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Summary of	HA 3-5 OS 230V / HA 5-5 OS 230V	Reg. No.	40049297	
Certificate H	Certificate Holder			
Name	Saunier Duval Brand Group			
Address		Zip		
City		Country	Germany	
Certification Body	VDE Prüf- und Zertifizierungsinstitut GmbH			
Subtype title	HA 3-5 OS 230V / HA 5-5 OS 230V			
Heat Pump Type	Outdoor Air/Water			
Refrigerant	R410A			
Mass of Refrigerant	1.5 kg			
Certification Date	29.04.2021			
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 16147:2017-08; EN 16147:2017+AC:2017 DIN EN 12			

Model: HA 3-5 OS 230V + HA 5-5 WSB

Configure model		
Model name	HA 3-5 OS 230V + HA 5-5 WSB	
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	
Operacing range outdoor exchanger/indoor exchanger lower inflictiower infliction	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	3.13 kW	2.73 kW	
El input	0.64 kW	1.05 kW	
СОР	4.89	2.62	

Warmer Climate



EN 12102-1			
	Low temperature	Medium temperature	
Sound power level indoor	41 dB(A)	41 dB(A)	
Sound power level outdoor	51 dB(A)	53 dB(A)	

EN 14825			
	Low temperature	Medium temperature	
η_{s}	253 %	156 %	
Prated	3.76 kW	3.31 kW	
SCOP	6.41	3.98	
Tbiv	2 °C	2 °C	
TOL	2 °C	2 °C	
Pdh Tj = +2°C	3.76 kW	3.31 kW	
COP Tj = +2°C	3.69	2.24	
Cdh Tj = +2 °C	0.990	0.990	
Pdh Tj = +7°C	2.25 kW	2.06 kW	
COP Tj = +7°C	5.81	3.36	
Cdh Tj = +7 °C	0.970	0.980	
Pdh Tj = 12°C	2.70 kW	2.41 kW	
COP Tj = 12°C	8.08	5.31	
Cdh Tj = +12 °C	0.970	0.980	





Pdh Tj = Tbiv	3.76 kW	3.31 kW
COP Tj = Tbiv	3.69	2.24
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	3.76 kW	3.31 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.69	2.24
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.990	0.990
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	783 kWh	1111 kWh
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Colder Climate

EN 12102-1			
Low temperature Medium temperature			
Sound power level indoor	41 dB(A)	41 dB(A)	
Sound power level outdoor	51 dB(A)	53 dB(A)	





	Low temperature	Medium temperature
η_{S}	155 %	107 %
Prated	3.91 kW	2.82 kW
SCOP	3.96	2.76
Tbiv	-13 °C	-15 °C
TOL	-20 °C	-15 °C
Pdh Tj = -7 °C	2.36 kW	1.78 kW
$COPTj = -7^{\circ}C$	3.44	2.32
Cdh Tj = -7 °C	0.990	0.990
Pdh Tj = $+2$ °C	1.96 kW	1.70 kW
$COPTj = +2^{\circ}C$	4.80	3.54
Cdh Tj = $+2$ °C	0.980	0.980
Pdh Tj = $+7$ °C	2.34 kW	2.09 kW
$COPTj = +7^{\circ}C$	6.54	4.79
Cdh Tj = +7 °C	0.970	0.980
Pdh Tj = 12°C	2.68 kW	2.43 kW
COP Tj = 12°C	8.00	6.07
Cdh Tj = +12 °C	0.970	0.970
Pdh Tj = Tbiv	2.99 kW	2.30 kW
COP Tj = Tbiv	2.80	1.72
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	2.22 kW	2.30 kW



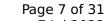


COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh 2.17 1.72 Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh 0.990 0.990 55 °C WTOL 55 °C Poff 11 W 11 W PTO 11 W 11 W **PSB** 11 W 11 W **PCK** 0 W 0 W Supplementary Heater: Type of energy input Electricity Electricity Supplementary Heater: PSUP 3.91 kW 2.82 kW Annual energy consumption Qhe 2439 kWh 2517 kWh 2.30 Pdh Tj = -15°C (if TOL<-20°C) 2.22 COP Tj = -15°C (if TOL<-20°C) 2.17 1.72 0.990 0.990

Average Climate

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

EN 12102-1			
	Low temperature	Medium temperature	
Sound power level indoor	41 dB(A)	41 dB(A)	
Sound power level outdoor	51 dB(A)	53 dB(A)	





