

**Reversible heat pump, water source
5,20-33,4 kW**



The MTD2 water-cooled heat pumps are reversible units for heating, cooling and domestic hot water by external three-way valve (accessory). Both the MTD2 heat pumps are suitable for traditional heating systems and radiant panels. The reversible heat pumps, working with water at lower temperatures, ensure a higher yield and are particularly suitable in new buildings with low energy consumption that point on using renewable energy resources. The installation is greatly simplified through the integration of the group simply by connecting the unit the water plant and the electricity so that it can be put into operation.

Controls

NADISYSTEM

Electronic control Nadisystem provides great application flexibility. The remote keyboard kit wired indoor and outdoor temperature sensors allow dynamic control of delivery temperature water, optimizing comfort in the room and increasing the energy efficiency.

The electronic board allows you to manage:

- wired remote control, backlit display complete with remote temperature and humidity probe
- outdoor temperature sensor for water plant side modular set point compensation
- a zone of direct heating for radiator, floor heating or fan coil
- domestic hot water production by external three-way valve (accessory)
- Electrical heating element for possible integration and anti-legionella cycle for cylinder
- boiler or electric heater in substitution or in addition
- the room controller can customise up to six time bands. The presence of the programmable timer allows the creation of an operating profile containing up to 6 time bands.
- up to 4 heat pump in cascade (with N-CM component)
- several solutions through appropriate configurations of the controller and use of dedicated extension modules (accessorie), up to 5 zone.



Version

- Basic

Features

Structure and base in hot-dip galvanised steel with epoxy powder paint finish.
High efficiency, low pressure drop AISI 316 stainless steel plate heat exchangers, fitted with heating element to provide frost protection.
Hermetic scroll type compressors, equipped with the crankcase heater and thermal protection
Case panels are insulated within low noise material for further improvement of silence
Rubber vibration damper.
Soft starter for 230V/1/50Hz units (ms)
Phase sequence control relay for three phase models
The water circuit comes complete with:
Variable flow circulator for 0011+0061 models and centrifugal variable flow pump for 0071 ÷ 0121 models, plant side
Modulating valve to reduce water consumption (source side).
Safety valve
Expansion tank
Manual filling assembly
Pressure gauge
Air vent valve
Drain valve on both the plant and the source circuits.
Differential pressure switch on source side and system side

Accessory

- Wired room terminal with backlit display, and with temperature and umidity probe
- Extension module for system configuration
- Three-way valve for domestic hot water
- Electric heater of integration for the heating system
- Electric heater for hot water cylinder, of integration and for anti-legionellosis
- Cascade management kit
- Serial card RS485 for ModBus
- Buffer tank 35,100,200 liters
- Hot water cylinder 300,500 liters
- 300 liters thermal store for domestic hot water, for DOMH2O kit
- 300,500,1000 liters thermal store for domestic hot water with solar heat exchanger, for DOMH2O kit
- DOMH2O15 e DOMH2O24 kit for domestic hot water with external plate heat exchanger and pump

