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#### <u>Login</u>

Summary of	Aquantia BI PRO 12 -14 -16 XL DHW Tank	Reg. No.	041-K009-10	
Certificate Holder				
Name	Frigicoll			
Address	Blasco de Garay, 4 6	Zip	08960	
City	Sant Just Desvern	Country	Spain	
Certification Body	BRE Global Limited			
Subtype title	Aquantia BI PRO 12 -14 -16 XL DHW Tank			
Heat Pump Type	Outdoor Air/Water			
Refrigerant	R32			
Mass of Refrigerant	1.84 kg			
Certification Date	31.03.2021			
Testing basis	is Heat Pump Keymark Scheme Rules Rev 08			

# Model: KHP-BI 12 DVR2 + KHPI-BI-16VR2XL

Configure model		
Model name	KHP-BI 12 DVR2 + KHPI-BI-16VR2XL	
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		
Shutting off the heat transfer medium flow	passed	
Complete power supply failure	passed	
Defrost test	passed	
Starting and operating test	passed	

EN 14511-2			
	Low temperature	Medium temperature	
Heat output	12.10 kW	12.00 kW	
El input	2.44 kW	3.87 kW	
СОР	4.95	3.10	

# **Average Climate**



EN 12102-1		
	Low temperature	Medium temperature
Sound power level indoor	43 dB(A)	43 dB(A)
Sound power level outdoor	64 dB(A)	64 dB(A)

EN 14825		
	Low temperature	Medium temperature
$\eta_{s}$	189 %	135 %
Prated	12.00 kW	11.58 kW
SCOP	4.81	3.45
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	10.61 kW	10.25 kW
COP Tj = -7°C	2.88	2.01
Cdh Tj = -7 °C	0.90	0.90
Pdh Tj = +2°C	6.69 kW	6.52 kW
COP Tj = +2°C	4.65	3.44
Cdh Tj = +2 °C	0.90	0.90
Pdh Tj = +7°C	4.44 kW	4.36 kW
COP Tj = +7°C	6.62	4.59
Cdh Tj = +7 °C	0.90	0.90





Pdh Tj = 12°C	3.74 kW	3.30 kW
COP Tj = 12°C	8.47	6.05
Cdh Tj = +12 °C	0.90	0.90
Pdh Tj = Tbiv	10.61 kW	10.25 kW
COP Tj = Tbiv	2.88	2.01
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	10.75 kW	9.10 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.77	1.79
WTOL	65 °C	65 °C
Poff	14 W	14 W
РТО	24 W	24 W
PSB	14 W	14 W
PCK	o w	o w
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	1.26 kW	2.50 kW
Annual energy consumption Qhe	5152 kWh	6927 kWh

EN 12102-1			
	Low temperature	Medium temperature	
Sound power level indoor	43 dB(A)	43 dB(A)	
Sound power level outdoor	64 dB(A)	64 dB(A)	





#### EN 14825

	Low temperature	Medium temperature
$\eta_{s}$	256 %	174 %
Prated	11.11 kW	12.51 kW
SCOP	6.53	4.43
Tbiv	7 °C	7 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	11.11 kW	12.08 kW
$COP Tj = +2^{\circ}C$	3.59	2.31
Cdh Tj = +2 °C	0.900	0.900
Pdh Tj = +7°C	7.14 kW	8.04 kW
$COP Tj = +7^{\circ}C$	5.87	3.86
Cdh Tj = +7 °C	0.900	0.900
Pdh Tj = 12°C	3.56 kW	3.75 kW
COP Tj = 12°C	7.94	5.70
Cdh Tj = +12 °C	0.900	0.900
Pdh Tj = Tbiv	7.14 kW	8.04 kW
COP Tj = Tbiv	5.87	3.86
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	11.11 kW	12.08 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.59	2.31
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh		





WTOL	65 °C	65 °C
Poff	14 W	14 W
РТО	24 W	24 W
PSB	14 W	14 W
PCK	o w	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.44 kW
Annual energy consumption Qhe	2292 kWh	3776 kWh

EN 12102-1				
	Low temperature	Medium temperature		
Sound power level indoor	43 dB(A)	43 dB(A)		
Sound power level outdoor	64 dB(A)	64 dB(A)		

EN 14825		
Low temperature	Medium temperature	
160 %	118 %	
11.38 kW	10.32 kW	
4.08	3.02	
-15 °C	-15 °C	
	Low temperature  160 %  11.38 kW  4.08	





