

# FOCS-W /H 0401 - 1302

Water to water heat pump, reversible  
on hydraulic side  
87,0-298 kW



## Version

B Basic

## Configurations

H Function with heat pump, reversible on hydraulic side

## Features

### FLEXIBILITY

Flexibility in applications thanks to the many available functions and versions

### ADAPTABILITY

Adaptability at the building's cooling request thanks to the continuous capacity regulation, assured by sophisticated control's logic.

## Accessory

- Compressor power factor correction
- Electronic expansion valve
- Pressostatic control valve
- Remote control keyboard (distance to 200m and to 500m)
- Set-up for remote connectivity with ModBus, Echelon LonTalk, Bacnet protocol board

Indoor unit for the production of chilled/hot water with semi-hermetic screw compressors optimized for R134a, thermostatic expansion valve, shell and tube condenser and evaporator.

Base and supporting structure and panels are of galvanized epoxy powder coated steel with increased thickness.

Flexible and reliable unit; it easily adapts itself to different thermal load conditions thanks to the precise thermoregulation. The high performance's level is achieved thanks to the accurate sizing of all internal components.

## Controls

### W3000TE

The brand new W3000TE controller offers advanced functions and algorithms. The large format keyboard and the wide LCD display favour an easy and safe access to the machine setup and a complete view of unit's status. The assessment and intervention on the unit is managed through a multi-level menu, with selectable user's language. The led icons immediately show the operating status of the circuits, as well as of the fans and of the water pumps (if present). An optional extra is the touch screen interface: 7.0" WVGA colour display with adjustable LED backlight and front USB port. The touch screen technology allows intuitive navigation between the various screens, safe access to the data with a three-level password protection as well as the graphic display of the performance of some monitored measurements.

The diagnostics comprises a complete alarm management system, with "black box" (via PC) and alarm log functions (via display or also PC) for a better analysis of the unit performance.

For the systems made of several units, the adjustment of the resources is performed by optional proprietary devices.

Consumption metering and performance measurement are possible as well. Supervision can be easily developed via proprietary devices or the integration in third party systems by means of the most common protocols as ModBus, Bacnet-over-IP, Echelon LonWorks, Bacnet MS/TP protocols.

Compatibility with the remote keyboard managing up to 8 units.

The presence of the programmable timer allows the creation of an operating profile containing up to 4 typical days and 10 time bands.

The control is characterized by the continuous modulation of the unit capacity, based on PID algorithms and referring to the water delivery temperature.

Optionally (VPF package), capacity modulation can be integrated with hydraulic flow modulation, thanks to inverter-driven pumps and to specific resources for the hydraulic circuit.