APPLICATION HYDRONIC TERMINAL

WWR MTD2			0011ms	0025ms	0031ms	0041ms	0025t	0031t
Power supply		V/ph/Hz	230/1/50	230/1/50	230/1/50	230/1/50	400/3/50	400/3/50
COOLING ONLY (GROSS VALUE)								
Cooling capacity	(1)	kW	5,20	7,20	8,80	11,3	7,30	8,90
Total power input	(1)	kW	1,50	2,00	2,60	3,20	1,90	2,40
EER	(1)	kW/kW	3,47	3,60	3,38	3,53	3,84	3,71
ESEER	(1)	kW/kW	3,81	4,21	3,94	3,95	4,54	4,18
COOLING ONLY (EN14511 VALUE)								
Cooling capacity	(1)(2)	kW	5,21	7,21	8,83	11,3	7,31	8,93
EER	(1)(2)	kW/kW	3,16	3,36	3,02	3,22	3,57	3,28
ESEER	(1)(2)	kW/kW	3,43	3,85	3,42	3,53	4,15	3,61
Cooling energy class			F	F	G	F	E	F
HEATING ONLY (GROSS VALUE)								
Total heating capacity	(3)	kW	7,20	9,80	12,2	15,4	9,60	12,1
Total power input	(3)	kW	1,70	2,30	3,00	3,60	2,20	2,80
COP	(3)	kW/kW	4,24	4,26	4,07	4,28	4,36	4,32
HEATING ONLY (EN14511 VALUE)								
Total heating capacity	(3)(2)	kW	7,20	9,80	12,2	15,4	9,60	12,1
COP	(3)(2)	kW/kW	3,85	3,93	3,59	3,83	4,01	3,78
Cooling energy class			D	D	E	D	C	D
ENERGY EFFICIENCY								
SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)								
Ambient refrigeration								
Prated,c	(10)	kW	-	-	-	-	-	-
SEER	(10)(11)		-	-	-	-	-	-
Performance ηs	(10)(12)	%	-	-	-	-	-	-
SEASONAL EFFICIENCY IN HEATING (Reg. EU 813/2013)								
PDesign	(4)	kW	8,76	11,5	14,5	18,4	11,9	14,6
SCOP	(4)(13)		4,70	4,86	4,42	4,51	5,20	4,58
Performance ηs	(4)(14)	%	180	186	169	172	200	175
Seasonal efficiency class	(4)		A++	A++	A++	A++	A++	A++
EXCHANGERS								
HEAT EXCHANGER USER SIDE IN REFRIGERATION								
Water flow	(1)	l/s	0,25	0,34	0,42	0,54	0,35	0,43
Available unit's head	(1)	kPa	61,5	67,1	96,2	91,8	66,7	95,7
HEAT EXCHANGER USER SIDE IN HEATING								
Water flow	(3)	l/s	0,35	0,47	0,59	0,74	0,46	0,58
Available unit's head	(3)	kPa	52,2	54,6	77,3	70,8	55,6	77,9
HEAT EXCHANGER SOURCE SIDE IN REFRIGERATION								
Water flow	(1)	l/s	0,32	0,44	0,54	0,69	0,44	0,54
Pressure drop	(1)	kPa	12,3	18,3	27,5	30,8	18,3	27,1
HEAT EXCHANGER SOURCE SIDE IN HEATING								
Water flow	(3)	l/s	0,45	0,61	0,75	0,96	0,60	0,75
Pressure drop	(3)	kPa	24,2	35,5	52,5	59,5	34,6	53,5
REFRIGERANT CIRCUIT								
Compressors nr.		N°	1	1	1	1	1	1
No. Circuits		N°	1	1	1	1	1	1
Refrigerant charge		kg	1,10	1,15	1,24	1,55	1,15	1,24
NOISE LEVEL								
Sound power level in cooling	(5)(6)	dB(A)	52	53	53	58	53	53
Sound power level in heating	(5)(7)	dB(A)	52	53	53	58	53	53
Sound Pressure	(8)	dB(A)	37	38	38	43	38	38
SIZE AND WEIGHT								
A	(9)	mm	845	845	845	845	845	845
B	(9)	mm	680	680	680	680	680	680
H	(9)	mm	1105	1105	1105	1105	1105	1105
Operating weight	(9)	kg	188	190	195	210	190	195

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 Sound power on the basis of measurements made in compliance with ISO 9614.
 - 6 Sound power level in cooling, indoors.
 - 7 Sound power level in heating, indoors.
 - 8 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.
 - 9 Unit in standard configuration/execution, without optional accessories.
 - 10 Seasonal energy efficiency of the cooling environment [REGULATION (EU) N. 2016/2281]
 - 11 Seasonal space heating energy index
 - 12 Seasonal energy efficiency of the space cooling
 - 13 Seasonal performance coefficient
 - 14 Seasonal space heating energy efficiency
- The units highlighted in this publication contain HFC R410A [GWP₁₀₀ 2088] fluorinated greenhouse gases.