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TOL	-22 °C	-22 °C
Pdh Tj = -7°C	7.05 kW	6.63 kW
COP Tj = -7°C	3.48	2.63
Cdh Tj = -7 °C	0.90	0.90
Pdh Tj = +2°C	4.68 kW	4.07 kW
COP Tj = +2°C	4.96	3.60
Cdh Tj = +2 °C	0.90	0.90
Pdh Tj = +7°C	3.14 kW	2.78 kW
$COP Tj = +7^{\circ}C$	6.10	4.54
Cdh Tj = +7 °C	0.90	0.90
Pdh Tj = 12°C	3.57 kW	3.33 kW
COP Tj = 12°C	7.87	6.25
Cdh Tj = +12 °C	0.90	0.90
Pdh Tj = Tbiv	9.28 kW	8.42 kW
COP Tj = Tbiv	2.59	1.84
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	7.01 kW	4.20 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	1.98	1.13
WTOL	65 °C	65 °C
Poff	14 W	14 W
РТО	24 W	24 W
PSB	14 W	14 W
	•	•



PCK	o w	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	4.37 kW	6.12 kW
Annual energy consumption Qhe	6870 kWh	8419 kWh
Pdh Tj = -15°C (if TOL<-20°C)	9.28	8.42
COP Tj = -15°C (if TOL $<$ -20°C)	2.59	1.84
Cdh Tj = -15 °C	0.90	0.90

# Domestic Hot Water (DHW)

# Average Climate

EN 16147		
Declared load profile	XL	
Efficiency ηDHW	123 %	
СОР	3.00	
Heating up time	1:38 h:min	
Standby power input	34.0 W	
Reference hot water temperature	48.5 °C	
Mixed water at 40°C	280 I	



EN 16147	
Declared load profile	XL
Efficiency ηDHW	153 %
СОР	3.73
Heating up time	1:33 h:min
Standby power input	30.0 W
Reference hot water temperature	48.5 °C
Mixed water at 40°C	280 I

EN 16147		
Declared load profile	XL	
Efficiency ηDHW	92 %	
СОР	2.24	
Heating up time	2:06 h:min	
Standby power input	36.0 W	
Reference hot water temperature	48.5 °C	
Mixed water at 40°C	280 I	

# Model: KHP-BI 14 DVR2 + KHPI-BI-16VR2XL

Configure model		
Model name	KHP-BI 14 DVR2 + KHPI-BI-16VR2XL	
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		
Shutting off the heat transfer medium flow	passed	
Complete power supply failure	passed	
Defrost test	passed	
Starting and operating test	passed	

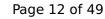
EN 14511-2		
	Low temperature	Medium temperature
Heat output	14.50 kW	13.80 kW
El input	3.09 kW	4.60 kW
СОР	4.70	3.00

# **Average Climate**



EN 12102-1		
	Low temperature	Medium temperature
Sound power level indoor	43 dB(A)	43 dB(A)
Sound power level outdoor	65 dB(A)	65 dB(A)

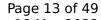
EN 14825		
	Low temperature	Medium temperature
$\eta_{s}$	186 %	136 %
Prated	13.73 kW	12.08 kW
SCOP	4.72	3.47
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	12.14 kW	10.69 kW
COP Tj = -7°C	2.79	2.01
Cdh Tj = -7 °C	0.90	0.90
Pdh Tj = +2°C	7.95 kW	6.86 kW
COP Tj = +2°C	4.52	3.43
Cdh Tj = +2 °C	0.90	0.90
Pdh Tj = +7°C	5.20 kW	4.64 kW
COP Tj = +7°C	6.68	4.66
Cdh Tj = +7 °C	0.90	0.90





Pdh Tj = 12°C	3.76 kW	3.32 kW
COP Tj = 12°C	8.52	6.13
Cdh Tj = +12 °C	0.90	0.90
Pdh Tj = Tbiv	12.14 kW	10.69 kW
COP Tj = Tbiv	2.79	2.01
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	11.48 kW	9.19 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.59	1.76
WTOL	65 °C	65 °C
Poff	14 W	14 W
РТО	24 W	24 W
PSB	14 W	14 W
PCK	o w	o w
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	2.23 kW	2.91 kW
Annual energy consumption Qhe	6012 kWh	7202 kWh

EN 12102-1		
	Low temperature	Medium temperature
Sound power level indoor	43 dB(A)	43 dB(A)
Sound power level outdoor	65 dB(A)	65 dB(A)





#### EN 14825

	Low temperature	Medium temperature
$\eta_{s}$	260 %	177 %
Prated	12.11 kW	13.74 kW
SCOP	6.63	4.49
Tbiv	7 °C	7 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	12.04 kW	13.05 kW
COP Tj = +2°C	3.44	2.20
Cdh Tj = +2 °C	0.90	0.90
Pdh Tj = +7°C	7.78 kW	8.83 kW
$COPTj = +7^{\circ}C$	5.84	3.91
Cdh Tj = +7 °C	0.90	0.90
Pdh Tj = 12°C	3.75 kW	4.09 kW
COP Tj = 12°C	8.25	5.90
Cdh Tj = +12 °C	0.90	0.90
Pdh Tj = Tbiv	7.78 kW	8.83 kW
COP Tj = Tbiv	5.84	3.91
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	12.04 kW	13.05 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.44	2.20
WTOL	65 °C	65 °C





