Summary of	HA 10-5 OS 230V / HA 12-5 OS 230V / HA 10-5 OS / HA 12-5 OS	Reg. No.	40049244
Certificate Holder			
Name	Saunier Duval Brand Group		
Address		Zip	
City		Country	Germany
Certification Body	VDE Prüf- und Zertifizierungsinstitut GmbH		
Name of testing laboratory	VDE Prüf- und Zertifizierungsinstitut GmbH		
Subtype title	HA 10-5 OS 230V / HA 12-5 OS 230V / HA 10-5 OS / HA 12-5 OS		
Heat Pump Type	Outdoor Air/Water		
Refrigerant	R410a		
Mass Of Refrigerant	3.6 kg		

Model: HA 10-5 OS 230V + HA 12-5 WSB

General Data	
Power supply	1x230V 50Hz

Heating

EN 14511-2		
	Low temperature	**Medium temperature**
Heat output	9.62 kW	10.27 kW
El input	2.07 kW	3.69 kW
COP	4.65	2.78
Indoor water flow rate	1.70 m³/h	1.13 m³/h

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

Average Climate

EN 12102-1		
	Low temperature	**Medium temperature**
Sound power level indoor	42 dB(A)	45 dB(A)
Sound power level outdoor	58 dB(A)	60 dB(A)

EN 14825		
	Low temperature	**Medium temperature**
η_s	185 %	130 %
Prated	11.57 kW	9.63 kW
SCOP	4.70	3.33
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	10.23 kW	8.51 kW
COP Tj = -7°C	2.84	2.13
Cdh	0.99	0.99
Pdh Tj = +2°C	6.59 kW	5.10 kW
COP Tj = +2°C	4.69	3.19
Cdh	0.99	0.99
Pdh Tj = +7°C	5.71 kW	5.23 kW
COP Tj = +7°C	6.01	4.38
Cdh	0.99	0.99

Pdh Tj = 12°C	6.57 kW	6.16 kW
COP Tj = 12°C	7.70	5.99
Cdh	0.99	0.99
Pdh Tj = Tbiv	10.23 kW	8.51 kW
COP Tj = Tbiv	2.84	2.13
Pdh Tj = TOL	10.11 kW	8.03 kW
COP Tj = TOL	2.73	1.71
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	1.46 kW	1.60 kW
Annual energy consumption Qhe	5087 kWh	5969 kWh

Warmer Climate

EN 14825		
	Low temperature	**Medium temperature**
η_s	220 %	162 %
Prated	8.28 kW	9.34 kW

SCOP	5.56	4.12
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	8.28 kW	9.35 kW
COP Tj = +2°C	3.69	2.43
Cdh	0.99	0.99
Pdh Tj = +7°C	5.45 kW	5.78 kW
COP Tj = +7°C	5.08	3.43
Cdh	0.99	0.99
Pdh Tj = 12°C	6.05 kW	6.21 kW
COP Tj = 12°C	6.54	5.36
Cdh	0.99	0.99
Pdh Tj = Tbiv	8.28 kW	9.34 kW
COP Tj = Tbiv	3.69	2.43
Pdh Tj = TOL	8.28 kW	9.35 kW
COP Tj = TOL	3.69	2.43
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	1989 kWh	3030 kWh

Colder Climate

EN 14825		
	Low temperature	**Medium temperature**
η_s	156 %	113 %
Prated	9.56 kW	9.48 kW
SCOP	3.97	2.90
Tbiv	-15 °C	-15 °C
TOL	-20 °C	-15 °C
Pdh Tj = -7°C	6.38 kW	6.19 kW
COP Tj = -7°C	3.47	2.58
Cdh	0.99	0.99
Pdh Tj = +2°C	5.00 kW	4.53 kW
COP Tj = +2°C	4.67	3.52
Cdh	0.99	0.99
Pdh Tj = +7°C	5.59 kW	5.37 kW
COP Tj = +7°C	6.11	4.72
Cdh	0.99	0.99

Pdh Tj = 12°C	6.50 kW	6.26 kW
COP Tj = 12°C	7.62	6.21
Cdh	0.99	0.99
Pdh Tj = Tbiv	7.80 kW	7.74 kW
COP Tj = Tbiv	2.35	1.89
Pdh Tj = TOL	7.46 kW	7.74 kW
COP Tj = TOL	2.23	1.89
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	1.59 kW	8.98 kW
Annual energy consumption Qhe	5933 kWh	8070 kWh
Pdh Tj = -15°C (if TOL<-20°C)	7.46	7.74
COP Tj = -15°C (if TOL<-20°C)	2.23	1.89
Cdh	0.99	0.99

