = 12°C	3.20 kW	3.25 kW
COP Tj = 12°C	7.55	6.81
Cdh Tj = +12 °C	0.980	0.980
Pdh Tj = Tbiv	5.39 kW	4.37 kW
COP Tj = Tbiv	2.48	1.72
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	3.75 kW	4.37 kW

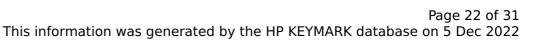




COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.09	1.72
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.990	1.000
WTOL	55 °C	55 °C
Poff	11 W	11 W
РТО	11 W	11 W
PSB	11 W	11 W
PCK	o w	o w
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	6.60 kW	5.36 kW
Annual energy consumption Qhe	4130 kWh	4425 kWh
Pdh Tj = -15°C (if TOL<-20°C)	5.39	4.37
COP Tj = -15°C (if TOL $<$ -20°C)	2.48	1.72
Cdh Tj = -15 °C	1.000	1.000

# Average Climate

EN 12102-1			
Low temperature Medium temperature			
Sound power level indoor	43 dB(A)	43 dB(A)	
Sound power level outdoor	54 dB(A)	54 dB(A)	





	Low temperature	Medium temperature
$\eta_{s}$	171 %	131 %
Prated	7.08 kW	6.36 kW
SCOP	4.35	3.36
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = $-7^{\circ}$ C	6.30 kW	5.62 kW
COP Tj = $-7^{\circ}$ C	2.58	2.00
Cdh Tj = -7 °C	1.000	1.000
Pdh Tj = $+2$ °C	3.90 kW	3.31 kW
COP Tj = +2°C	4.37	3.29
Cdh Tj = +2 °C	0.990	0.990
Pdh Tj = $+7^{\circ}$ C	2.72 kW	2.69 kW
$COP Tj = +7^{\circ}C$	5.86	4.62
Cdh Tj = +7 °C	0.980	0.980
Pdh Tj = 12°C	3.28 kW	3.21 kW
COP Tj = 12°C	7.54	6.27
Cdh Tj = +12 °C	0.980	0.980
Pdh Tj = Tbiv	6.26 kW	5.62 kW
COP Tj = Tbiv	2.57	2.00
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	5.66 kW	4.92 kW



# $$\operatorname{\textit{Page}}\xspace$ 23 of 31 This information was generated by the HP KEYMARK database on 5 Dec 2022

COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.38	1.84
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.000	1.000
WTOL	55 °C	55 °C
Poff	11 W	11 W
РТО	11 W	11 W
PSB	11 W	11 W
PCK	o w	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	1.42 kW	1.44 kW
Annual energy consumption Qhe	3364 kWh	3909 kWh



# Model: VWL 75/5 AS 230V S2 + VWL 78/5 IS

Configure model		
Model name VWL 75/5 AS 230V S2 + VWL 78/5 IS		
Application Heating + DHW + low temp		
Units Indoor + Outdoor		
Climate Zone Colder Climate + Warmer Climate		
Reversibility No		
Cooling mode application (optional)	n/a	

General Data		
Power supply 1x230V 50Hz		

# Heating

EN 14511-4		
Operating range outdoor exchanger/indoor exchanger lower limit/lower limit	passed	
Operating range outdoor exchanger/indoor exchanger upper limit/upper limit	passed	
Shutting off the heat transfer medium flow	passed	
Complete power supply failure	passed	
Defrost test	passed	

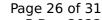
EN 14511-2		
Low temperature Medium temperature		
Heat output	5.78 kW	4.95 kW
El input	1.26 kW	1.84 kW
СОР	4.58	2.69

### Warmer Climate



EN 12102-1		
	Low temperature	Medium temperature
Sound power level indoor	41 dB(A)	44 dB(A)
Sound power level outdoor	54 dB(A)	54 dB(A)

EN 14825		
	Low temperature	Medium temperature
$\eta_{s}$	228 %	153 %
Prated	4.51 kW	3.94 kW
SCOP	5.76	3.90
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	4.51 kW	3.94 kW
COP Tj = +2°C	3.68	2.30
Cdh Tj = +2 °C	0.99	0.99
Pdh Tj = $+7^{\circ}$ C	2.81 kW	2.45 kW
$COPTj = +7^{\circ}C$	5.55	3.38
Cdh Tj = +7 °C	0.98	0.99
Pdh Tj = 12°C	3.20 kW	3.15 kW
COP Tj = 12°C	7.35	5.43
Cdh Tj = +12 °C	0.98	0.98