Poff	14 W	14 W
РТО	24 W	24 W
PSB	14 W	14 W
PCK	o w	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.07 kW	0.69 kW
Annual energy consumption Qhe	2457 kWh	4088 kWh

EN 12102-1		
	Low temperature	Medium temperature
Sound power level indoor	43 dB(A)	43 dB(A)
Sound power level outdoor	65 dB(A)	65 dB(A)

EN 14825		
	Low temperature	Medium temperature
$\eta_{s}$	160 %	119 %
Prated	12.64 kW	10.97 kW
SCOP	4.07	3.05
Tbiv	-15 °C	-15 °C
TOL	-22 °C	-22 °C





This information was generated by the HP KEYMARK database on 18 Mar 2022 Pdh Tj =  $-7^{\circ}$ C 7.97 kW 6.89 kW COP Tj =  $-7^{\circ}$ C 3.44 2.66 Cdh Tj = -7  $^{\circ}$ C 0.90 0.90 Pdh Tj =  $+2^{\circ}$ C 5.05 kW 4.32 kW  $COPTj = +2^{\circ}C$ 4.92 3.66 Cdh Tj = +2 °C 0.90 0.90 Pdh Tj =  $+7^{\circ}$ C 3.16 kW 3.06 kW  $COP Tj = +7^{\circ}C$ 6.11 4.72 Cdh Tj = +7 °C 0.90 0.90 Pdh Tj =  $12^{\circ}$ C 3.58 kW 3.33 kW  $COP Tj = 12^{\circ}C$ 7.82 6.25 Cdh Tj = +12 °C 0.90 0.90 Pdh Tj = Tbiv10.31 kW 8.95 kW COP Tj = Tbiv 2.53 1.79 Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh 7.57 kW 4.20 kW COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh 1.92 1.13 WTOL 65 °C 65 °C Poff 14 W 14 W PTO 24 W 24 W **PSB** 14 W 14 W **PCK** 0 W 0 W



Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	5.07 kW	6.77 kW
Annual energy consumption Qhe	7667 kWh	8866 kWh
Pdh Tj = -15°C (if TOL<-20°C)	10.31	8.95
COP Tj = -15°C (if TOL $<$ -20°C)	2.53	1.79
Cdh Tj = -15 °C	0.90	0.90

# Domestic Hot Water (DHW)

# **Average Climate**

EN 16147		
Declared load profile	XL	
Efficiency ηDHW	123 %	
СОР	3.00	
Heating up time	1:38 h:min	
Standby power input	34.0 W	
Reference hot water temperature	48.5 °C	
Mixed water at 40°C	280 I	



EN 16147		
Declared load profile	XL	
Efficiency ηDHW	153 %	
СОР	3.73	
Heating up time	1:33 h:min	
Standby power input	30.0 W	
Reference hot water temperature	48.5 °C	
Mixed water at 40°C	280 I	

EN 16147		
Declared load profile	XL	
Efficiency ηDHW	92 %	
СОР	2.24	
Heating up time	2:06 h:min	
Standby power input	36.0 W	
Reference hot water temperature	48.5 °C	
Mixed water at 40°C	280 I	



# Model: KHP-BI 16 DVR2 + KHPI-BI-16VR2XL

Configure model		
Model name	KHP-BI 16 DVR2 + KHPI-BI-16VR2XL	
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		
Shutting off the heat transfer medium flow	passed	
Complete power supply failure	passed	
Defrost test	passed	
Starting and operating test	passed	

EN 14511-2			
	Low temperature	Medium temperature	
Heat output	16.00 kW	16.00 kW	
El input	3.56 kW	5.52 kW	
СОР	4.50	2.90	

# **Average Climate**



EN 12102-1		
	Low temperature	Medium temperature
Sound power level indoor	43 dB(A)	43 dB(A)
Sound power level outdoor	68 dB(A)	68 dB(A)

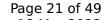
EN 14825		
	Low temperature	Medium temperature
$\eta_{s}$	182 %	133 %
Prated	15.21 kW	13.02 kW
SCOP	4.62	3.41
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	13.45 kW	11.52 kW
COP Tj = -7°C	2.72	1.99
Cdh Tj = -7 °C	0.90	0.90
Pdh Tj = $+2$ °C	8.57 kW	7.18 kW
COP Tj = +2°C	4.41	3.34
Cdh Tj = +2 °C	0.90	0.90
Pdh Tj = +7°C	5.70 kW	4.68 kW
COP Tj = +7°C	6.56	4.61
Cdh Tj = +7 °C	0.90	0.90





