Summary of	VWL 77/5 230V / VWL 77/5 230V S2 / VWL 79/5 230V / VWL 79/5 230V S2	Reg. No.	40048834
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		
Name of testing laboratory	VDE Prüf- und Zertifizierungsinstitut GmbH		
Subtype title	VWL 77/5 230V / VWL 77/5 230V S2 / VWL 79/5 230V / VWL 79/5 230V S2		
Heat Pump Type	Outdoor Air/Water		
Refrigerant	R410a		
Mass Of Refrigerant	1.8 kg		

Model: VWL 77/5 230V

General Data	
Power supply	1x230V 50Hz

Heating

EN 14511-4	
Shutting off the heat transfer medium flow	passed
Complete power supply failure	passed
Starting and operating test	passed

EN 14511-2		
	Low temperature	**Medium temperature**
Heat output	5.73 kW	6.81 kW
El input	1.51 kW	2.62 kW
COP	3.77	2.64
Indoor water flow rate	1.20 m³/h	0.75 m³/h

Average Climate

EN 12102-1		
	Low temperature	**Medium temperature**
Sound power level indoor	47 dB(A)	47 dB(A)

EN 14825

	Low temperature	Medium temperature
η_s	172 %	132 %
Prated	5.73 kW	6.81 kW
SCOP	4.36	3.38
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	6.49 kW	5.59 kW
COP Tj = -7°C	2.64	1.98
Cdh	1.00	1.00
Pdh Tj = +2°C	3.80 kW	3.39 kW
COP Tj = +2°C	4.33	3.47
Cdh	1.00	1.00
Pdh Tj = +7°C	2.81 kW	2.61 kW
COP Tj = +7°C	5.98	4.38
Cdh	0.87	0.91
Pdh Tj = 12°C	3.42 kW	3.19 kW
COP Tj = 12°C	7.53	6.17
Cdh	0.89	0.90
Pdh Tj = Tbiv	6.49 kW	5.59 kW
COP Tj = Tbiv	2.64	1.98

Pdh Tj = TOL	5.92 kW	4.55 kW
COP Tj = TOL	2.43	1.79
WTOL	55 °C	55 °C
Poff	10 W	10 W
PTO	10 W	10 W
PSB	10 W	10 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	3475 kWh	3859 kWh

Warmer Climate

EN 14825		
	Low temperature	**Medium temperature**
η_s	220 %	151 %
Prated	5.73 kW	6.81 kW
SCOP	5.57	3.84
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	4.45 kW	4.33 kW
COP Tj = +2°C	3.67	2.45

Cdh	1.00	1.00
Pdh Tj = +7°C	2.78 kW	2.74 kW
COP Tj = +7°C	5.34	3.31
Cdh	1.00	0.93
Pdh Tj = 12°C	3.29 kW	3.11 kW
COP Tj = 12°C	7.28	5.43
Cdh	0.89	0.90
Pdh Tj = Tbiv	4.45 kW	4.33 kW
COP Tj = Tbiv	3.67	2.45
Pdh Tj = TOL	4.45 kW	4.33 kW
COP Tj = TOL	3.67	2.45
WTOL	55 °C	55 °C
Poff	10 W	10 W
PTO	10 W	10 W
PSB	10 W	10 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	1067 kWh	1541 kWh

Colder Climate

EN 14825

	Low temperature	Medium temperature
η_s	159 %	114 %
Prated	5.73 kW	6.81 kW
SCOP	4.04	2.92
Tbiv	-15 °C	-15 °C
TOL	-20 °C	-15 °C
Pdh Tj = -7°C	3.55 kW	3.77 kW
COP Tj = -7°C	3.42	2.53
Cdh	1.00	1.00
Pdh Tj = +2°C	2.51 kW	2.26 kW
COP Tj = +2°C	5.20	3.73
Cdh	0.91	1.00
Pdh Tj = +7°C	2.83 kW	2.66 kW
COP Tj = +7°C	6.19	4.80
Cdh	0.87	0.90
Pdh Tj = 12°C	3.38 kW	3.23 kW
COP Tj = 12°C	7.90	6.59
Cdh	0.89	0.90
Pdh Tj = Tbiv	5.10 kW	4.96 kW
COP Tj = Tbiv	2.37	1.95