Model: HA 10-5 OS + HA 12-5 WSB

General Data	
Power supply	3x400V 50Hz

Heating

EN 14511-2		
	Low temperature	**Medium temperature**
Heat output	9.62 kW	10.27 kW
El input	2.07 kW	3.69 kW
COP	4.65	2.78
Indoor water flow rate	1.70 m³/h	1.13 m³/h

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

Average Climate

EN 12102-1		
	Low temperature	**Medium temperature**
Sound power level indoor	42 dB(A)	45 dB(A)
Sound power level outdoor	58 dB(A)	59 dB(A)

EN 14825		
	Low temperature	**Medium temperature**
η_s	185 %	130 %
Prated	11.57 kW	9.63 kW
SCOP	4.69	3.33
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	10.23 kW	8.51 kW
COP Tj = -7°C	2.84	2.13
Cdh	0.98	0.99
Pdh Tj = +2°C	6.59 kW	5.10 kW
COP Tj = +2°C	4.69	3.19
Cdh	0.98	0.99
Pdh Tj = +7°C	5.71 kW	5.23 kW
COP Tj = +7°C	6.01	4.38
Cdh	0.98	0.99

Pdh Tj = 12°C	6.57 kW	6.16 kW
COP Tj = 12°C	7.70	5.99
Cdh	0.98	0.99
Pdh Tj = Tbiv	10.23 kW	8.51 kW
COP Tj = Tbiv	2.84	2.13
Pdh Tj = TOL	10.11 kW	8.03 kW
COP Tj = TOL	2.73	1.71
WTOL	55 °C	55 °C
Poff	17 W	17 W
PTO	17 W	17 W
PSB	17 W	17 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	electricity	electricity
Supplementary Heater: PSUP	1.46 kW	1.60 kW
Annual energy consumption Qhe	5097 kWh	5980 kWh

Warmer Climate

EN 14825		
	Low temperature	**Medium temperature**
η_s	218 %	161 %
Prated	8.28 kW	9.34 kW

SCOP	5.53	4.10
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	8.28 kW	9.35 kW
COP Tj = +2°C	3.69	2.43
Cdh	0.98	0.99
Pdh Tj = +7°C	5.45 kW	5.78 kW
COP Tj = +7°C	5.08	3.43
Cdh	0.98	0.99
Pdh Tj = 12°C	6.05 kW	6.21 kW
COP Tj = 12°C	6.54	5.36
Cdh	0.98	0.99
Pdh Tj = Tbiv	8.28 kW	9.34 kW
COP Tj = Tbiv	3.69	2.43
Pdh Tj = TOL	8.28 kW	9.35 kW
COP Tj = TOL	3.69	2.43
WTOL	55 °C	55 °C
Poff	17 W	17 W
PTO	17 W	17 W
PSB	17 W	17 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	2002 kWh	3043 kWh

Colder Climate

EN 14825		
	Low temperature	**Medium temperature**
η_s	156 %	113 %
Prated	9.56 kW	9.48 kW
SCOP	3.96	2.89
Tbiv	-15 °C	-15 °C
TOL	-20 °C	-15 °C
Pdh Tj = -7°C	6.38 kW	6.19 kW
COP Tj = -7°C	3.47	2.58
Cdh	0.98	0.98
Pdh Tj = +2°C	5.00 kW	4.53 kW
COP Tj = +2°C	4.67	3.52
Cdh	0.98	0.98
Pdh Tj = +7°C	5.59 kW	5.37 kW
COP Tj = +7°C	6.11	4.72
Cdh	0.98	0.98

Pdh Tj = 12°C	6.50 kW	6.26 kW
COP Tj = 12°C	7.62	6.21
Cdh	0.98	0.98
Pdh Tj = Tbiv	7.80 kW	7.74 kW
COP Tj = Tbiv	2.35	1.89
Pdh Tj = TOL	7.46 kW	7.74 kW
COP Tj = TOL	2.23	1.89
WTOL	55 °C	55 °C
Poff	17 W	17 W
PTO	17 W	17 W
PSB	17 W	17 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	electricity	electricity
Supplementary Heater: PSUP	1.59 kW	8.98 kW
Annual energy consumption Qhe	5948 kWh	8084 kWh
Pdh Tj = -15°C (if TOL<-20°C)	7.46	7.74
COP Tj = -15°C (if TOL<-20°C)	2.23	1.89
Cdh	0.98	0.98

Model: HA 12-5 OS 230V + HA 12-5 WSB

General Data	
Power supply	1x230V 50Hz

Heating

EN 14511-2		
	Low temperature	**Medium temperature**
Heat output	10.17 kW	10.82 kW
El input	2.21 kW	3.89 kW
COP	4.61	2.78
Indoor water flow rate	1.80 m³/h	1.18 m³/h