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Pdh Tj = 12°C	3.78 kW	3.32 kW
COP Tj = 12°C	8.51	6.07
Cdh Tj = +12 °C	0.90	0.90
Pdh Tj = Tbiv	13.45 kW	11.52 kW
COP Tj = Tbiv	2.72	1.99
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	12.52 kW	10.33 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.48	1.80
WTOL	65 °C	65 °C
Poff	14 W	14 W
РТО	24 W	24 W
PSB	14 W	14 W
PCK	o w	o w
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	2.68 kW	2.67 kW
Annual energy consumption Qhe	6804 kWh	7895 kWh

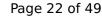
EN 12102-1			
	Low temperature	Medium temperature	
Sound power level indoor	43 dB(A)	43 dB(A)	
Sound power level outdoor	68 dB(A)	68 dB(A)	





#### EN 14825

	Low temperature	Medium temperature
$\eta_{s}$	249 %	176 %
Prated	13.09 kW	13.78 kW
SCOP	6.33	4.48
Tbiv	7 °C	7 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	13.09 kW	13.38 kW
COP Tj = +2°C	3.35	2.29
Cdh Tj = +2 °C	0.900	0.900
Pdh Tj = +7°C	8.42 kW	8.86 kW
$COPTj = +7^{\circ}C$	5.36	3.84
Cdh Tj = +7 °C	0.900	0.900
Pdh Tj = 12°C	3.88 kW	4.06 kW
COP Tj = 12°C	8.11	5.86
Cdh Tj = +12 °C	0.900	0.900
Pdh Tj = Tbiv	8.42 kW	8.86 kW
COP Tj = Tbiv	5.36	3.84
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	13.09 kW	13.38 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.35	2.29
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh		

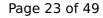




WTOL	65 °C	65 °C
Poff	14 W	14 W
РТО	24 W	24 W
PSB	14 W	14 W
PCK	o w	o w
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.40 kW
Annual energy consumption Qhe	2781 kWh	4112 kWh

EN 12102-1			
	Low temperature	Medium temperature	
Sound power level indoor	43 dB(A)	43 dB(A)	
Sound power level outdoor	68 dB(A)	68 dB(A)	

EN 14825		
	Low temperature	Medium temperature
$\eta_{S}$	158 %	122 %
Prated	13.76 kW	11.79 kW
SCOP	4.02	3.12
Tbiv	-15 °C	-15 °C





TOL	-22 °C	-22 °C
Pdh Tj = -7°C	8.31 kW	7.64 kW
COP Tj = -7°C	3.37	2.65
Cdh Tj = -7 °C	0.90	0.90
Pdh Tj = +2°C	5.27 kW	4.43 kW
COP Tj = +2°C	4.86	3.79
Cdh Tj = +2 °C	0.90	0.90
Pdh Tj = $+7^{\circ}$ C	3.62 kW	2.98 kW
$COP Tj = +7^{\circ}C$	6.49	4.81
Cdh Tj = +7 °C	0.90	0.90
Pdh Tj = 12°C	3.35 kW	3.43 kW
COP Tj = 12°C	7.40	6.29
Cdh Tj = +12 °C	0.90	0.90
Pdh Tj = Tbiv	11.22 kW	9.62 kW
COP Tj = Tbiv	2.43	1.86
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	8.89 kW	5.22 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	1.97	1.23
WTOL	65 °C	65 °C
Poff	14 W	14 W
РТО	24 W	24 W
PSB	14 W	14 W



PCK	o w	o w
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	4.87 kW	6.57 kW
Annual energy consumption Qhe	8431 kWh	9309 kWh
Pdh Tj = -15°C (if TOL<-20°C)	11.22	9.62
COP Tj = $-15$ °C (if TOL< $-20$ °C)	2.43	1.86
Cdh Tj = -15 °C	0.90	0.90

# Domestic Hot Water (DHW)

# Average Climate

EN 16147	
Declared load profile	XL
Efficiency ηDHW	123 %
СОР	3.00
Heating up time	1:38 h:min
Standby power input	34.0 W
Reference hot water temperature	48.5 °C
Mixed water at 40°C	280 I



EN 16147	
Declared load profile	XL
Efficiency ηDHW	153 %
СОР	3.73
Heating up time	1:33 h:min
Standby power input	30.0 W
Reference hot water temperature	48.5 °C
Mixed water at 40°C	280 I

EN 16147		
Declared load profile	XL	
Efficiency ηDHW	92 %	
СОР	2.24	
Heating up time	2:06 h:min	
Standby power input	36.0 W	
Reference hot water temperature	48.5 °C	
Mixed water at 40°C	280 I	