Pdh Tj = TOL	3.77 kW	4.96 kW
COP Tj = TOL	2.27	1.95
WTOL	55 °C	55 °C
Poff	10 W	10 W
PTO	10 W	10 W
PSB	10 W	10 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	3817 kWh	5130 kWh
Pdh Tj = -15°C (if TOL<-20°C)	5.10	4.96
COP Tj = -15°C (if TOL<-20°C)	2.37	1.95
Cdh	1.00	1.00

Model: VWL 79/5 230V

General Data	
Power supply	1x230V 50Hz

Heating

EN 14511-4	
Shutting off the heat transfer medium flow	passed
Complete power supply failure	passed
Starting and operating test	passed

EN 14511-2	
	Medium temperature
Heat output	6.81 kW
El input	2.62 kW
COP	2.64
Indoor water flow rate	0.75 m³/h

Average Climate

EN 14825	
	Medium temperature
η_s	132 %

Prated	6.81 kW
SCOP	3.38
Tbiv	-7 °C
TOL	-10 °C
Pdh Tj = -7°C	5.59 kW
COP Tj = -7°C	1.98
Cdh	1.00
Pdh Tj = +2°C	3.39 kW
COP Tj = +2°C	3.47
Cdh	1.00
Pdh Tj = +7°C	2.61 kW
COP Tj = +7°C	4.38
Cdh	0.91
Pdh Tj = 12°C	3.19 kW
COP Tj = 12°C	6.17
Cdh	0.90
Pdh Tj = Tbiv	5.59 kW
COP Tj = Tbiv	1.98
Pdh Tj = TOL	4.55 kW
COP Tj = TOL	1.79
WTOL	55 °C

Poff	10 W
PTO	10 W
PSB	10 W
PCK	0 W
Supplementary Heater: Type of energy input	electricity
Supplementary Heater: PSUP	0.00 kW
Annual energy consumption Qhe	3859 kWh

EN 12102-1	
	Medium temperature
Sound power level indoor	50 dB(A)

Warmer Climate

EN 14825	
	Medium temperature
η_s	151 %
Prated	6.81 kW
SCOP	3.84
Tbiv	2 °C
TOL	2 °C
Pdh Tj = +2°C	4.33 kW

COP Tj = +2°C	2.45
Cdh	1.00
Pdh Tj = +7°C	2.74 kW
COP Tj = +7°C	3.31
Cdh	0.93
Pdh Tj = 12°C	3.11 kW
COP Tj = 12°C	5.43
Cdh	0.90
Pdh Tj = Tbiv	4.33 kW
COP Tj = Tbiv	2.45
Pdh Tj = TOL	4.33 kW
COP Tj = TOL	2.45
WTOL	55 °C
Poff	10 W
PTO	10 W
PSB	10 W
PCK	0 W
Supplementary Heater: Type of energy input	electricity
Supplementary Heater: PSUP	0.00 kW
Annual energy consumption Qhe	1541 kWh

Colder Climate

EN 14825

	Medium temperature
η_s	114 %
Prated	6.81 kW
SCOP	2.92
Tbiv	-15 °C
TOL	-15 °C
Pdh Tj = -7°C	3.77 kW
COP Tj = -7°C	2.53
Cdh	1.00
Pdh Tj = +2°C	2.26 kW
COP Tj = +2°C	3.73
Cdh	1.00
Pdh Tj = +7°C	2.66 kW
COP Tj = +7°C	4.80
Cdh	0.90
Pdh Tj = 12°C	3.23 kW
COP Tj = 12°C	6.59
Cdh	0.90
Pdh Tj = Tbiv	4.96 kW
COP Tj = Tbiv	1.95

Pdh Tj = TOL	4.96 kW
COP Tj = TOL	1.95
WTOL	55 °C
Poff	10 W
PTO	10 W
PSB	10 W
PCK	0 W
Supplementary Heater: Type of energy input	electricity
Supplementary Heater: PSUP	0.00 kW
Annual energy consumption Qhe	5130 kWh
Pdh Tj = -15°C (if TOL<-20°C)	4.96
COP Tj = -15°C (if TOL<-20°C)	1.95
Cdh	1.00

Domestic Hot Water (DHW)

Average Climate

EN 16147	
Declared load profile	XL
Efficiency ηDHW	96 %
COP	2.33
Heating up time	2:24 h:min
Standby power input	38.0 W
Reference hot water temperature	55.0 °C
Mixed water at 40°C	270 l

Warmer Climate

EN 16147	
Declared load profile	XL
Efficiency ηDHW	113 %
COP	2.75
Heating up time	1:15 h:min
Standby power input	34.0 W
Reference hot water temperature	55.0 °C
Mixed water at 40°C	275 l

