HEAT PUMPS

WWH-HT 0071 - 0302

Water cooled optimized heat pumps for heating, high water temperature 23,6-94,2 kW

WW(H)-HT represent the best solution for systems in which there is the need to produce high temperature hot water for both space heating and hot water purposes. The special compressor used guarantees hot water production up to 65°C.
Version WW-HT, heating only, or version WWH-HT, reversible on hydraulic side, can completely meet any system and application requirements, with a vast range of models, hydronic configurations and accessories.
The new WW(H)-HT range is ideal for commercial (offices, hotels), domestic (homes, apartments) or industrial installations (domestic hot water production only).

Version

B	Basic

Configurations

-	Basic function
H	Function with heat pump, reversible on hydraulic side

Features

REFRIGERANT GAS R410A

The use of R410A allowed to achive better energy efficiencies with environment full respect (ODP = 0)

ELECTRONIC EXPANSION VALVE SUPPLIED STANDARD

The use of the electronic expansion valve generates considerable benefits, especially in cases of variable demand and different external conditions. It was introduced into these units as a result of accurate design choices concerning the cooling circuit and the optimisation of operation in various different working conditions

EXTENSIVE RANGE OF OPERATION

Production of high temperature hot water up to 65°C for space heating and hot water purposes.

STACKABLE UNITS

The special structure of the units (without on-board pumps) is designed to allow two units to be stacked on top of each other without any additional accessories, reducing the space requirements when needing to expand system capacity. The capacity of two heat pumps with the footprint of a single unit.

INTEGRATED HYDRONIC MODULE

The units can be supplied with a hydronic kit on the user side and a hydronic kit on the source side. These kits include all the water circuit components so as to optimize installation space, times and costs.
In addition, a vast selection of pumps available, up to 13 different models, for both the user side and the source side, means the best solution can always be configured in terms of flow-rate, available pressure head and power consumption.

INTEGRATED CONDENSATION´S CONTROL

The electronics of the units manages the most suitable condensing control for each type of application: two-way modulating valve, inverter control for the pumps.

RENEWABLE ENERGY FOR COMMERCIAL INSTALLATIONS

Best solution in centralised residential systems such as apartment buildings, where the cost of renovation needs to be limited by keeping the same distribution system with radiators, while offering a source of renewable energy.

MODULAR CONFIGURATION

Modular configuration with capacity extension up to 400kW for medium- and high-capacity installations. Ability of managing different thermal loads according to the requirements of both heating and the domestic hot water systems.

Accessory

- Soft start
- Stackable units
- User side and source side hydronic kit (n°13 single pumps and n°13 twin head-pumps available)
- Water connections can be placed on the right-hand side, top or rear.
- Extra soundproof lining to reduce the noise emissions.
- Outside air temperature probe for plant water set point compensation.
- Three-way valve for domestic hot water
- Set-up for remote connectivity with ModBus/Echelon protocol cards

Controls

Electronic control W3000TE

The W3000TE controller is the new device designed especially for heat pump applications with incorporated logic for high and very high temperature hot water production. The keypad features function controls and a complete LCD display for viewing data and activating the unit, via a multilevel menu, with settable display language. The controller provides temperature control for the heating and cooling systems in the air-conditioned rooms, as well as for domestic hot water. These different temperatures are managed automatically based on the different conditions in which the system operates, with the possibility to assign specific levels of priority to domestic hot water production, depending on the needs of the application. Diagnostics include complete alarm management, with “blackbox” functions (via PC) and alarm log (display or PC) for best analysis of unit be haviour. For systems made up of multiple units, differentiated device management means just a certain portion of the capacity installed can be dedicated to domestic water production, in this way ensuring more efficient energy distribution and, at the same time, guaranteeing simultaneous water delivery to the different distribution systems. The built-in clock can be used to create an operating profile containing up to 4 typical days and 10 time bands, essential for efficient programming of energy production, and fundamental for managing the Legionella prevention cycles.
Supervision is available with different options, using proprietarydevices or by integration into third party systems using ModBus, BACnet, BACnet-over-IP and Echelon LonWorks protocols.
A dedicated wall-mounted keypad can be used for remote control of all the functions.