# Model: KHP-BI 12 DTR2 + KHPI-BI-16VR2XL

Configure model		
Model name KHP-BI 12 DTR2 + KHPI-BI-16VR2XL		
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	
Shutting off the heat transfer medium flow	passed
Complete power supply failure	passed
Defrost test	passed
Starting and operating test	passed

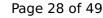
EN 14511-2		
	Low temperature	Medium temperature
Heat output	12.10 kW	12.00 kW
El input	2.44 kW	3.87 kW
СОР	4.95	3.10

# **Average Climate**



EN 12102-1		
	Low temperature	Medium temperature
Sound power level indoor	43 dB(A)	43 dB(A)
Sound power level outdoor	64 dB(A)	64 dB(A)

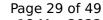
EN 14825			
Low temperatu		re Medium temperature	
$\eta_{s}$	189 %	135 %	
Prated	12.00 kW	11.58 kW	
SCOP	4.81	3.45	
Tbiv	-7 °C	-7 °C	
TOL	-10 °C	-10 °C	
Pdh Tj = -7°C	10.61 kW	10.25 kW	
COP Tj = $-7^{\circ}$ C	2.88	2.01	
Cdh Tj = -7 °C	0.90	0.90	
Pdh Tj = $+2$ °C	6.69 kW	6.52 kW	
COP Tj = +2°C	4.65	3.44	
Cdh Tj = +2 °C	0.90	0.90	
Pdh Tj = +7°C	4.44 kW	4.36 kW	
COP Tj = +7°C	6.62	4.59	
Cdh Tj = +7 °C	0.90	0.90	





Pdh Tj = 12°C	3.74 kW	3.30 kW
COP Tj = 12°C	8.47	6.05
Cdh Tj = +12 °C	0.90	0.90
Pdh Tj = Tbiv	10.61 kW	10.25 kW
COP Tj = Tbiv	2.88	2.01
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	10.75 kW	9.10 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.77	1.79
WTOL	65 °C	65 °C
Poff	20 W	20 W
РТО	30 W	30 W
PSB	20 W	20 W
PCK	o w	o w
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	1.26 kW	2.50 kW
Annual energy consumption Qhe	5153 kWh	6928 kWh

EN 12102-1		
	Low temperature	Medium temperature
Sound power level indoor	43 dB(A)	43 dB(A)
Sound power level outdoor	64 dB(A)	64 dB(A)





#### EN 14825

	Low temperature	Medium temperature
$\eta_{s}$	256 %	174 %
Prated	11.11 kW	12.51 kW
SCOP	6.53	4.42
Tbiv	7 °C	7 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	11.11 kW	12.08 kW
COP Tj = +2°C	3.59	2.31
Cdh Tj = +2 °C	0.900	0.900
Pdh Tj = +7°C	7.14 kW	8.04 kW
$COPTj = +7^{\circ}C$	5.87	3.86
Cdh Tj = +7 °C	0.900	0.900
Pdh Tj = 12°C	3.56 kW	3.75 kW
COP Tj = 12°C	7.94	5.70
Cdh Tj = +12 °C	0.900	0.900
Pdh Tj = Tbiv	7.14 kW	8.04 kW
COP Tj = Tbiv	5.87	3.86
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	11.11 kW	12.08 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.59	2.31
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh		





WTOL	65 °C	65 °C
Poff	20 W	20 W
PTO	30 W	30 W
PSB	20 W	20 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.44 kW
Annual energy consumption Qhe	2296 kWh	3780 kWh

EN 12102-1		
	Low temperature	Medium temperature
Sound power level indoor	43 dB(A)	43 dB(A)
Sound power level outdoor	64 dB(A)	64 dB(A)

EN 14825		
Low temperature	Medium temperature	
160 %	118 %	
11.38 kW	10.32 kW	
4.08	3.02	
-15 °C	-15 °C	
	Low temperature  160 %  11.38 kW  4.08	



	ted by the Hi KETMAI	IN database on 10 Mai 202.
TOL	-22 °C	-22 °C
Pdh Tj = -7°C	7.05 kW	6.63 kW
COP Tj = -7°C	3.48	2.63
Cdh Tj = -7 °C	0.90	0.90
Pdh Tj = +2°C	4.68 kW	4.07 kW
COP Tj = +2°C	4.96	3.60
Cdh Tj = +2 °C	0.90	0.90
Pdh Tj = $+7^{\circ}$ C	3.14 kW	2.78 kW
COP Tj = +7°C	6.10	4.54
Cdh Tj = +7 °C	0.90	0.90
Pdh Tj = 12°C	3.57 kW	3.33 kW
COP Tj = 12°C	7.87	6.25
Cdh Tj = +12 °C	0.90	0.90
Pdh Tj = Tbiv	9.28 kW	8.42 kW
COP Tj = Tbiv	2.59	1.84
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	7.01 kW	4.20 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	1.98	1.13
WTOL	65 °C	65 °C
Poff	20 W	20 W
РТО	30 W	30 W
PSB	20 W	20 W