Colder Climate

EN 16147	
Declared load profile	XL
Efficiency ηDHW	90 %
COP	2.19
Heating up time	2:51 h:min
Standby power input	39.0 W
Reference hot water temperature	55.0 °C
Mixed water at 40°C	266 l

Model: VWL 77/5 230V S2

General Data	
Power supply	1x230V 50Hz

Heating

EN 14511-4	
Shutting off the heat transfer medium flow	passed
Complete power supply failure	passed
Starting and operating test	passed

EN 14511-2		
	Low temperature	**Medium temperature**
Heat output	5.73 kW	6.81 kW
El input	1.51 kW	2.62 kW
COP	3.77	2.64
Indoor water flow rate	1.20 m³/h	0.75 m³/h

Average Climate

EN 12102-1		
	Low temperature	**Medium temperature**
Sound power level indoor	47 dB(A)	47 dB(A)

EN 14825

	Low temperature	Medium temperature
η_s	170 %	131 %
Prated	5.73 kW	6.81 kW
SCOP	4.32	3.35
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	6.49 kW	5.59 kW
COP Tj = -7°C	2.64	1.98
Cdh	1.00	1.00
Pdh Tj = +2°C	3.80 kW	3.39 kW
COP Tj = +2°C	4.33	3.47
Cdh	1.00	1.00
Pdh Tj = +7°C	2.81 kW	2.61 kW
COP Tj = +7°C	5.98	4.38
Cdh	0.87	0.91
Pdh Tj = 12°C	3.42 kW	3.19 kW
COP Tj = 12°C	7.53	6.17
Cdh	0.89	0.90
Pdh Tj = Tbiv	6.49 kW	5.59 kW
COP Tj = Tbiv	2.64	1.98

Pdh Tj = TOL	5.92 kW	4.55 kW
COP Tj = TOL	2.43	1.79
WTOL	55 °C	55 °C
Poff	10 W	10 W
PTO	10 W	10 W
PSB	10 W	10 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	3511 kWh	3896 kWh

Warmer Climate

EN 14825		
	Low temperature	**Medium temperature**
η_s	211 %	146 %
Prated	5.73 kW	6.81 kW
SCOP	5.35	3.73
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	4.45 kW	4.33 kW
COP Tj = +2°C	3.67	2.45

Cdh	1.00	1.00
Pdh Tj = +7°C	2.78 kW	2.74 kW
COP Tj = +7°C	5.34	3.31
Cdh	1.00	0.93
Pdh Tj = 12°C	3.29 kW	3.11 kW
COP Tj = 12°C	7.28	5.43
Cdh	0.89	0.90
Pdh Tj = Tbiv	4.45 kW	4.33 kW
COP Tj = Tbiv	3.67	2.45
Pdh Tj = TOL	4.45 kW	4.33 kW
COP Tj = TOL	3.67	2.45
WTOL	55 °C	55 °C
Poff	10 W	10 W
PTO	10 W	10 W
PSB	10 W	10 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	1111 kWh	1586 kWh

Colder Climate

EN 14825

	Low temperature	Medium temperature
η_s	158 %	113 %
Prated	5.73 kW	6.81 kW
SCOP	4.01	2.91
Tbiv	-15 °C	-15 °C
TOL	-20 °C	-15 °C
Pdh Tj = -7°C	3.55 kW	3.77 kW
COP Tj = -7°C	3.42	2.53
Cdh	1.00	1.00
Pdh Tj = +2°C	2.51 kW	2.26 kW
COP Tj = +2°C	5.20	3.73
Cdh	0.91	1.00
Pdh Tj = +7°C	2.83 kW	2.66 kW
COP Tj = +7°C	6.19	4.80
Cdh	0.87	0.90
Pdh Tj = 12°C	3.38 kW	3.23 kW
COP Tj = 12°C	7.90	6.59
Cdh	0.89	0.90
Pdh Tj = Tbiv	5.10 kW	4.96 kW
COP Tj = Tbiv	2.37	1.95

Pdh Tj = TOL	3.77 kW	4.96 kW
COP Tj = TOL	2.27	1.95
WTOL	55 °C	55 °C
Poff	10 W	10 W
PTO	10 W	10 W
PSB	10 W	10 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	3838 kWh	5153 kWh
Pdh Tj = -15°C (if TOL<-20°C)	5.10	4.96
COP Tj = -15°C (if TOL<-20°C)	2.37	1.95
Cdh	1.00	1.00