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

Average Climate

EN 12102-1		
	Low temperature	**Medium temperature**
Sound power level indoor	45 dB(A)	45 dB(A)
Sound power level outdoor	59 dB(A)	60 dB(A)

EN 14825		
	Low temperature	**Medium temperature**
η_s	179 %	135 %
Prated	13.64 kW	11.04 kW
SCOP	4.55	3.44
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	12.07 kW	9.76 kW
COP Tj = -7°C	2.52	2.16
Cdh	0.99	0.99
Pdh Tj = +2°C	7.27 kW	5.87 kW
COP Tj = +2°C	4.56	3.30
Cdh	0.99	0.99
Pdh Tj = +7°C	5.74 kW	5.28 kW
COP Tj = +7°C	6.06	4.60
Cdh	0.99	0.99

Pdh Tj = 12°C	6.50 kW	6.12 kW
COP Tj = 12°C	7.73	6.06
Cdh	0.99	0.99
Pdh Tj = Tbiv	12.07 kW	9.76 kW
COP Tj = Tbiv	2.52	2.16
Pdh Tj = TOL	12.50 kW	9.02 kW
COP Tj = TOL	2.47	1.85
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	1.14 kW	2.01 kW
Annual energy consumption Qhe	6188 kWh	6619 kWh

Warmer Climate

EN 14825		
	Low temperature	**Medium temperature**
η_s	214 %	162 %
Prated	8.28 kW	9.34 kW

SCOP	5.43	4.12
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	8.28 kW	9.35 kW
COP Tj = +2°C	3.69	2.43
Cdh	0.99	0.99
Pdh Tj = +7°C	5.45 kW	5.78 kW
COP Tj = +7°C	5.08	3.43
Cdh	0.99	0.99
Pdh Tj = 12°C	6.05 kW	6.21 kW
COP Tj = 12°C	6.54	5.36
Cdh	0.99	0.99
Pdh Tj = Tbiv	8.28 kW	9.34 kW
COP Tj = Tbiv	3.69	2.43
Pdh Tj = TOL	8.28 kW	9.35 kW
COP Tj = TOL	3.69	2.43
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	2038 kWh	3030 kWh

Colder Climate

EN 14825		
	Low temperature	**Medium temperature**
η_s	157 %	113 %
Prated	12.38 kW	10.35 kW
SCOP	4.00	2.90
Tbiv	-15 °C	-15 °C
TOL	-20 °C	-15 °C
Pdh Tj = -7°C	8.11 kW	6.55 kW
COP Tj = -7°C	3.44	2.59
Cdh	0.99	0.99
Pdh Tj = +2°C	5.01 kW	4.53 kW
COP Tj = +2°C	4.84	3.52
Cdh	0.99	0.99
Pdh Tj = +7°C	5.80 kW	5.39 kW
COP Tj = +7°C	6.18	4.74
Cdh	0.99	0.99

Pdh Tj = 12°C	6.54 kW	6.16 kW
COP Tj = 12°C	7.33	6.31
Cdh	0.99	0.99
Pdh Tj = Tbiv	10.10 kW	8.44 kW
COP Tj = Tbiv	2.27	1.84
Pdh Tj = TOL	8.69 kW	8.44 kW
COP Tj = TOL	2.18	1.84
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	3.04 kW	9.80 kW
Annual energy consumption Qhe	7634 kWh	8799 kWh
Pdh Tj = -15°C (if TOL<-20°C)	8.69	8.44
COP Tj = -15°C (if TOL<-20°C)	2.18	1.84
Cdh	0.99	0.99

Model: HA 12-5 OS + HA 12-5 WSB

General Data	
Power supply	3x400V 50Hz

Heating

EN 14511-2		
	Low temperature	**Medium temperature**
Heat output	10.17 kW	10.82 kW
El input	2.21 kW	3.89 kW
COP	4.61	2.78
Indoor water flow rate	1.80 m³/h	1.18 m³/h

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

Average Climate

EN 12102-1		
	Low temperature	**Medium temperature**
Sound power level indoor	45 dB(A)	45 dB(A)
Sound power level outdoor	58 dB(A)	60 dB(A)

EN 14825		
	Low temperature	**Medium temperature**
η_s	179 %	135 %
Prated	13.64 kW	11.04 kW
SCOP	4.55	3.44
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	12.07 kW	9.76 kW
COP Tj = -7°C	2.52	2.16
Cdh	0.98	0.98
Pdh Tj = +2°C	7.27 kW	5.87 kW
COP Tj = +2°C	4.56	3.30
Cdh	0.98	0.98
Pdh Tj = +7°C	5.74 kW	5.28 kW
COP Tj = +7°C	6.06	4.60
Cdh	0.98	0.98