	Low temperature	Medium temperature
ης	185 %	130 %
Prated	4.00 kW	3.51 kW
SCOP	4.70	3.33
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7° C	3.54 kW	3.10 kW
COP Tj = -7° C	3.19	2.08
Cdh Tj = -7 °C	0.990	0.990
Pdh Tj = $+2$ °C	2.18 kW	2.04 kW
COP Tj = +2°C	4.50	3.26
Cdh Tj = +2 °C	0.980	0.980
Pdh Tj = $+7^{\circ}$ C	2.32 kW	2.02 kW
$COP Tj = +7^{\circ}C$	6.15	4.36
Cdh Tj = $+7$ °C	0.970	0.980
Pdh Tj = 12°C	2.74 kW	2.44 kW
COP Tj = 12°C	8.42	5.86
Cdh Tj = +12 °C	0.970	0.980
Pdh Tj = Tbiv	3.54 kW	3.10 kW
COP Tj = Tbiv	3.19	2.08
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	3.24 kW	2.75 kW



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COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.86	1.80
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.990	0.990
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	0.76 kW	0.76 kW
Annual energy consumption Qhe	1758 kWh	2177 kWh

Model: HA 3-5 OS 230V + HA 5-5 STB

Configure model		
Model name	HA 3-5 OS 230V + HA 5-5 STB	
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	

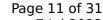
EN 14511-2		
	Low temperature	Medium temperature
Heat output	3.13 kW	2.73 kW
El input	0.64 kW	1.05 kW
СОР	4.89	2.62

Warmer Climate



EN 12102-1		
	Low temperature	Medium temperature
Sound power level indoor	44 dB(A)	44 dB(A)
Sound power level outdoor	51 dB(A)	53 dB(A)

EN 14825		
	Low temperature	Medium temperature
η_{s}	253 %	156 %
Prated	3.76 kW	3.31 kW
SCOP	6.41	3.98
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	3.76 kW	3.31 kW
COP Tj = +2°C	3.69	2.24
Cdh Tj = +2 °C	0.99	0.99
Pdh Tj = $+7^{\circ}$ C	2.25 kW	2.06 kW
$COP Tj = +7^{\circ}C$	5.81	3.36
Cdh Tj = +7 °C	0.97	0.98
Pdh Tj = 12°C	2.70 kW	2.41 kW
COP Tj = 12°C	8.08	5.31
Cdh Tj = +12 °C	0.97	0.98





Pdh Tj = Tbiv	3.76 kW	3.31 kW
COP Tj = Tbiv	3.69	2.24
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	3.76 kW	3.31 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.69	2.24
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	783 kWh	1111 kWh

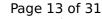
Colder Climate

EN 12102-1		
	Low temperature	Medium temperature
Sound power level indoor	44 dB(A)	44 dB(A)
Sound power level outdoor	51 dB(A)	53 dB(A)





This information was generated by the HP KEYMARK database on 7 Jul 2		
Low temperature	Medium temperature	
155 %	107 %	
3.91 kW	2.82 kW	
3.96	2.76	
-13 °C	-15 °C	
-20 °C	-15 °C	
2.36 kW	1.78 kW	
3.44	2.32	
0.990	0.990	
1.96 kW	1.70 kW	
4.80	3.54	
0.980	0.980	
2.34 kW	2.09 kW	
6.54	4.79	
0.970	0.980	
2.68 kW	2.43 kW	
8.00	6.07	
0.970	0.970	
2.99 kW	2.30 kW	
2.80	1.72	
2.22 kW	2.30 kW	
	Low temperature 155 % 3.91 kW 3.96 -13 °C -20 °C 2.36 kW 3.44 0.990 1.96 kW 4.80 0.980 2.34 kW 6.54 0.970 2.68 kW 8.00 0.970 2.99 kW 2.80	





COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.17	1.72
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.990	0.990
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	3.91 kW	2.82 kW
Annual energy consumption Qhe	2439 kWh	2517 kWh
Pdh Tj = -15°C (if TOL<-20°C)	2.22	2.30
COP Tj = -15°C (if TOL $<$ -20°C)	2.17	1.72
Cdh Tj = -15 °C	0.990	0.990