PCK	o w	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	4.37 kW	6.12 kW
Annual energy consumption Qhe	6871 kWh	8420 kWh
Pdh Tj = -15°C (if TOL<-20°C)	9.28	8.42
COP Tj = -15°C (if TOL $<$ -20°C)	2.59	1.84
Cdh Tj = -15 °C	0.90	0.90

# Domestic Hot Water (DHW)

# Average Climate

EN 16147		
Declared load profile	XL	
Efficiency ηDHW	123 %	
СОР	3.00	
Heating up time	1:38 h:min	
Standby power input	34.0 W	
Reference hot water temperature	48.5 °C	
Mixed water at 40°C	280	



EN 16147		
Declared load profile	XL	
Efficiency ηDHW	153 %	
СОР	3.73	
Heating up time	1:33 h:min	
Standby power input	30.0 W	
Reference hot water temperature	48.5 °C	
Mixed water at 40°C	280 I	

EN 16147		
Declared load profile	XL	
Efficiency ηDHW	92 %	
СОР	2.24	
Heating up time	2:06 h:min	
Standby power input	36.0 W	
Reference hot water temperature	48.5 °C	
Mixed water at 40°C	280 I	

# Model: KHP-BI 14 DTR2 + KHPI-BI-16VR2XL

Configure model		
Model name	KHP-BI 14 DTR2 + KHPI-BI-16VR2XL	
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	3x400V 50Hz	

# Heating

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

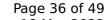
EN 14511-2		
	Low temperature	Medium temperature
Heat output	14.50 kW	13.80 kW
El input	3.09 kW	4.60 kW
СОР	4.70	3.00

# **Average Climate**



EN 12102-1				
	Low temperature	Medium temperature		
Sound power level indoor	43 dB(A)	43 dB(A)		
Sound power level outdoor	65 dB(A)	65.00 dB(A)		

EN 14825				
	Low temperature	Medium temperature		
$\eta_{s}$	186.00 %	136 %		
Prated	13.73 kW	12.08 kW		
SCOP	4.72	3.47		
Tbiv	-7 °C	-7 °C		
TOL	-10.00 °C	-10.00 °C		
Pdh Tj = -7°C	12.14 kW	10.69 kW		
COP Tj = -7°C	2.79	2.01		
Cdh Tj = -7 °C	0.90	0.90		
Pdh Tj = +2°C	7.95 kW	6.86 kW		
COP Tj = +2°C	4.52	3.43		
Cdh Tj = +2 °C	0.90	0.90		
Pdh Tj = +7°C	5.20 kW	4.64 kW		
COP Tj = +7°C	6.68	4.66		
Cdh Tj = +7 °C	0.90	0.90		





	· · · · · · · · · · · · · · · · · · ·	
Pdh Tj = 12°C	3.76 kW	3.32 kW
COP Tj = 12°C	8.52	6.13
Cdh Tj = +12 °C	0.90	0.90
Pdh Tj = Tbiv	12.14 kW	10.69 kW
COP Tj = Tbiv	2.79	2.01
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	11.48 kW	9.19 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.59	1.76
WTOL	65 °C	65 °C
Poff	20 W	20 W
РТО	30 W	30 W
PSB	20 W	20 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	2.23 kW	2.91 kW
Annual energy consumption Qhe	6013.00 kWh	7203 kWh

EN 12102-1				
	Low temperature	Medium temperature		
Sound power level indoor	43 dB(A)	43 dB(A)		
Sound power level outdoor	65 dB(A)	65 dB(A)		

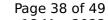




#### EN 14825

	Low temperature	Medium temperature
$\eta_{s}$	260 %	176 %
Prated	12.11 kW	13.74 kW
SCOP	6.63	4.48
Tbiv	7 °C	7 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	12.04 kW	13.05 kW
COP Tj = +2°C	3.44	2.20
Cdh Tj = +2 °C	0.900	0.900
Pdh Tj = +7°C	7.78 kW	8.83 kW
$COP Tj = +7^{\circ}C$	5.84	3.91
Cdh Tj = +7 °C	0.900	0.900
Pdh Tj = 12°C	3.75 kW	4.09 kW
COP Tj = 12°C	8.25	5.90
Cdh Tj = +12 °C	0.900	0.900
Pdh Tj = Tbiv	7.78 kW	8.83 kW
COP Tj = Tbiv	5.84	3.91
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	12.04 kW	13.05 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.44	2.20
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh		