Pdh Tj = 12°C	6.50 kW	6.12 kW
COP Tj = 12°C	7.73	6.06
Cdh	0.98	0.98
Pdh Tj = Tbiv	12.07 kW	9.76 kW
COP Tj = Tbiv	2.52	2.16
Pdh Tj = TOL	12.50 kW	9.02 kW
COP Tj = TOL	2.47	1.85
WTOL	55 °C	55 °C
Poff	17 W	17 W
PTO	17 W	17 W
PSB	17 W	17 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	electricity	electricity
Supplementary Heater: PSUP	1.14 kW	2.01 kW
Annual energy consumption Qhe	6196 kWh	6628 kWh

Warmer Climate

EN 14825		
	Low temperature	**Medium temperature**
η_s	218 %	161 %
Prated	8.28 kW	9.34 kW

SCOP	5.53	4.10
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	8.28 kW	9.35 kW
COP Tj = +2°C	3.69	2.43
Cdh	0.98	0.99
Pdh Tj = +7°C	5.45 kW	5.78 kW
COP Tj = +7°C	5.08	3.43
Cdh	0.98	0.99
Pdh Tj = 12°C	6.05 kW	6.21 kW
COP Tj = 12°C	6.54	5.36
Cdh	0.98	0.99
Pdh Tj = Tbiv	8.28 kW	9.34 kW
COP Tj = Tbiv	3.69	2.43
Pdh Tj = TOL	8.28 kW	9.35 kW
COP Tj = TOL	3.69	2.43
WTOL	55 °C	55 °C
Poff	17 W	17 W
PTO	17 W	17 W
PSB	17 W	17 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	2002 kWh	3043 kWh

Colder Climate

EN 14825		
	Low temperature	**Medium temperature**
η_s	157 %	113 %
Prated	12.38 kW	10.35 kW
SCOP	3.99	2.89
Tbiv	-15 °C	-15 °C
TOL	-20 °C	-15 °C
Pdh Tj = -7°C	8.11 kW	6.55 kW
COP Tj = -7°C	3.44	2.59
Cdh	0.98	0.98
Pdh Tj = +2°C	5.01 kW	4.53 kW
COP Tj = +2°C	4.84	3.52
Cdh	0.98	0.98
Pdh Tj = +7°C	5.80 kW	5.39 kW
COP Tj = +7°C	6.18	4.74
Cdh	0.98	0.98

Pdh Tj = 12°C	6.54 kW	6.16 kW
COP Tj = 12°C	7.33	6.31
Cdh	0.98	0.98
Pdh Tj = Tbiv	10.10 kW	8.44 kW
COP Tj = Tbiv	2.27	1.84
Pdh Tj = TOL	8.69 kW	8.44 kW
COP Tj = TOL	2.18	1.84
WTOL	55 °C	55 °C
Poff	17 W	17 W
PTO	17 W	17 W
PSB	17 W	17 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	electricity	electricity
Supplementary Heater: PSUP	3.04 kW	9.80 kW
Annual energy consumption Qhe	7634 kWh	8811 kWh
Pdh Tj = -15°C (if TOL<-20°C)	8.69	8.44
COP Tj = -15°C (if TOL<-20°C)	2.18	1.84
Cdh	0.98	0.98

Model: HA 10-5 OS 230V + HA 12-5 STB

General Data	
Power supply	1x230V 50Hz

Heating

EN 14511-2		
	Low temperature	**Medium temperature**
Heat output	9.62 kW	10.27 kW
El input	2.07 kW	3.69 kW
COP	4.65	2.78
Indoor water flow rate	1.70 m³/h	1.13 m³/h

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

Average Climate

EN 12102-1

	Low temperature	Medium temperature
Sound power level indoor	58 dB(A)	60 dB(A)
Sound power level outdoor	42 dB(A)	45 dB(A)

EN 14825

	Low temperature	Medium temperature
η_s	185 %	130 %
Prated	11.57 kW	9.63 kW
SCOP	4.70	3.33
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	10.23 kW	8.51 kW
COP Tj = -7°C	2.84	2.13
Cdh	0.99	0.99
Pdh Tj = +2°C	6.59 kW	5.10 kW
COP Tj = +2°C	4.69	3.19
Cdh	0.99	0.99
Pdh Tj = +7°C	5.71 kW	5.23 kW
COP Tj = +7°C	6.01	4.38
Cdh	0.99	0.99