Pdh Tj = Tbiv	4.51 kW	3.94 kW
COP Tj = Tbiv	3.68	2.30
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	4.51 kW	3.94 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.68	2.30
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.99	0.99
WTOL	55 °C	55 °C
Poff	11 W	11 W
РТО	11 W	11 W
PSB	11 W	11 W
PCK	o w	o w
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	1045 kWh	1349 kWh

### Colder Climate

EN 12102-1		
	Low temperature	Medium temperature
Sound power level indoor	41 dB(A)	44 dB(A)
Sound power level outdoor	54 dB(A)	54 dB(A)





	Low temperature	Medium temperature
$\eta_{s}$	155 %	116 %
Prated	6.60 kW	5.36 kW
SCOP	3.94	2.98
Tbiv	-15 °C	-15 °C
TOL	-20 °C	-15 °C
Pdh Tj = -7°C	3.89 kW	3.55 kW
COP Tj = -7°C	3.51	2.53
Cdh Tj = -7 °C	0.990	0.990
Pdh Tj = +2°C	2.31 kW	2.33 kW
COP Tj = +2°C	4.66	3.78
Cdh Tj = +2 °C	0.980	0.980
Pdh Tj = +7°C	2.77 kW	2.77 kW
$COPTj = +7^{\circ}C$	6.19	6.19
Cdh Tj = +7 °C	0.980	0.980
Pdh Tj = 12°C	3.20 kW	3.25 kW
COP Tj = 12°C	7.55	6.81
Cdh Tj = +12 °C	0.980	0.980
Pdh Tj = Tbiv	5.39 kW	4.37 kW
COP Tj = Tbiv	2.48	1.72
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	3.75 kW	4.37 kW





COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.09	1.72
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.990	1.000
WTOL	55 °C	55 °C
Poff	11 W	11 W
РТО	11 W	11 W
PSB	11 W	11 W
PCK	o w	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	6.60 kW	5.36 kW
Annual energy consumption Qhe	4130 kWh	4425 kWh
Pdh Tj = -15°C (if TOL<-20°C)	5.39	4.37
COP Tj = -15°C (if TOL $<$ -20°C)	2.48	1.72
Cdh Tj = -15 °C	1.000	1.000

# Average Climate

EN 12102-1		
	Low temperature	Medium temperature
Sound power level indoor	41 dB(A)	44 dB(A)
Sound power level outdoor	54 dB(A)	54 dB(A)





	Low temperature	Medium temperature
$\eta_{s}$	171 %	131 %
Prated	7.08 kW	6.36 kW
SCOP	4.35	3.36
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	6.30 kW	5.62 kW
COP Tj = -7°C	2.58	2.00
Cdh Tj = -7 °C	1.000	1.000
Pdh Tj = $+2$ °C	3.90 kW	3.31 kW
COP Tj = +2°C	4.37	3.29
Cdh Tj = +2 °C	0.990	0.990
Pdh Tj = $+7^{\circ}$ C	2.72 kW	2.69 kW
COP Tj = +7°C	5.86	4.62
Cdh Tj = +7 °C	0.980	0.980
Pdh Tj = 12°C	3.28 kW	3.21 kW
COP Tj = 12°C	7.54	6.27
Cdh Tj = +12 °C	0.980	0.980
Pdh Tj = Tbiv	6.26 kW	5.62 kW
COP Tj = Tbiv	2.57	2.00
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	5.66 kW	4.92 kW





COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.38	1.84
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	1.000	1.000
WTOL	55 °C	55 °C
Poff	11 W	11 W
PTO	11 W	11 W
PSB	11 W	11 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	1.42 kW	1.44 kW

3364 kWh

3909 kWh

# Domestic Hot Water (DHW)

Annual energy consumption Qhe

### Warmer Climate

EN 16147	
Declared load profile	XL
Efficiency ηDHW	134 %
СОР	3.26
Heating up time	01:28 h:min
Standby power input	70.0 W
Reference hot water temperature	51.2 °C
Mixed water at 40°C	242



### Colder Climate

EN 16147		
Declared load profile	XL	
Efficiency ηDHW	102 %	
СОР	2.48	
Heating up time	02:03 h:min	
Standby power input	90.0 W	
Reference hot water temperature	46.9 °C	
Mixed water at 40°C	246	

# Average Climate

EN 16147		
Declared load profile	XL	
Efficiency ηDHW	112 %	
COP	2.73	
Heating up time	01:45 h:min	
Standby power input	80.0 W	
Reference hot water temperature	50.7 °C	
Mixed water at 40°C	246 I	