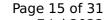
Average Climate

EN 12102-1		
	Low temperature	Medium temperature
Sound power level indoor	44 dB(A)	44 dB(A)
Sound power level outdoor	51 dB(A)	53 dB(A)





This information was generated by the HP KEYMARK database on 7 Jul 2		
	Low temperature	Medium temperature
η_{s}	185 %	130 %
Prated	4.00 kW	3.51 kW
SCOP	4.70	3.33
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7° C	3.54 kW	3.10 kW
$COP Tj = -7^{\circ}C$	3.19	2.08
Cdh Tj = -7 °C	0.990	0.990
Pdh Tj = $+2$ °C	2.18 kW	2.04 kW
$COP Tj = +2^{\circ}C$	4.50	3.26
Cdh Tj = +2 °C	0.980	0.980
Pdh Tj = $+7^{\circ}$ C	2.32 kW	2.02 kW
$COP Tj = +7^{\circ}C$	6.15	4.36
Cdh Tj = $+7$ °C	0.970	0.980
Pdh Tj = 12°C	2.74 kW	2.44 kW
COP Tj = 12°C	8.42	5.86
Cdh Tj = +12 °C	0.970	0.980
Pdh Tj = Tbiv	3.54 kW	3.10 kW
COP Tj = Tbiv	3.19	2.08
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	3.24 kW	2.75 kW





COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.86	1.80
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.990	0.990
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	0.76 kW	0.76 kW
Annual energy consumption Qhe	1758 kWh	2177 kWh

Domestic Hot Water (DHW)

Warmer Climate

EN 16147		
Declared load profile	L	
Efficiency ηDHW	120 %	
СОР	2.88	
Heating up time	02:06 h:min	
Standby power input	80.0 W	
Reference hot water temperature	50.5 °C	
Mixed water at 40°C	242 I	



Colder Climate

EN 16147		
Declared load profile	L	
Efficiency ηDHW	106 %	
СОР	2.55	
Heating up time	03:00 h:min	
Standby power input	80.0 W	
Reference hot water temperature	46.9 °C	
Mixed water at 40°C	246 I	

Average Climate

EN 16147		
Declared load profile	L	
Efficiency ηDHW	102 %	
СОР	2.45	
Heating up time	02:32 h:min	
Standby power input	80.0 W	
Reference hot water temperature	50.7 °C	
Mixed water at 40°C	246	



Model: HA 5-5 OS 230V + HA 5-5 WSB

Configure model		
Model name	HA 5-5 OS 230V + HA 5-5 WSB	
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	
Operacing range outdoor exchanger/indoor exchanger lower inflictiower infliction	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	

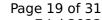
EN 14511-2		
	Low temperature	Medium temperature
Heat output	4.42 kW	3.69 kW
El input	0.95 kW	1.38 kW
СОР	4.68	2.67

Warmer Climate



EN 12102-1		
	Low temperature	Medium temperature
Sound power level indoor	41 dB(A)	41 dB(A)
Sound power level outdoor	53 dB(A)	54 dB(A)

EN 14825		
	Low temperature	Medium temperature
η_{s}	253 %	156 %
Prated	3.76 kW	3.30 kW
SCOP	6.41	3.98
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	3.76 kW	3.30 kW
COP Tj = +2°C	3.69	2.24
Cdh Tj = +2 °C	0.99	0.99
Pdh Tj = $+7^{\circ}$ C	2.25 kW	2.06 kW
$COP Tj = +7^{\circ}C$	5.81	3.36
Cdh Tj = +7 °C	0.97	0.98
Pdh Tj = 12°C	2.70 kW	2.41 kW
COP Tj = 12°C	8.08	5.31
Cdh Tj = +12 °C	0.97	0.98

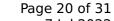




Pdh Tj = Tbiv	3.76 kW	3.30 kW
COP Tj = Tbiv	3.69	2.24
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	3.76 kW	3.30 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.69	2.24
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.99	0.99
WTOL	55 °C	55 °C
Poff	11 W	11 W
РТО	11 W	11 W
PSB	11 W	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	783 kWh	1108 kWh

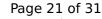
Colder Climate

EN 12102-1		
	Low temperature	Medium temperature
Sound power level indoor	41 dB(A)	41 dB(A)
Sound power level outdoor	53 dB(A)	54 dB(A)