Pdh Tj = 12°C	6.57 kW	6.16 kW
COP Tj = 12°C	7.70	5.99
Cdh	0.99	0.99
Pdh Tj = Tbiv	10.23 kW	8.51 kW
COP Tj = Tbiv	2.84	2.13
Pdh Tj = TOL	10.11 kW	8.03 kW
COP Tj = TOL	2.73	1.71
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	1.46 kW	1.60 kW
Annual energy consumption Qhe	5087 kWh	5969 kWh

Warmer Climate

EN 14825		
	Low temperature	**Medium temperature**
η_s	220 %	162 %
Prated	8.28 kW	9.34 kW

SCOP	5.56	4.12
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	8.28 kW	9.35 kW
COP Tj = +2°C	3.69	2.43
Cdh	0.99	0.99
Pdh Tj = +7°C	5.45 kW	5.78 kW
COP Tj = +7°C	5.08	3.43
Cdh	0.99	0.99
Pdh Tj = 12°C	6.05 kW	6.21 kW
COP Tj = 12°C	6.54	5.36
Cdh	0.99	0.99
Pdh Tj = Tbiv	8.28 kW	9.34 kW
COP Tj = Tbiv	3.69	2.43
Pdh Tj = TOL	8.28 kW	9.35 kW
COP Tj = TOL	3.69	2.43
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	1989 kWh	3030 kWh

Colder Climate

EN 14825		
	Low temperature	**Medium temperature**
η_s	156 %	113 %
Prated	9.56 kW	9.48 kW
SCOP	3.97	2.89
Tbiv	-15 °C	-15 °C
TOL	-20 °C	-15 °C
Pdh Tj = -7°C	6.38 kW	6.19 kW
COP Tj = -7°C	3.47	2.58
Cdh	0.99	0.98
Pdh Tj = +2°C	5.00 kW	4.53 kW
COP Tj = +2°C	4.67	3.52
Cdh	0.99	0.98
Pdh Tj = +7°C	5.59 kW	5.37 kW
COP Tj = +7°C	6.11	4.72
Cdh	0.99	0.98

Pdh Tj = 12°C	6.50 kW	6.26 kW
COP Tj = 12°C	7.62	6.21
Cdh	0.99	0.98
Pdh Tj = Tbiv	7.80 kW	7.74 kW
COP Tj = Tbiv	2.35	1.89
Pdh Tj = TOL	7.46 kW	7.74 kW
COP Tj = TOL	2.23	1.89
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	1.59 kW	8.98 kW
Annual energy consumption Qhe	5933 kWh	8084 kWh
Pdh Tj = -15°C (if TOL<-20°C)	7.46	7.74
COP Tj = -15°C (if TOL<-20°C)	2.23	1.89
Cdh	0.99	0.98

Domestic Hot Water (DHW)

Average Climate

EN 16147	
Declared load profile	XL
Efficiency ηDHW	97 %
COP	2.36
Heating up time	01:04 h:min
Standby power input	44.6 W
Reference hot water temperature	53.7 °C
Mixed water at 40°C	244 l

Warmer Climate

EN 16147	
Declared load profile	XL
Efficiency ηDHW	108 %
COP	2.62
Heating up time	01:01 h:min
Standby power input	41.3 W
Reference hot water temperature	53.7 °C
Mixed water at 40°C	243 l

Colder Climate

EN 16147

Declared load profile	XL
Efficiency ηDHW	89 %
COP	2.14
Heating up time	01:13 h:min
Standby power input	51.6 W
Reference hot water temperature	53.4 °C
Mixed water at 40°C	246 l

Model: HA 10-5 OS + HA 12-5 STB

General Data	
Power supply	3x400V 50Hz

Heating

EN 14511-2		
	Low temperature	**Medium temperature**
Heat output	9.62 kW	10.27 kW
El input	2.07 kW	3.69 kW
COP	4.65	2.78
Indoor water flow rate	1.70 m³/h	1.13 m³/h

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

Average Climate

EN 12102-1

	Low temperature	Medium temperature
Sound power level indoor	42 dB(A)	45 dB(A)
Sound power level outdoor	58 dB(A)	59 dB(A)

EN 14825

	Low temperature	Medium temperature
η_s	185 %	130 %
Prated	11.57 kW	9.63 kW
SCOP	4.69	3.33
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	10.23 kW	8.51 kW
COP Tj = -7°C	2.84	2.13
Cdh	0.98	0.99
Pdh Tj = +2°C	6.59 kW	5.10 kW
COP Tj = +2°C	4.69	3.19
Cdh	0.98	0.99
Pdh Tj = +7°C	5.71 kW	5.23 kW
COP Tj = +7°C	6.01	4.38
Cdh	0.98	0.99