WWH-HT			0071	0091	0101	0121	0131	0151
Power supply		V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
PERFORMANCE								
COOLING ONLY (GROSS VALUE)								
Cooling capacity	(1)	kW	23,6	28,0	32,0	36,6	41,3	47,1
Total power input	(1)	kW	5,22	6,22	6,86	7,86	8,68	10,1
EER	(1)	kW/kW	4,52	4,50	4,66	4,66	4,76	4,66
ESEER	(1)	kW/kW	4,81	4,73	4,97	4,92	5,02	4,90
COOLING ONLY (EN14511 VALUE)								
Cooling capacity	(1)(2)	kW	23,5	27,9	31,9	36,4	41,1	46,9
EER	(1)(2)	kW/kW	4,33	4,32	4,47	4,47	4,56	4,48
ESEER	(1)(2)	kW/kW	4,59	4,53	4,76	4,70	4,79	4,69
Cooling energy class			C	C	C	C	C	C
HEATING ONLY (GROSS VALUE)								
Total heating capacity	(3)	kW	27,5	32,8	37,0	42,6	47,8	54,6
Total power input	(3)	kW	6,20	7,33	8,15	9,33	10,4	11,9
COP		kW/kW	4,44	4,47	4,54	4,57	4,60	4,59
HEATING ONLY (EN14511 VALUE)								
Total heating capacity	(3)(2)	kW	27,6	32,9	37,1	42,7	48,0	54,8
COP	(3)(2)	kW/kW	4,21	4,26	4,32	4,34	4,38	4,38
Cooling energy class			B	B	B	B	B	B
ENERGY EFFICIENCY								
SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)								
Ambient refrigeration								
Prated,c	(11)	kW	-	-	-	-	-	-
SEER	(11)(12)		-	-	-	-	-	-
Performance ηs	(11)(13)	%	-	-	-	-	-	-
SEASONAL EFFICIENCY IN HEATING (Reg. EU 813/2013)								
PDesign	(4)	kW	32,5	38,7	43,9	50,1	56,5	64,7
SCOP	(4)(14)		5,12	5,07	5,26	5,23	5,34	5,24
Performance ηs	(4)(15)	%	197	195	202	201	206	202
Seasonal efficiency class	(4)		A++	A++	A++	A++	A++	A++
PDesign	(5)	kW	30,1	36,0	40,4	46,6	52,2	59,6
SCOP	(5)(14)		4,12	4,15	4,22	4,25	4,26	4,24
Performance ηs	(5)(15)	%	157	158	161	162	162	162
Seasonal efficiency class	(5)		A++	A++	A++	A++	A++	A++
EXCHANGERS								
HEAT EXCHANGER USER SIDE IN REFRIGERATION								
Water flow	(1)	l/s	1,13	1,34	1,53	1,75	1,97	2,25
Pressure drop	(1)	kPa	18,0	18,5	18,6	19,3	19,4	18,6
HEAT EXCHANGER USER SIDE IN HEATING								
Water flow	(3)	l/s	1,73	2,07	2,34	2,69	3,03	3,46
Pressure drop	(3)	kPa	42,2	44,0	43,5	45,8	45,7	44,0
HEAT EXCHANGER SOURCE SIDE IN REFRIGERATION								
Water flow	(1)	l/s	1,37	1,63	1,85	2,11	2,38	2,72
Pressure drop	(1)	kPa	11,9	12,4	14,0	14,8	16,2	17,6
HEAT EXCHANGER SOURCE SIDE IN HEATING								
Water flow	(3)	l/s	1,33	1,59	1,79	2,06	2,31	2,63
Pressure drop	(3)	kPa	11,2	11,7	13,1	14,0	15,2	16,5
REFRIGERANT CIRCUIT								
Compressors nr.		N°	1	1	1	1	1	1
No. Circuits		N°	1	1	1	1	1	1
Refrigerant charge		kg	2,80	3,30	3,70	4,30	4,90	5,80
NOISE LEVEL								
Sound Pressure	(6)	dB(A)	51	52	53	54	55	55
Sound power level in cooling	(7)(8)	dB(A)	66	67	68	69	70	70
Sound power level in heating	(7)(9)	dB(A)	66	67	68	69	70	70
SIZE AND WEIGHT								
A	(10)	mm	1200	1200	1200	1200	1200	1200
B	(10)	mm	600	600	600	600	600	600
H	(10)	mm	855	855	855	855	855	855
Operating weight	(10)	kg	235	245	250	255	265	275

Notes:
1 Plant (side) cooling exchanger water (in/out) 12°C/7°C; Source (side) heat exchanger water (in/out) 30°C/35°C.
2 Values in compliance with EN14511-3:2013.
3 Plant (side) heating exchanger water (in/out) 40°C/45°C; Source (side) heat exchanger water (in/out) 10°C/7°C
4 Seasonal space heating energy efficiency class LOW TEMPERATURE in AVERAGE climate conditions [REGULATION (EU) N. 813/2013]
5 Seasonal space heating energy efficiency class MEDIA TEMPERATURE in AVERAGE climate conditions [REGULATION (EU) N. 813/2013]
6 Average sound pressure level at 1m distance, unit in a free field on a reflective surface; non-binding value calculated from the sound power level.
7 Sound power on the basis of measurements made in compliance with ISO 9614.
8 Sound power level in cooling, indoors.
9 Sound power level in heating, indoors.
10 Unit in standard configuration/execution, without optional accessories.
11 Seasonal energy efficiency of the cooling environment [REGULATION (EU) N. 2016/2281]
12 Seasonal space heating energy index
13 Seasonal energy efficiency of the space cooling
14 Seasonal performance coefficient
15 Seasonal space heating energy efficiency
The units highlighted in this publication contain HFC R410A [GWP_{100} 2088] fluorinated greenhouse gases.