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11	his information was generate	ed by the HP KEYMAR	K database on 18 Mar 2022	-
/TOL		65 °C	65 °C	

WTOL	65 °C	65 °C
Poff	20 W	20 W
PTO	30 W	30 W
PSB	20 W	20 W
PCK	o w	o w
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.07 kW	0.69 kW
Annual energy consumption Qhe	2462 kWh	4092 kWh

EN 12102-1		
	Low temperature	Medium temperature
Sound power level indoor	43 dB(A)	43 dB(A)
Sound power level outdoor	65 dB(A)	65 dB(A)

EN 14825		
	Low temperature	Medium temperature
$\eta_{s}$	160 %	119 %
Prated	12.64 kW	10.97 kW
SCOP	4.06	3.05
Tbiv	-15 °C	-15 °C





This information was general	<b>- ,</b> -	
TOL	-22 °C	-22.00 °C
Pdh Tj = $-7^{\circ}$ C	7.97 kW	6.89 kW
$COP Tj = -7^{\circ}C$	3.44	2.66
Cdh Tj = -7 °C	0.90	0.90
Pdh Tj = +2°C	5.05 kW	4.32 kW
$COP Tj = +2^{\circ}C$	4.92	3.66
Cdh Tj = +2 °C	0.90	0.90
Pdh Tj = $+7^{\circ}$ C	3.16 kW	3.06 kW
$COP Tj = +7^{\circ}C$	6.11	4.72
Cdh Tj = $+7$ °C	0.90	0.90
Pdh Tj = 12°C	3.58 kW	3.33 kW
COP Tj = 12°C	7.82	6.25
Cdh Tj = +12 °C	0.90	0.90
Pdh Tj = Tbiv	10.31 kW	8.95 kW
COP Tj = Tbiv	2.53	1.79
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	7.57 kW	4.20 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	1.92	1.13
WTOL	65 °C	65 °C
Poff	20 W	20 W
PTO	30 W	30 W
PSB	20 W	20 W
	+	!



PCK	o w	o w
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	5.07 kW	6.77 kW
Annual energy consumption Qhe	7667.00 kWh	8867.00 kWh
Pdh Tj = -15°C (if TOL<-20°C)	10.31	8.95
COP Tj = $-15$ °C (if TOL< $-20$ °C)	2.53	1.79
Cdh Tj = -15 °C	0.90	0.90

# Domestic Hot Water (DHW)

# Average Climate

EN 16147	
Declared load profile	XL
Efficiency ηDHW	123 %
СОР	3.00
Heating up time	1:38 h:min
Standby power input	34.0 W
Reference hot water temperature	48.5 °C
Mixed water at 40°C	280 I

## Warmer Climate



EN 16147	
Declared load profile	XL
Efficiency ηDHW	153 %
СОР	3.73
Heating up time	1:33 h:min
Standby power input	30.0 W
Reference hot water temperature	48.5 °C
Mixed water at 40°C	280 I

EN 16147	
Declared load profile	XL
Efficiency ηDHW	92 %
СОР	2.24
Heating up time	2:06 h:min
Standby power input	36.0 W
Reference hot water temperature	48.5 °C
Mixed water at 40°C	280

# Model: KHP-BI 16 DTR2 + KHPI-BI-16VR2XL

Configure model		
Model name	KHP-BI 16 DTR2 + KHPI-BI-16VR2XL	
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	3x400V 50Hz	

# Heating

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

EN 14511-2			
	Low temperature	Medium temperature	
Heat output	16.00 kW	16.00 kW	
El input	3.56 kW	5.52 kW	
СОР	4.50	2.90	

# **Average Climate**



EN 12102-1		
	Low temperature	Medium temperature
Sound power level indoor	43 dB(A)	43 dB(A)
Sound power level outdoor	68 dB(A)	68 dB(A)

EN 14825		
	Low temperature	Medium temperature
$\eta_{s}$	182 %	133 %
Prated	15.21 kW	13.02 kW
SCOP	4.62	3.41
Tbiv	-7.00 °C	-7.00 °C
TOL	-10.00 °C	-10.00 °C
Pdh Tj = -7°C	13.45 kW	11.52 kW
COP Tj = -7°C	2.72	1.99
Cdh Tj = -7 °C	0.90	0.90
Pdh Tj = $+2$ °C	8.57 kW	7.18 kW
COP Tj = +2°C	4.41	3.34
Cdh Tj = +2 °C	0.90	0.90
Pdh Tj = +7°C	5.70 kW	4.68 kW
COP Tj = +7°C	6.56	4.61
Cdh Tj = +7 °C	0.90	0.90