APPLICATION HYDRONIC TERMINAL

WWR MTD2			0041t	0061t	0071t	0091t	0101t	0121t
Power supply		V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
COOLING ONLY (GROSS VALUE)								
Cooling capacity	(1)	kW	11,8	15,7	19,8	22,9	26,0	33,4
Total power input	(1)	kW	3,20	4,00	5,10	5,80	6,80	8,40
EER	(1)	kW/kW	3,69	3,92	3,88	3,95	3,82	3,98
ESEER	(1)	kW/kW	4,19	4,33	4,38	4,44	4,31	4,30
COOLING ONLY (EN14511 VALUE)								
Cooling capacity	(1)(2)	kW	11,8	15,7	19,9	23,0	26,2	33,6
EER	(1)(2)	kW/kW	3,35	3,64	3,50	3,62	3,46	3,68
ESEER	(1)(2)	kW/kW	3,74	3,97	3,87	4,00	3,83	3,92
Cooling energy class			F	E	E	E	E	E
HEATING ONLY (GROSS VALUE)								
Total heating capacity	(3)	kW	16,1	21,2	26,2	30,5	34,9	44,0
Total power input	(3)	kW	3,70	4,60	5,90	6,50	7,70	9,60
COP	(3)	kW/kW	4,35	4,61	4,44	4,69	4,53	4,58
HEATING ONLY (EN14511 VALUE)								
Total heating capacity	(3)(2)	kW	16,1	21,2	26,1	30,4	34,7	43,8
COP	(3)(2)	kW/kW	3,88	4,17	3,91	4,17	3,99	4,12
Cooling energy class			C	B	C	C	C	C
ENERGY EFFICIENCY								
SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)								
Ambient refrigeration								
Prated,c	(10)	kW	-	-	-	-	-	-
SEER	(10)(11)		-	-	-	-	-	-
Performance ηs	(10)(12)	%	-	-	-	-	-	-
SEASONAL EFFICIENCY IN HEATING (Reg. EU 813/2013)								
PDesign	(4)	kW	19,1	25,4	31,4	36,6	41,8	52,2
SCOP	(4)(13)		4,68	4,88	4,64	4,91	4,74	4,76
Performance ηs	(4)(14)	%	179	187	177	188	182	182
Seasonal efficiency class	(4)		A++	A++	A++	A++	A++	A++
EXCHANGERS								
HEAT EXCHANGER USER SIDE IN REFRIGERATION								
Water flow	(1)	l/s	0,56	0,75	0,95	1,10	1,24	1,60
Available unit's head	(1)	kPa	89,7	85,0	159	151	184	172
HEAT EXCHANGER USER SIDE IN HEATING								
Water flow	(3)	l/s	0,78	1,02	1,26	1,47	1,68	2,12
Available unit's head	(3)	kPa	66,7	59,7	117	105	147	129
HEAT EXCHANGER SOURCE SIDE IN REFRIGERATION								
Water flow	(1)	l/s	0,71	0,94	1,18	1,36	1,56	1,99
Pressure drop	(1)	kPa	32,9	33,5	37,0	31,7	43,2	44,0
HEAT EXCHANGER SOURCE SIDE IN HEATING								
Water flow	(3)	l/s	1,01	1,34	1,65	1,94	2,20	2,79
Pressure drop	(3)	kPa	65,7	69,1	71,5	64,4	86,5	86,6
REFRIGERANT CIRCUIT								
Compressors nr.		N°	1	1	1	1	1	1
No. Circuits		N°	1	1	1	1	1	1
Refrigerant charge		kg	1,55	1,70	2,65	3,10	3,50	3,70
NOISE LEVEL								
Sound power level in cooling	(5)(6)	dB(A)	58	59	66	66	70	70
Sound power level in heating	(5)(7)	dB(A)	58	59	66	66	70	70
Sound Pressure	(8)	dB(A)	43	44	51	51	55	55
SIZE AND WEIGHT								
A	(9)	mm	845	845	845	845	845	845
B	(9)	mm	680	680	680	680	680	680
H	(9)	mm	1105	1105	1105	1105	1105	1105
Operating weight	(9)	kg	210	225	230	245	250	270

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
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 - 13 Seasonal performance coefficient
 - 14 Seasonal space heating energy efficiency
- The units highlighted in this publication contain HFC R410A [GWP₁₀₀ 2088] fluorinated greenhouse gases.
- Certified data in EUROVENT