Model: VWL 79/5 230V S2

General Data	
Power supply	1x230V 50Hz

Heating

EN 14511-4	
Shutting off the heat transfer medium flow	passed
Complete power supply failure	passed
Starting and operating test	passed

EN 14511-2	
	Medium temperature
Heat output	6.81 kW
El input	2.62 kW
COP	2.64
Indoor water flow rate	0.75 m³/h

Average Climate

EN 14825	
	Medium temperature
η_s	131 %

Prated	6.81 kW
SCOP	3.35
Tbiv	-7 °C
TOL	-10 °C
Pdh Tj = -7°C	5.59 kW
COP Tj = -7°C	1.98
Cdh	1.00
Pdh Tj = +2°C	3.39 kW
COP Tj = +2°C	3.47
Cdh	1.00
Pdh Tj = +7°C	2.61 kW
COP Tj = +7°C	4.38
Cdh	0.91
Pdh Tj = 12°C	3.19 kW
COP Tj = 12°C	6.17
Cdh	0.90
Pdh Tj = Tbiv	5.59 kW
COP Tj = Tbiv	1.98
Pdh Tj = TOL	4.55 kW
COP Tj = TOL	1.79
WTOL	55 °C

Poff	10 W
PTO	10 W
PSB	10 W
PCK	0 W
Supplementary Heater: Type of energy input	electricity
Supplementary Heater: PSUP	0.00 kW
Annual energy consumption Qhe	3896 kWh

EN 12102-1	
	Medium temperature
Sound power level indoor	50 dB(A)

Warmer Climate

EN 14825	
	Medium temperature
η_s	146 %
Prated	6.81 kW
SCOP	3.73
Tbiv	2 °C
TOL	2 °C
Pdh Tj = +2°C	4.33 kW

COP Tj = +2°C	2.45
Cdh	1.00
Pdh Tj = +7°C	2.74 kW
COP Tj = +7°C	3.31
Cdh	0.93
Pdh Tj = 12°C	3.11 kW
COP Tj = 12°C	5.43
Cdh	0.90
Pdh Tj = Tbiv	4.33 kW
COP Tj = Tbiv	2.45
Pdh Tj = TOL	4.33 kW
COP Tj = TOL	2.45
WTOL	55 °C
Poff	10 W
PTO	10 W
PSB	10 W
PCK	0 W
Supplementary Heater: Type of energy input	electricity
Supplementary Heater: PSUP	0.00 kW
Annual energy consumption Qhe	1586 kWh

Colder Climate

EN 14825

	Medium temperature
η_s	113 %
Prated	6.81 kW
SCOP	2.91
Tbiv	-15 °C
TOL	-15 °C
Pdh Tj = -7°C	3.77 kW
COP Tj = -7°C	2.53
Cdh	1.00
Pdh Tj = +2°C	2.26 kW
COP Tj = +2°C	3.73
Cdh	1.00
Pdh Tj = +7°C	2.66 kW
COP Tj = +7°C	4.80
Cdh	0.90
Pdh Tj = 12°C	3.23 kW
COP Tj = 12°C	6.59
Cdh	0.90
Pdh Tj = Tbiv	4.96 kW
COP Tj = Tbiv	1.95

Pdh Tj = TOL	4.96 kW
COP Tj = TOL	1.95
WTOL	55 °C
Poff	10 W
PTO	10 W
PSB	10 W
PCK	0 W
Supplementary Heater: Type of energy input	electricity
Supplementary Heater: PSUP	0.00 kW
Annual energy consumption Qhe	5153 kWh
Pdh Tj = -15°C (if TOL<-20°C)	4.96
COP Tj = -15°C (if TOL<-20°C)	1.95
Cdh	1.00

Domestic Hot Water (DHW)

Average Climate

EN 16147	
Declared load profile	XL
Efficiency ηDHW	96 %
COP	2.33
Heating up time	2:24 h:min
Standby power input	38.0 W
Reference hot water temperature	55.0 °C
Mixed water at 40°C	270 l

Warmer Climate

EN 16147	
Declared load profile	XL
Efficiency ηDHW	113 %
COP	2.75
Heating up time	1:15 h:min
Standby power input	34.0 W
Reference hot water temperature	55.0 °C
Mixed water at 40°C	275 l

Colder Climate

EN 16147

Declared load profile	XL
Efficiency ηDHW	90 %
COP	2.19
Heating up time	2:51 h:min
Standby power input	39.0 W
Reference hot water temperature	55.0 °C
Mixed water at 40°C	266 l