Pdh Tj = 12°C	6.57 kW	6.16 kW
COP Tj = 12°C	7.70	5.99
Cdh	0.98	0.99
Pdh Tj = Tbiv	10.23 kW	8.51 kW
COP Tj = Tbiv	2.84	2.13
Pdh Tj = TOL	10.11 kW	8.03 kW
COP Tj = TOL	2.73	1.71
WTOL	55 °C	55 °C
Poff	17 W	17 W
PTO	17 W	17 W
PSB	17 W	17 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	electricity	electricity
Supplementary Heater: PSUP	1.46 kW	1.60 kW
Annual energy consumption Qhe	5097 kWh	5980 kWh

Warmer Climate

EN 14825		
	Low temperature	**Medium temperature**
η_s	218 %	161 %
Prated	8.28 kW	9.34 kW

SCOP	5.53	4.10
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	8.28 kW	9.35 kW
COP Tj = +2°C	3.69	2.43
Cdh	0.98	0.99
Pdh Tj = +7°C	5.45 kW	5.78 kW
COP Tj = +7°C	5.08	3.43
Cdh	0.98	0.99
Pdh Tj = 12°C	6.05 kW	6.21 kW
COP Tj = 12°C	6.54	5.36
Cdh	0.98	0.99
Pdh Tj = Tbiv	8.28 kW	9.34 kW
COP Tj = Tbiv	3.69	2.43
Pdh Tj = TOL	8.28 kW	9.35 kW
COP Tj = TOL	3.69	2.43
WTOL	55 °C	55 °C
Poff	17 W	17 W
PTO	17 W	17 W
PSB	17 W	17 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	2002 kWh	3043 kWh

Colder Climate

EN 14825		
	Low temperature	**Medium temperature**
η_s	156 %	113 %
Prated	9.56 kW	9.48 kW
SCOP	3.96	2.89
Tbiv	-15 °C	-15 °C
TOL	-20 °C	-15 °C
Pdh Tj = -7°C	6.38 kW	6.19 kW
COP Tj = -7°C	3.47	2.58
Cdh	0.98	0.98
Pdh Tj = +2°C	5.00 kW	4.53 kW
COP Tj = +2°C	4.67	3.52
Cdh	0.98	0.98
Pdh Tj = +7°C	5.59 kW	5.37 kW
COP Tj = +7°C	6.11	4.72
Cdh	0.98	0.98

Pdh Tj = 12°C	6.50 kW	6.26 kW
COP Tj = 12°C	7.62	6.21
Cdh	0.98	0.98
Pdh Tj = Tbiv	7.80 kW	7.74 kW
COP Tj = Tbiv	2.35	1.89
Pdh Tj = TOL	7.46 kW	7.74 kW
COP Tj = TOL	2.23	1.89
WTOL	55 °C	55 °C
Poff	17 W	17 W
PTO	17 W	17 W
PSB	17 W	17 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	electricity	electricity
Supplementary Heater: PSUP	1.59 kW	8.98 kW
Annual energy consumption Qhe	5948 kWh	8084 kWh
Pdh Tj = -15°C (if TOL<-20°C)	7.46	7.74
COP Tj = -15°C (if TOL<-20°C)	2.23	1.89
Cdh	0.98	0.98

Domestic Hot Water (DHW)

Average Climate

EN 16147	
Declared load profile	XL
Efficiency ηDHW	97 %
COP	2.36
Heating up time	01:04 h:min
Standby power input	44.6 W
Reference hot water temperature	53.7 °C
Mixed water at 40°C	244 l

Warmer Climate

EN 16147	
Declared load profile	XL
Efficiency ηDHW	108 %
COP	2.62
Heating up time	01:01 h:min
Standby power input	41.3 W
Reference hot water temperature	53.7 °C
Mixed water at 40°C	243 l

Colder Climate

EN 16147

Declared load profile	XL
Efficiency ηDHW	89 %
COP	2.14
Heating up time	01:13 h:min
Standby power input	51.6 W
Reference hot water temperature	53.4 °C
Mixed water at 40°C	246 l

Model: HA 12-5 OS 230V + HA 12-5 STB

General Data	
Power supply	1x230V 50Hz

Heating

EN 14511-2		
	Low temperature	**Medium temperature**
Heat output	10.17 kW	10.82 kW
El input	2.21 kW	3.89 kW
COP	4.61	2.78
Indoor water flow rate	1.80 m³/h	1.18 m³/h

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

Average Climate

EN 12102-1		
	Low temperature	**Medium temperature**
Sound power level indoor	43 dB(A)	44 dB(A)
Sound power level outdoor	59 dB(A)	60 dB(A)