	Low temperature	Medium temperature
η_{S}	158 %	110 %
Prated	5.19 kW	4.00 kW
SCOP	4.02	2.83
Tbiv	-15 °C	-15 °C
TOL	-20 °C	-15 °C
Pdh Tj = -7 °C	2.96 kW	2.44 kW
COP Tj = -7° C	3.41	2.42
Cdh Tj = -7 °C	0.990	0.990
Pdh Tj = $+2$ °C	1.97 kW	1.72 kW
$COP Tj = +2^{\circ}C$	4.87	3.56
Cdh Tj = +2 °C	0.980	0.980
Pdh Tj = $+7^{\circ}$ C	2.36 kW	2.11 kW
$COPTj = +7^{\circ}C$	6.57	4.89
Cdh Tj = $+7$ °C	0.970	0.980
Pdh Tj = 12°C	2.68 kW	2.52 kW
COP Tj = 12°C	8.00	6.71
Cdh Tj = +12 °C	0.970	0.970
Pdh Tj = Tbiv	4.24 kW	3.26 kW
COP Tj = Tbiv	2.42	1.68
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	3.30 kW	3.26 kW

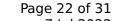




COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.11	1.68
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.990	0.990
WTOL	55 °C	55 °C
Poff	11 W	11 W
PTO	11 W	11 W
PSB	11 W	11 W
PCK	o w	o w
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	5.19 kW	4.00 kW
Annual energy consumption Qhe	3182 kWh	3485 kWh
Pdh Tj = -15°C (if TOL<-20°C)	3.30	3.26
COP Tj = -15°C (if TOL $<$ -20°C)	2.11	1.68
Cdh Tj = -15 °C	0.990	0.990

Average Climate

EN 12102-1		
	Low temperature	Medium temperature
Sound power level indoor	41 dB(A)	41 dB(A)
Sound power level outdoor	53 dB(A)	54 dB(A)





	Low temperature	Medium temperature
η_{S}	175 %	135 %
Prated	5.22 kW	5.24 kW
SCOP	4.44	3.46
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7 °C	4.83 kW	4.33 kW
COP Tj = -7 °C	2.71	2.00
Cdh Tj = -7 °C	0.990	1.000
Pdh Tj = $+2$ °C	2.67 kW	2.57 kW
$COP Tj = +2^{\circ}C$	4.26	3.36
Cdh Tj = $+2$ °C	0.980	0.990
Pdh Tj = $+7^{\circ}$ C	2.30 kW	2.09 kW
$COP Tj = +7^{\circ}C$	6.06	4.67
Cdh Tj = $+7$ °C	0.970	0.980
Pdh Tj = 12°C	2.71 kW	2.52 kW
COP Tj = 12°C	8.39	6.41
Cdh Tj = +12 °C	0.970	0.970
Pdh Tj = Tbiv	4.61 kW	4.63 kW
COP Tj = Tbiv	2.64	2.07
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	4.90 kW	3.72 kW



COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.59	1.81
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.990	0.990
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	0.32 kW	1.50 kW
Annual energy consumption Qhe	2427 kWh	3129 kWh



Model: HA 5-5 OS 230V + HA 5-5 STB

Configure model		
Model name	HA 5-5 OS 230V + HA 5-5 STB	
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

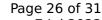
EN 14511-2		
	Low temperature	Medium temperature
Heat output	4.42 kW	3.69 kW
El input	0.95 kW	1.38 kW
СОР	4.68	2.67

Warmer Climate



EN 12102-1		
	Low temperature	Medium temperature
Sound power level indoor	43 dB(A)	43 dB(A)
Sound power level outdoor	53 dB(A)	54 dB(A)

EN 14825		
	Low temperature	Medium temperature
η_{s}	253 %	156 %
Prated	3.76 kW	3.30 kW
SCOP	6.41	3.98
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	3.76 kW	3.30 kW
COP Tj = +2°C	3.69	2.24
Cdh Tj = +2 °C	0.99	0.99
Pdh Tj = +7°C	2.25 kW	2.06 kW
COP Tj = +7°C	5.81	3.36
Cdh Tj = +7 °C	0.97	0.98
Pdh Tj = 12°C	2.70 kW	2.41 kW
COP Tj = 12°C	8.08	5.31
Cdh Tj = +12 °C	0.97	0.98