APPLICATION FLOOR HEATING

WWR MTD2			0011ms	0025ms	0031ms	0041ms	0025t	0031t
Power supply		V/ph/Hz	230/1/50	230/1/50	230/1/50	230/1/50	400/3/50	400/3/50
COOLING ONLY (GROSS VALUE)								
Cooling capacity	(1)	kW	7,10	9,80	12,0	15,1	9,50	12,0
Total power input	(1)	kW	1,60	2,00	2,50	3,30	1,80	2,50
EER	(1)	kW/kW	4,44	4,90	4,80	4,58	5,28	4,80
ESEER	(1)	kW/kW	3,81	4,21	3,94	3,95	4,54	4,18
COOLING ONLY (EN14511 VALUE)								
Cooling capacity	(1)(2)	kW	7,11	9,80	12,0	15,1	9,51	12,0
EER	(1)(2)	kW/kW	4,04	4,50	4,19	4,10	4,82	4,19
ESEER	(1)(2)	kW/kW	3,43	3,85	3,42	3,53	4,15	3,61
Cooling energy class			F	F	G	F	E	F
HEATING ONLY (GROSS VALUE)								
Total heating capacity	(3)	kW	7,70	10,2	12,8	16,2	10,4	12,8
Total power input	(3)	kW	1,40	1,80	2,30	2,90	1,70	2,20
COP	(3)	kW/kW	5,50	5,67	5,57	5,59	6,12	5,82
HEATING ONLY (EN14511 VALUE)								
Total heating capacity	(3)(2)	kW	7,70	10,2	12,8	16,2	10,4	12,8
COP	(3)(2)	kW/kW	4,84	5,04	4,66	4,79	5,38	4,83
Cooling energy class			D	D	E	D	C	D
ENERGY EFFICIENCY								
SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)								
Ambient refrigeration								
Prated,c	(10)	kW	-	-	-	-	-	-
SEER	(10)(11)		-	-	-	-	-	-
Performance ηs	(10)(12)	%	-	-	-	-	-	-
SEASONAL EFFICIENCY IN HEATING (Reg. EU 813/2013)								
PDesign	(4)	kW	8,76	11,5	14,5	18,4	11,9	14,6
SCOP	(4)(13)		4,70	4,86	4,42	4,51	5,20	4,58
Performance ηs	(4)(14)	%	180	186	169	172	200	175
Seasonal efficiency class	(4)		A++	A++	A++	A++	A++	A++
EXCHANGERS								
HEAT EXCHANGER USER SIDE IN REFRIGERATION								
Water flow	(1)	l/s	0,34	0,47	0,58	0,72	0,46	0,58
Available unit's head	(1)	kPa	52,9	54,9	79,0	73,1	56,5	79,0
HEAT EXCHANGER USER SIDE IN HEATING								
Water flow	(3)	l/s	0,37	0,49	0,62	0,78	0,50	0,62
Available unit's head	(3)	kPa	49,6	52,6	73,7	66,5	51,4	73,7
HEAT EXCHANGER SOURCE SIDE IN REFRIGERATION								
Water flow	(1)	l/s	0,41	0,56	0,69	0,88	0,54	0,69
Pressure drop	(1)	kPa	20,8	30,3	44,8	49,8	27,8	44,8
HEAT EXCHANGER SOURCE SIDE IN HEATING								
Water flow	(3)	l/s	0,51	0,68	0,85	1,07	0,70	0,86
Pressure drop	(3)	kPa	31,4	44,1	67,5	74,8	47,2	68,7
REFRIGERANT CIRCUIT								
Compressors nr.		N°	1	1	1	1	1	1
No. Circuits		N°	1	1	1	1	1	1
Refrigerant charge		kg	1,10	1,15	1,24	1,55	1,15	1,24
NOISE LEVEL								
Sound power level in cooling	(5)(6)	dB(A)	52	53	53	58	53	53
Sound power level in heating	(5)(7)	dB(A)	52	53	53	58	53	53
Sound Pressure	(8)	dB(A)	37	38	38	43	38	38
SIZE AND WEIGHT								
A	(9)	mm	845	845	845	845	845	845
B	(9)	mm	680	680	680	680	680	680
H	(9)	mm	1105	1105	1105	1105	1105	1105
Operating weight	(9)	kg	188	190	195	210	190	195

Notes:

- 1 Plant (side) cooling exchanger water (in/out) 23°C/18°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) 30°C/35°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 Sound power on the basis of measurements made in compliance with ISO 9614.
 - 6 Sound power level in cooling, indoors.
 - 7 Sound power level in heating, indoors.
 - 8 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.
 - 9 Unit in standard configuration/execution, without optional accessories.
 - 10 Seasonal energy efficiency of the cooling environment [REGULATION (EU) N. 2016/2281]
 - 11 Seasonal space heating energy index
 - 12 Seasonal energy efficiency of the space cooling
 - 13 Seasonal performance coefficient
 - 14 Seasonal space heating energy efficiency
- The units highlighted in this publication contain HFC R410A [GWP₁₀₀ 2088] fluorinated greenhouse gases.