EN 14825		
	Low temperature	**Medium temperature**
η_s	179 %	135 %
Prated	13.64 kW	11.04 kW
SCOP	4.55	3.44
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	12.07 kW	9.76 kW
COP Tj = -7°C	2.52	2.16
Cdh	0.99	0.99
Pdh Tj = +2°C	7.27 kW	5.87 kW
COP Tj = +2°C	4.56	3.30
Cdh	0.99	0.99
Pdh Tj = +7°C	5.74 kW	5.28 kW
COP Tj = +7°C	6.06	4.60
Cdh	0.99	0.99

Pdh Tj = 12°C	6.50 kW	6.12 kW
COP Tj = 12°C	7.73	6.06
Cdh	0.99	0.99
Pdh Tj = Tbiv	12.07 kW	9.76 kW
COP Tj = Tbiv	2.52	2.16
Pdh Tj = TOL	12.50 kW	9.02 kW
COP Tj = TOL	2.47	1.85
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	1.14 kW	2.01 kW
Annual energy consumption Qhe	6188 kWh	6619 kWh

Warmer Climate

EN 14825		
	Low temperature	**Medium temperature**
η_s	214 %	162 %
Prated	8.28 kW	9.34 kW

SCOP	5.43	4.12
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	8.28 kW	9.35 kW
COP Tj = +2°C	3.69	2.43
Cdh	0.99	0.99
Pdh Tj = +7°C	5.45 kW	5.78 kW
COP Tj = +7°C	5.08	3.43
Cdh	0.99	0.99
Pdh Tj = 12°C	6.05 kW	6.21 kW
COP Tj = 12°C	6.54	5.36
Cdh	0.99	0.99
Pdh Tj = Tbiv	8.28 kW	9.34 kW
COP Tj = Tbiv	3.69	2.43
Pdh Tj = TOL	8.28 kW	9.35 kW
COP Tj = TOL	3.69	2.43
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	2038 kWh	3030 kWh

Colder Climate

EN 14825		
	Low temperature	**Medium temperature**
η_s	157 %	113 %
Prated	12.38 kW	10.35 kW
SCOP	4.00	2.90
Tbiv	-15 °C	-15 °C
TOL	-20 °C	-15 °C
Pdh Tj = -7°C	8.11 kW	6.55 kW
COP Tj = -7°C	3.44	2.59
Cdh	0.99	0.99
Pdh Tj = +2°C	5.01 kW	4.53 kW
COP Tj = +2°C	4.84	3.52
Cdh	0.99	0.99
Pdh Tj = +7°C	5.80 kW	5.39 kW
COP Tj = +7°C	6.18	4.74
Cdh	0.99	0.99

Pdh Tj = 12°C	6.54 kW	6.16 kW
COP Tj = 12°C	7.33	6.31
Cdh	0.99	0.99
Pdh Tj = Tbiv	10.10 kW	8.44 kW
COP Tj = Tbiv	2.27	1.84
Pdh Tj = TOL	8.69 kW	8.44 kW
COP Tj = TOL	2.18	1.84
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	3.04 kW	9.80 kW
Annual energy consumption Qhe	7634 kWh	8799 kWh
Pdh Tj = -15°C (if TOL<-20°C)	8.69	8.44
COP Tj = -15°C (if TOL<-20°C)	2.18	1.84
Cdh	0.99	0.99

Domestic Hot Water (DHW)

Average Climate

EN 16147	
Declared load profile	XL
Efficiency ηDHW	97 %
COP	2.36
Heating up time	01:04 h:min
Standby power input	44.6 W
Reference hot water temperature	53.7 °C
Mixed water at 40°C	244 l

Warmer Climate

EN 16147	
Declared load profile	XL
Efficiency ηDHW	108 %
COP	2.62
Heating up time	01:01 h:min
Standby power input	41.3 W
Reference hot water temperature	53.7 °C
Mixed water at 40°C	243 l

Colder Climate

EN 16147

Declared load profile	XL
Efficiency ηDHW	89 %
COP	2.14
Heating up time	01:13 h:min
Standby power input	51.6 W
Reference hot water temperature	53.4 °C
Mixed water at 40°C	246 l

Model: HA 12-5 OS + HA 12-5 STB

General Data	
Power supply	3x400V 50Hz

Heating

EN 14511-2		
	Low temperature	**Medium temperature**
Heat output	10.17 kW	10.82 kW
El input	2.21 kW	3.89 kW
COP	4.61	2.78
Indoor water flow rate	1.80 m³/h	1.18 m³/h

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

Average Climate

EN 12102-1		
	Low temperature	**Medium temperature**
Sound power level indoor	43 dB(A)	44 dB(A)
Sound power level outdoor	58 dB(A)	60 dB(A)