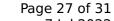




Pdh Tj = Tbiv	3.76 kW	3.30 kW
COP Tj = Tbiv	3.69	2.24
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	3.76 kW	3.30 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.69	2.24
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.99	0.99
WTOL	55 °C	55 °C
Poff	11 W	11 W
РТО	11 W	11 W
PSB	11 W	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	783 kWh	1108 kWh

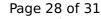
Colder Climate

EN 12102-1		
	Low temperature	Medium temperature
Sound power level indoor	43 dB(A)	43 dB(A)
Sound power level outdoor	53 dB(A)	54 dB(A)





	Low temperature	Medium temperature
η_{S}	158 %	110 %
Prated	5.19 kW	4.00 kW
SCOP	4.02	2.83
Tbiv	-15 °C	-15 °C
TOL	-20 °C	-15 °C
Pdh Tj = -7 °C	2.96 kW	2.44 kW
COP Tj = -7° C	3.41	2.42
Cdh Tj = -7 °C	0.990	0.990
Pdh Tj = $+2$ °C	1.97 kW	1.72 kW
$COP Tj = +2^{\circ}C$	4.87	3.56
Cdh Tj = +2 °C	0.980	0.980
Pdh Tj = $+7^{\circ}$ C	2.36 kW	2.11 kW
$COPTj = +7^{\circ}C$	6.57	4.89
Cdh Tj = $+7$ °C	0.970	0.980
Pdh Tj = 12°C	2.68 kW	2.52 kW
COP Tj = 12°C	8.00	6.71
Cdh Tj = +12 °C	0.970	0.970
Pdh Tj = Tbiv	4.24 kW	3.26 kW
COP Tj = Tbiv	2.42	1.68
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	3.30 kW	3.26 kW

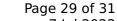




COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.11	1.68
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.990	0.990
WTOL	55 °C	55 °C
Poff	11 W	11 W
РТО	11 W	11 W
PSB	11 W	11 W
PCK	o w	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	5.19 kW	4.00 kW
Annual energy consumption Qhe	3182 kWh	3485 kWh
Pdh Tj = -15°C (if TOL<-20°C)	3.30	3.26
COP Tj = -15°C (if TOL $<$ -20°C)	2.11	1.68
Cdh Tj = -15 °C	0.990	0.990

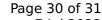
Average Climate

EN 12102-1		
	Low temperature	Medium temperature
Sound power level indoor	43 dB(A)	43 dB(A)
Sound power level outdoor	53 dB(A)	54 dB(A)





	Low temperature	Medium temperature
η_{s}	175 %	135 %
Prated	5.22 kW	5.24 kW
SCOP	4.44	3.46
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	4.83 kW	4.33 kW
COP Tj = -7°C	2.71	2.00
Cdh Tj = -7 °C	0.990	1.000
Pdh Tj = $+2$ °C	2.67 kW	2.57 kW
COP Tj = +2°C	4.26	3.36
Cdh Tj = +2 °C	0.980	0.990
Pdh Tj = +7°C	2.30 kW	2.09 kW
$COPTj = +7^{\circ}C$	6.06	4.67
Cdh Tj = +7 °C	0.970	0.980
Pdh Tj = 12°C	2.71 kW	2.52 kW
COP Tj = 12°C	8.39	6.41
Cdh Tj = +12 °C	0.970	0.970
Pdh Tj = Tbiv	4.61 kW	4.63 kW
COP Tj = Tbiv	2.64	2.07
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL $<$ Tdesignh	4.90 kW	3.72 kW





COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.59	1.81
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.990	0.990
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	0.32 kW	1.54 kW
Annual energy consumption Qhe	2427 kWh	3129 kWh

Domestic Hot Water (DHW)

Warmer Climate

EN 16147		
Declared load profile	L	
Efficiency ηDHW	120 %	
СОР	2.88	
Heating up time	02:06 h:min	
Standby power input	80.0 W	
Reference hot water temperature	50.5 °C	
Mixed water at 40°C	242	



Colder Climate

EN 16147		
Declared load profile	L	
Efficiency ηDHW	106 %	
СОР	2.55	
Heating up time	03:00 h:min	
Standby power input	80.0 W	
Reference hot water temperature	46.9 °C	
Mixed water at 40°C	246	

Average Climate

EN 16147		
Declared load profile	L	
Efficiency ηDHW	1.02 %	
СОР	2.45	
Heating up time	02:32 h:min	
Standby power input	80.0 W	
Reference hot water temperature	50.7 °C	
Mixed water at 40°C	246 I	