APPLICATION FLOOR HEATING

WWR MTD2			0041t	0061t	0071t	0091t	0101t	0121t
Power supply		V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
COOLING ONLY (GROSS VALUE)								
Cooling capacity	(1)	kW	15,7	21,3	26,9	30,7	34,8	44,8
Total power input	(1)	kW	3,30	4,10	5,20	6,00	7,00	8,80
EER	(1)	kW/kW	4,76	5,20	5,17	5,12	4,97	5,09
ESEER	(1)	kW/kW	4,19	4,33	4,38	4,44	4,31	4,30
COOLING ONLY (EN14511 VALUE)								
Cooling capacity	(1)(2)	kW	15,7	21,3	27,0	30,8	35,0	45,0
EER	(1)(2)	kW/kW	4,25	4,71	4,55	4,59	4,43	4,62
ESEER	(1)(2)	kW/kW	3,74	3,97	3,87	4,00	3,83	3,92
Cooling energy class			F	E	E	E	E	E
HEATING ONLY (GROSS VALUE)								
Total heating capacity	(3)	kW	16,8	22,4	27,8	32,3	37,0	46,2
Total power input	(3)	kW	2,90	3,70	4,70	5,20	6,10	7,70
COP	(3)	kW/kW	5,79	6,05	5,91	6,21	6,07	6,00
HEATING ONLY (EN14511 VALUE)								
Total heating capacity	(3)(2)	kW	16,8	22,4	27,7	32,2	36,8	46,0
COP	(3)(2)	kW/kW	4,93	5,24	4,95	5,28	5,08	5,17
Cooling energy class			C	B	C	C	C	C
ENERGY EFFICIENCY								
SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)								
Ambient refrigeration								
Prated,c	(10)	kW	-	-	-	-	-	-
SEER	(10)(11)		-	-	-	-	-	-
Performance ηs	(10)(12)	%	-	-	-	-	-	-
SEASONAL EFFICIENCY IN HEATING (Reg. EU 813/2013)								
PDesign	(4)	kW	19,1	25,4	31,4	36,6	41,8	52,2
SCOP	(4)(13)		4,68	4,88	4,64	4,91	4,74	4,76
Performance ηs	(4)(14)	%	179	187	177	188	182	182
Seasonal efficiency class	(4)		A++	A++	A++	A++	A++	A++
EXCHANGERS								
HEAT EXCHANGER USER SIDE IN REFRIGERATION								
Water flow	(1)	l/s	0,75	1,02	1,29	1,47	1,67	2,15
Available unit's head	(1)	kPa	69,7	59,9	113	105	148	127
HEAT EXCHANGER USER SIDE IN HEATING								
Water flow	(3)	l/s	0,81	1,08	1,34	1,55	1,78	2,22
Available unit's head	(3)	kPa	62,8	53,8	106	94,2	137	120
HEAT EXCHANGER SOURCE SIDE IN REFRIGERATION								
Water flow	(1)	l/s	0,90	1,21	1,53	1,75	1,99	2,55
Pressure drop	(1)	kPa	53,1	56,0	61,7	52,1	70,5	72,7
HEAT EXCHANGER SOURCE SIDE IN HEATING								
Water flow	(3)	l/s	1,12	1,51	1,86	2,18	2,49	3,10
Pressure drop	(3)	kPa	81,6	86,9	91,6	81,4	110	107
REFRIGERANT CIRCUIT								
Compressors nr.		N°	1	1	1	1	1	1
No. Circuits		N°	1	1	1	1	1	1
Refrigerant charge		kg	1,55	1,70	2,65	3,10	3,50	3,70
NOISE LEVEL								
Sound power level in cooling	(5)(6)	dB(A)	58	59	66	66	70	70
Sound power level in heating	(5)(7)	dB(A)	58	59	66	66	70	70
Sound Pressure	(8)	dB(A)	43	44	51	51	55	55
SIZE AND WEIGHT								
A	(9)	mm	845	845	845	845	845	845
B	(9)	mm	680	680	680	680	680	680
H	(9)	mm	1105	1105	1105	1105	1105	1105
Operating weight	(9)	kg	210	225	230	245	250	270

Notes:

- 1 Plant (side) cooling exchanger water (in/out) 23°C/18°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) 30°C/35°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 Sound power on the basis of measurements made in compliance with ISO 9614.
 - 6 Sound power level in cooling, indoors.
 - 7 Sound power level in heating, indoors.
 - 8 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.
 - 9 Unit in standard configuration/execution, without optional accessories.
 - 10 Seasonal energy efficiency of the cooling environment [REGULATION (EU) N. 2016/2281]
 - 11 Seasonal space heating energy index
 - 12 Seasonal energy efficiency of the space cooling
 - 13 Seasonal performance coefficient
 - 14 Seasonal space heating energy efficiency
- The units highlighted in this publication contain HFC R410A [GWP₁₀₀ 2088] fluorinated greenhouse gases.
- Certified data in EUROVENT**