FOCS-W / B / H			0401	0501	0551	0651	0751	0802
Power supply		V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
<b>PERFORMANCE</b>								
<b>COOLING ONLY (GROSS VALUE)</b>								
Cooling capacity	(1)	kW	87,0	107	130	147	165	178
Total power input	(1)	kW	19,6	24,5	28,1	32,7	36,9	39,3
EER	(1)	kW/kW	4,44	4,35	4,63	4,51	4,46	4,52
ESEER	(1)	kW/kW	5,15	5,32	5,25	5,29	5,40	5,39
<b>COOLING ONLY (EN14511 VALUE)</b>								
Cooling capacity	(1)(2)	kW	86,7	106	130	147	164	177
EER	(1)(2)	kW/kW	4,27	4,17	4,46	4,34	4,29	4,35
ESEER	(1)(2)	kW/kW	4,49	4,33	4,93	4,53	4,46	4,56
Cooling energy class			C	D	G	C	C	C
<b>HEATING ONLY (GROSS VALUE)</b>								
Total heating capacity	(3)	kW	99,5	123	148	168	189	202
Total power input	(3)	kW	23,5	29,2	34,2	39,2	44,0	47,1
COP		kW/kW	4,23	4,20	4,32	4,29	4,29	4,29
<b>HEATING ONLY (EN14511 VALUE)</b>								
Total heating capacity	(3)(2)	kW	99,9	123	148	169	189	203
COP	(3)(2)	kW/kW	4,08	4,04	4,18	4,14	4,13	4,15
Cooling energy class			C	C	G	C	C	C
<b>ENERGY EFFICIENCY</b>								
<b>SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)</b>								
<b>Ambient refrigeration</b>								
Prated,c	(11)	kW	-	-	-	-	-	-
SEER	(11)(12)		-	-	-	-	-	-
Performance ηs	(11)(13)	%	-	-	-	-	-	-
<b>SEASONAL EFFICIENCY IN HEATING (Reg. EU 813/2013)</b>								
PDesign	(4)	kW	120	148	179	203	227	245
SCOP	(4)(14)		5,33	5,41	5,53	5,46	5,50	5,48
Performance ηs	(4)(15)	%	205	208	213	210	212	211
Seasonal efficiency class	(4)		-	-	-	-	-	-
PDesign	(5)	kW	107	133	159	180	204	217
SCOP	(5)(14)		4,01	4,23	3,93	4,07	4,26	4,18
Performance ηs	(5)(15)	%	152	161	149	155	162	159
Seasonal efficiency class	(5)		-	-	-	-	-	-
<b>EXCHANGERS</b>								
<b>HEAT EXCHANGER USER SIDE IN REFRIGERATION</b>								
Water flow	(1)	l/s	4,16	5,10	6,23	7,05	7,87	8,49
Pressure drop	(1)	kPa	17,7	17,5	14,1	18,1	22,6	17,6
<b>HEAT EXCHANGER USER SIDE IN HEATING</b>								
Water flow	(3)	l/s	6,17	7,59	9,20	10,45	11,73	12,58
Pressure drop	(3)	kPa	39,0	38,8	30,9	39,7	50,1	38,6
<b>HEAT EXCHANGER SOURCE SIDE IN REFRIGERATION</b>								
Water flow	(1)	l/s	5,07	6,24	7,54	8,57	9,59	10,32
Pressure drop	(1)	kPa	32,6	52,5	43,1	44,0	44,7	51,8
<b>HEAT EXCHANGER SOURCE SIDE IN HEATING</b>								
Water flow	(3)	l/s	4,80	5,92	7,13	8,11	9,10	9,76
Pressure drop	(3)	kPa	29,3	47,3	38,6	39,4	40,3	46,3
<b>REFRIGERANT CIRCUIT</b>								
Compressors nr.		N°	1	1	1	1	1	2
No. Circuits		N°	1	1	0	1	1	2
Refrigerant charge		kg	18,5	21,0	31,0	29,9	28,9	41,9
<b>NOISE LEVEL</b>								
Sound Pressure	(6)	dB(A)	74	75	77	77	77	76
Sound power level in cooling	(7)(8)	dB(A)	91	92	94	94	94	94
Sound power level in heating	(7)(9)	dB(A)	91	92	94	94	94	94
<b>SIZE AND WEIGHT</b>								
A	(10)	mm	2300	2500	2500	2500	2500	3200
B	(10)	mm	1000	1000	1000	1000	1000	1200
H	(10)	mm	1500	1500	1500	1500	1500	1500
Operating weight	(10)	kg	800	840	1160	1180	1190	1470

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 R134a [GWP<sub>100</sub> 1430] fluorinated greenhouse gases.