WWH-HT			0152	0182	0202	0252	0262	0302
Power supply		V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
PERFORMANCE								
COOLING ONLY (GROSS VALUE)								
Cooling capacity	(1)	kW	47,2	56,0	64,0	73,2	82,5	94,2
Total power input	(1)	kW	10,4	12,4	13,7	15,7	17,3	20,2
EER	(1)	kW/kW	4,54	4,52	4,67	4,66	4,77	4,66
ESEER	(1)	kW/kW	5,63	5,49	5,80	5,76	5,86	5,72
COOLING ONLY (EN14511 VALUE)								
Cooling capacity	(1)(2)	kW	47,0	55,8	63,8	73,0	82,2	93,9
EER	(1)(2)	kW/kW	4,36	4,35	4,48	4,47	4,57	4,48
ESEER	(1)(2)	kW/kW	5,19	5,09	5,31	5,29	5,38	5,27
Cooling energy class			C	C	C	C	C	C
HEATING ONLY (GROSS VALUE)								
Total heating capacity	(3)	kW	55,0	65,7	74,0	85,3	95,5	109
Total power input	(3)	kW	12,4	14,6	16,3	18,7	20,8	23,7
COP		kW/kW	4,44	4,50	4,54	4,56	4,59	4,61
HEATING ONLY (EN14511 VALUE)								
Total heating capacity	(3)(2)	kW	55,2	65,9	74,3	85,7	95,9	110
COP	(3)(2)	kW/kW	4,24	4,32	4,34	4,37	4,39	4,41
Cooling energy class			B	B	B	B	B	B
ENERGY EFFICIENCY								
SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)								
Ambient refrigeration								
Prated,c	(11)	kW	-	-	-	-	-	-
SEER	(11)(12)		-	-	-	-	-	-
Performance ηs	(11)(13)	%	-	-	-	-	-	-
SEASONAL EFFICIENCY IN HEATING (Reg. EU 813/2013)								
PDesign	(4)	kW	65,1	77,4	87,9	101	113	129
SCOP	(4)(14)		5,52	5,52	5,66	5,66	5,75	5,66
Performance ηs	(4)(15)	%	213	213	218	218	222	219
Seasonal efficiency class	(4)		A++	-	-	-	-	-
PDesign	(5)	kW	60,1	72,0	80,8	93,4	104	119
SCOP	(5)(14)		4,54	4,59	4,66	4,66	4,73	4,70
Performance ηs	(5)(15)	%	174	175	178	179	181	180
Seasonal efficiency class	(5)		A++	-	-	-	-	-
EXCHANGERS								
HEAT EXCHANGER USER SIDE IN REFRIGERATION								
Water flow	(1)	l/s	2,26	2,68	3,06	3,50	3,95	4,51
Pressure drop	(1)	kPa	18,7	16,0	17,5	17,8	18,8	19,3
HEAT EXCHANGER USER SIDE IN HEATING								
Water flow	(3)	l/s	3,45	4,14	4,68	5,39	6,05	6,92
Pressure drop	(3)	kPa	43,8	38,2	41,1	42,4	44,2	45,6
HEAT EXCHANGER SOURCE SIDE IN REFRIGERATION								
Water flow	(1)	l/s	2,74	3,26	3,70	4,23	4,75	5,45
Pressure drop	(1)	kPa	17,9	21,2	29,8	30,3	31,6	32,6
HEAT EXCHANGER SOURCE SIDE IN HEATING								
Water flow	(3)	l/s	2,65	3,17	3,57	4,12	4,61	5,27
Pressure drop	(3)	kPa	16,8	20,1	27,9	28,6	29,7	30,6
REFRIGERANT CIRCUIT								
Compressors nr.		N°	2	2	2	2	2	2
No. Circuits		N°	1	1	1	1	1	1
Refrigerant charge		kg	5,80	5,70	6,70	7,80	8,70	10,0
NOISE LEVEL								
Sound Pressure	(6)	dB(A)	56	56	57	57	58	58
Sound power level in cooling	(7)(8)	dB(A)	71	71	72	72	73	73
Sound power level in heating	(7)(9)	dB(A)	71	71	72	72	73	73
SIZE AND WEIGHT								
A	(10)	mm	1470	1470	1470	1470	1470	1470
B	(10)	mm	885	885	885	885	885	885
H	(10)	mm	900	900	900	900	900	900
Operating weight	(10)	kg	405	435	445	465	475	495

Notes:
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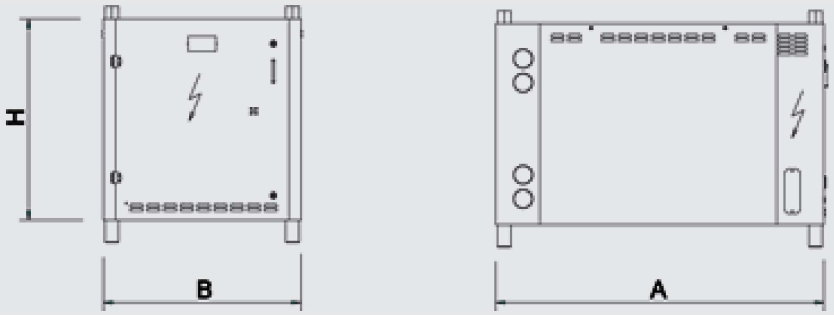
Certified data in EUROVENT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