EN 14825		
	Low temperature	**Medium temperature**
η_s	179 %	135 %
Prated	13.64 kW	11.04 kW
SCOP	4.55	3.44
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	12.07 kW	9.76 kW
COP Tj = -7°C	2.52	2.16
Cdh	0.98	0.98
Pdh Tj = +2°C	7.27 kW	5.87 kW
COP Tj = +2°C	4.56	3.30
Cdh	0.98	0.98
Pdh Tj = +7°C	5.74 kW	5.28 kW
COP Tj = +7°C	6.06	4.60
Cdh	0.98	0.98

Pdh Tj = 12°C	6.50 kW	6.12 kW
COP Tj = 12°C	7.73	6.06
Cdh	0.98	0.98
Pdh Tj = Tbiv	12.07 kW	9.76 kW
COP Tj = Tbiv	2.52	2.16
Pdh Tj = TOL	12.50 kW	9.02 kW
COP Tj = TOL	2.47	1.85
WTOL	55 °C	55 °C
Poff	17 W	17 W
PTO	17 W	17 W
PSB	17 W	17 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	electricity	electricity
Supplementary Heater: PSUP	1.14 kW	2.01 kW
Annual energy consumption Qhe	6196 kWh	6628 kWh

Warmer Climate

EN 14825		
	Low temperature	**Medium temperature**
η_s	218 %	161 %
Prated	8.28 kW	9.34 kW

SCOP	5.53	4.10
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	8.28 kW	9.35 kW
COP Tj = +2°C	3.69	2.43
Cdh	0.98	0.99
Pdh Tj = +7°C	5.45 kW	5.78 kW
COP Tj = +7°C	5.08	3.43
Cdh	0.98	0.99
Pdh Tj = 12°C	6.05 kW	6.21 kW
COP Tj = 12°C	6.54	5.36
Cdh	0.98	0.99
Pdh Tj = Tbiv	8.28 kW	9.34 kW
COP Tj = Tbiv	3.69	2.43
Pdh Tj = TOL	8.28 kW	9.35 kW
COP Tj = TOL	3.69	2.43
WTOL	55 °C	55 °C
Poff	17 W	17 W
PTO	17 W	17 W
PSB	17 W	17 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	2002 kWh	3043 kWh

Colder Climate

EN 14825		
	Low temperature	**Medium temperature**
η_s	157 %	113 %
Prated	12.38 kW	10.35 kW
SCOP	3.99	2.89
Tbiv	-15 °C	-15 °C
TOL	-20 °C	-15 °C
Pdh Tj = -7°C	8.11 kW	6.55 kW
COP Tj = -7°C	3.44	2.59
Cdh	0.98	0.98
Pdh Tj = +2°C	5.01 kW	4.53 kW
COP Tj = +2°C	4.84	3.52
Cdh	0.98	0.98
Pdh Tj = +7°C	5.80 kW	5.39 kW
COP Tj = +7°C	6.18	4.74
Cdh	0.98	0.98

Pdh Tj = 12°C	6.54 kW	6.16 kW
COP Tj = 12°C	7.33	6.31
Cdh	0.98	0.98
Pdh Tj = Tbiv	10.10 kW	8.44 kW
COP Tj = Tbiv	2.27	1.84
Pdh Tj = TOL	8.69 kW	8.44 kW
COP Tj = TOL	2.18	1.84
WTOL	55 °C	55 °C
Poff	17 W	17 W
PTO	17 W	17 W
PSB	17 W	17 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	electricity	electricity
Supplementary Heater: PSUP	3.04 kW	9.80 kW
Annual energy consumption Qhe	7634 kWh	8811 kWh
Pdh Tj = -15°C (if TOL<-20°C)	8.69	8.44
COP Tj = -15°C (if TOL<-20°C)	2.18	1.84
Cdh	0.98	0.98

Domestic Hot Water (DHW)

Average Climate

EN 16147	
Declared load profile	XL
Efficiency ηDHW	97 %
COP	2.36
Heating up time	01:04 h:min
Standby power input	44.6 W
Reference hot water temperature	53.7 °C
Mixed water at 40°C	244 l

Warmer Climate

EN 16147	
Declared load profile	XL
Efficiency ηDHW	108 %
COP	2.62
Heating up time	01:01 h:min
Standby power input	41.3 W
Reference hot water temperature	53.7 °C
Mixed water at 40°C	243 l

Colder Climate

EN 16147	
Declared load profile	XL
Efficiency ηDHW	89 %
COP	2.14
Heating up time	01:13 h:min
Standby power input	51.6 W
Reference hot water temperature	53.4 °C
Mixed water at 40°C	246 l