FOCS-W / B / H			0851	0951	1002	1102	1302
Power supply		V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
<b>PERFORMANCE</b>							
<b>COOLING ONLY (GROSS VALUE)</b>							
Cooling capacity	(1)	kW	198	221	217	251	298
Total power input	(1)	kW	42,7	49,6	49,2	55,8	65,6
EER	(1)	kW/kW	4,63	4,46	4,41	4,49	4,54
ESEER	(1)	kW/kW	5,54	5,42	5,52	5,24	5,49
<b>COOLING ONLY (EN14511 VALUE)</b>							
Cooling capacity	(1)(2)	kW	197	220	216	250	297
EER	(1)(2)	kW/kW	4,45	4,28	4,22	4,30	4,35
ESEER	(1)(2)	kW/kW	4,66	4,45	4,38	4,53	4,56
Cooling energy class			C	C	D	C	C
<b>HEATING ONLY (GROSS VALUE)</b>							
Total heating capacity	(3)	kW	223	252	249	287	339
Total power input	(3)	kW	51,2	59,1	58,7	67,9	78,6
COP		kW/kW	4,36	4,27	4,24	4,22	4,31
<b>HEATING ONLY (EN14511 VALUE)</b>							
Total heating capacity	(3)(2)	kW	224	253	250	288	340
COP	(3)(2)	kW/kW	4,21	4,07	4,03	4,00	4,10
Cooling energy class			C	C	C	C	C
<b>ENERGY EFFICIENCY</b>							
<b>SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)</b>							
<b>Ambient refrigeration</b>							
Prated,c	(11)	kW	-	-	-	-	-
SEER	(11)(12)		-	-	-	-	-
Performance ηs	(11)(13)	%	-	-	-	-	-
<b>SEASONAL EFFICIENCY IN HEATING (Reg. EU 813/2013)</b>							
PDesign	(4)	kW	272	305	300	346	410
SCOP	(4)(14)		5,64	5,36	5,26	5,02	5,22
Performance ηs	(4)(15)	%	218	206	202	193	201
Seasonal efficiency class	(4)		-	-	-	-	-
PDesign	(5)	kW	239	272	269	311	363
SCOP	(5)(14)		4,24	4,25	4,27	3,83	4,11
Performance ηs	(5)(15)	%	161	162	163	145	156
Seasonal efficiency class	(5)		-	-	-	-	-
<b>EXCHANGERS</b>							
<b>HEAT EXCHANGER USER SIDE IN REFRIGERATION</b>							
Water flow	(1)	l/s	9,46	10,57	10,38	11,99	14,25
Pressure drop	(1)	kPa	21,8	41,3	39,8	53,1	46,0
<b>HEAT EXCHANGER USER SIDE IN HEATING</b>							
Water flow	(3)	l/s	13,96	15,68	15,42	17,77	21,11
Pressure drop	(3)	kPa	47,5	90,8	87,8	117	101
<b>HEAT EXCHANGER SOURCE SIDE IN REFRIGERATION</b>							
Water flow	(1)	l/s	11,45	12,88	12,67	14,59	17,30
Pressure drop	(1)	kPa	52,5	38,7	54,1	40,5	45,0
<b>HEAT EXCHANGER SOURCE SIDE IN HEATING</b>							
Water flow	(3)	l/s	10,78	12,18	12,00	13,84	16,35
Pressure drop	(3)	kPa	46,6	34,6	48,6	36,5	40,2
<b>REFRIGERANT CIRCUIT</b>							
Compressors nr.		N°	1	1	2	2	2
No. Circuits		N°	1	1	2	2	2
Refrigerant charge		kg	35,6	50,6	42,6	51,0	53,7
<b>NOISE LEVEL</b>							
Sound Pressure	(6)	dB(A)	76	76	77	79	79
Sound power level in cooling	(7)(8)	dB(A)	94	94	95	97	97
Sound power level in heating	(7)(9)	dB(A)	94	94	95	97	97
<b>SIZE AND WEIGHT</b>							
A	(10)	mm	3200	3200	3200	3200	3500
B	(10)	mm	1000	1000	1200	1200	1200
H	(10)	mm	1500	1500	1500	1500	1800
Operating weight	(10)	kg	1270	1350	1490	1930	2220

Notes:

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Certified data in EUROVENT