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Pdh Tj = 12°C	3.78 kW	3.32 kW
COP Tj = 12°C	8.51	6.07
Cdh Tj = +12 °C	0.90	0.90
Pdh Tj = Tbiv	13.45 kW	11.52 kW
COP Tj = Tbiv	2.72	1.99
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	12.52 kW	10.33 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.48	1.80
WTOL	65 °C	65 °C
Poff	20 W	20 W
РТО	30 W	30 W
PSB	20 W	20 W
PCK	0.00 W	0.00 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	2.68 kW	2.67 kW
Annual energy consumption Qhe	6805.00 kWh	7896 kWh

## Warmer Climate

EN 12102-1			
	Low temperature	Medium temperature	
Sound power level indoor	43 dB(A)	43 dB(A)	
Sound power level outdoor	68 dB(A)	68 dB(A)	





#### EN 14825

	Low temperature	Medium temperature
$\eta_{s}$	248 %	176 %
Prated	13.09 kW	13.78 kW
SCOP	6.33	4.47
Tbiv	7 °C	7 °C
TOL	2 °C	2 °C
Pdh Tj = $+2$ °C	13.09 kW	13.38 kW
COP Tj = +2°C	3.35	2.29
Cdh Tj = +2 °C	0.900	0.900
Pdh Tj = $+7^{\circ}$ C	8.42 kW	8.86 kW
$COPTj = +7^{\circ}C$	5.36	3.84
Cdh Tj = +7 °C	0.900	0.900
Pdh Tj = 12°C	3.88 kW	4.06 kW
COP Tj = 12°C	8.11	5.86
Cdh Tj = +12 °C	0.900	0.900
Pdh Tj = Tbiv	8.42 kW	8.86 kW
COP Tj = Tbiv	5.36	3.84
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL $<$ Tdesignh	13.09 kW	13.38 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.35	2.29
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh		

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WTOL	65 °C	65 °C
Poff	20 W	20 W
РТО	30 W	30 W
PSB	20 W	20 W
PCK	o w	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.40 kW
Annual energy consumption Qhe	2786 kWh	4116 kWh

EN 12102-1			
	Low temperature	Medium temperature	
Sound power level indoor	43 dB(A)	43 dB(A)	
Sound power level outdoor	68 dB(A)	68 dB(A)	

EN 14825		
	Low temperature	Medium temperature
$\eta_{s}$	158 %	122 %
Prated	13.76 kW	11.79 kW
SCOP	4.02	3.12
Tbiv	-15 °C	-15 °C





The first man general	acea by the in item in	iii database on 10 mai 202
TOL	-22.00 °C	-22.00 °C
Pdh Tj = -7°C	8.31 kW	7.64 kW
COP Tj = -7°C	3.37	2.65
Cdh Tj = -7 °C	0.90	0.90
Pdh Tj = +2°C	5.27 kW	4.43 kW
COP Tj = +2°C	4.86	3.79
Cdh Tj = +2 °C	0.90	0.90
Pdh Tj = $+7^{\circ}$ C	3.62 kW	2.98 kW
$COPTj = +7^{\circ}C$	6.49	4.81
Cdh Tj = $+7$ °C	0.90	0.90
Pdh Tj = 12°C	3.35 kW	3.43 kW
COP Tj = 12°C	7.40	6.29
Cdh Tj = +12 °C	0.90	0.90
Pdh Tj = Tbiv	11.22 kW	9.62 kW
COP Tj = Tbiv	2.43	1.86
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	8.89 kW	5.22 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	1.97	1.23
WTOL	65 °C	65 °C
Poff	20 W	20 W
РТО	30 W	30 W
PSB	20 W	20 W



PCK	o w	o w
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	4.87 kW	6.57 kW
Annual energy consumption Qhe	8431 kWh	9310 kWh
Pdh Tj = -15°C (if TOL<-20°C)	11.22	9.62
COP Tj = -15°C (if TOL<-20°C)	2.43	1.86
Cdh Tj = -15 °C	0.90	0.90

# Domestic Hot Water (DHW)

# Average Climate

EN 16147		
Declared load profile	XL	
Efficiency ηDHW	123 %	
СОР	3.00	
Heating up time	1:38 h:min	
Standby power input	34.0 W	
Reference hot water temperature	48.5 °C	
Mixed water at 40°C	280 I	

## Warmer Climate



EN 16147		
Declared load profile	XL	
Efficiency ηDHW	153 %	
СОР	3.73	
Heating up time	1:33 h:min	
Standby power input	30.0 W	
Reference hot water temperature	48.5 °C	
Mixed water at 40°C	280	

EN 16147		
Declared load profile	XL	
Efficiency ηDHW	92 %	
СОР	2.24	
Heating up time	2:06 h:min	
Standby power input	36.0 W	
Reference hot water temperature	48.5 °C	
Mixed water at 40°C	280 I	