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#### **Login**

Summary of	VWL 75/5 AS 230V	Reg. No.	40049303	
Certificate Holder				
Name	Vaillant Deutschland GmbH & Co KG			
Address	Berghauser Straße 40	Zip	42859	
City	Remscheid	Country	Germany	
Certification Body	VDE Prüf- und Zertifizierungsir	VDE Prüf- und Zertifizierungsinstitut GmbH		
Subtype title	VWL 75/5 AS 230V	VWL 75/5 AS 230V		
Heat Pump Type	Outdoor Air/Water	Outdoor Air/Water		
Refrigerant	R410A	R410A		
Mass of Refrigerant	2.39 kg	2.39 kg		
Certification Date	10.03.2021	10.03.2021		

# 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

CEN heat pump

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	





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	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
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#### 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** 0 W 0 W Supplementary Heater: Type of energy input Electricity Electricity Supplementary Heater: PSUP 6.60 kW 5.36 kW

4106 kWh

3.36

1.94

0.990

4401 kWh

4.37

1.72

1.000

## **Average Climate**

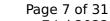
Cdh Tj = -15  $^{\circ}$ C

Annual energy consumption Qhe

Pdh Tj = -15°C (if TOL<-20°C)

COP Tj = -15°C (if TOL<-20°C)

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 = $-7^{\circ}$ 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
$COPTj = +7^{\circ}C$	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



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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

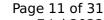
#### Warmer Climate





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°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	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

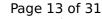
#### Colder Climate

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)





	Low temperature	MARK database on 7 Jul 202  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
$COP Tj = -7^{\circ}C$	3.51	2.53
Cdh Tj = -7 °C	0.990	0.990
Pdh Tj = $+2$ °C	2.31 kW	2.33 kW
$COP Tj = +2^{\circ}C$	4.66	3.78
Cdh Tj = $+2$ °C	0.980	0.980
Pdh Tj = $+7^{\circ}$ C	2.77 kW	2.77 kW
$COP Tj = +7^{\circ}C$	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

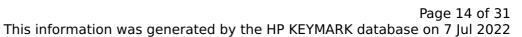




COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.09	1.72
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.990	1.000
WTOL	55 °C	55 °C
Poff	11 W	11 W
РТО	11 W	11 W
PSB	11 W	11 W
PCK	o w	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	6.60 kW	5.36 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

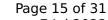
## **Average Climate**

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)





	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 = $-7^{\circ}$ 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
$COPTj = +7^{\circ}C$	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

# 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 I	

# 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	



# 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 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	

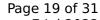
EN 14511-2		
	Low temperature	Medium temperature
Heat output	5.78 kW	4.95 kW
El input	1.26 kW	1.84 kW
СОР	4.58	2.69

#### Warmer Climate



# EN 12102-1 Low temperature Medium temperature Sound power level indoor 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°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

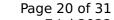




Pdh Tj = Tbiv	4.51 kW	3.94 kW
COP Tj = Tbiv	3.68	2.30
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	4.51 kW	3.94 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.68	2.30
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.99	0.99
WTOL	55 °C	55 °C
Poff	11 W	11 W
PTO	11 W	11 W
PSB	11 W	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)





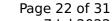
	Low temperature	Medium temperature
ης	155 %	116 %
Prated	6.60 kW	5.36 kW
SCOP	3.94	2.98
Tbiv	-15 °C	-15 °C
TOL	-20 °C	-15 °C
Pdh Tj = $-7^{\circ}$ C	3.89 kW	3.55 kW
$COP Tj = -7^{\circ}C$	3.51	2.53
Cdh Tj = -7 °C	0.990	0.990
Pdh Tj = $+2$ °C	2.31 kW	2.33 kW
COP Tj = +2°C	4.66	3.78
Cdh Tj = +2 °C	0.980	0.980
Pdh Tj = $+7^{\circ}$ 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	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°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
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
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°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

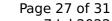




Pdh Tj = Tbiv	4.51 kW	3.94 kW
COP Tj = Tbiv	3.68	2.30
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	4.51 kW	3.94 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.68	2.30
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.99	0.99
WTOL	55 °C	55 °C
Poff	11 W	11 W
РТО	11 W	11 W
PSB	11 W	11 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	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
$COPTj = -7^{\circ}C$	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
$COP Tj = +7^{\circ}C$	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

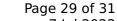




COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.09	1.72
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.990	1.000
WTOL	55 °C	55 °C
Poff	11 W	11 W
РТО	11 W	11 W
PSB	11 W	11 W
PCK	o w	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	6.60 kW	5.36 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

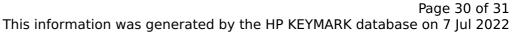
## **Average Climate**

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
$COP Tj = +2^{\circ}C$	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
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
Annual energy consumption Qhe	3364 kWh	3909 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 I	

# 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	