

ALEZIO M MAX R290

**REVERSIBLE
HIGH-TEMPERATURE
MONOBLOC
AIR/WATER
HEAT PUMPS**



Integrated decoupling cylinder



Heating with radiators



Heating and refreshing with underfloor



Air to water heat pump



Renewable energy



R290 refrigerant



Compatible room thermostat SMART TC° and Smart CDI

ALEZIO M MAX R290 /E:

from 4 to 13 kW with electrical backup
via integrated electrical resistance

ALEZIO M MAX R290 /H:

from 4 to 13 kW with hydraulic
backup via boiler



ALEZIO M MAX R290 heat pumps stand out for their high performance: COP from 4,60 to 5,17 at an outside temperature of + 7 °C.

They consist of an external “Inverter” module connected to the internal module, equipped with a decoupling cylinder, by hydraulic links.

Thanks to their reversibility and the possibility of cooling via an underfloor cooling system and air-conditioning (only with insulation option, not standard) via a fan coil unit, the ALEZIO M MAX R290 heat pumps offer absolute comfort in all seasons.

These heat pumps are suitable for integration in new builds and renovation projects alike thanks to their compact construction, advanced design and ease of installation.

The ALEZIO M MAX R290 models enable domestic hot water management via an optional hydraulic connection kit.



Operating conditions

Operating temperature limits

heating mode

- Outside air: -25°C / +35°C
- Water: +12°C / +75°C

air conditioning mode

- Outside air: -5°C / +46°C
- Water: +5°C / +25°C

Heating circuit

Max. operating pressure: 3 bar

Max. operating temperature: 75°C with electrical backup
90°C with hydraulic backup



Certified performances available on:

<https://keymark.eu/en/products/heatpumps>

Contents

4 CONVERSION OF HEAT PUMPS TO R290

5 PRESENTATION OF THE RANGE

5 Table of use for the room thermostats and sensors

6 The different models and packaging

7 TECHNICAL SPECIFICATIONS

7 Technical specifications table

8 Water temperature and pressure available at the outlet of the circulator of the outdoor unit

9 Data tables for **heating** mode sizing

11 Data tables for **cooling** mode sizing

12 Indoor unit MID-M: dimensions and main components

15 Outdoor unit MONO AWHP3R: dimensions and main components

17 DHW kit : dimensions and technical description

19 Integrated hydraulic kit, second circuit B (optional): dimensions and technical description

20 CONTROL PANEL DIEMATIC EVOLUTION

21 THE APPLICATIONS

21 APPs De Dietrich Smart and De Dietrich Start

22 APP De Dietrich PRO

23 OPTIONS

23 Control options

24 Hydraulic and DHW options

26 ADDITIONAL FEATURES OF THE CONTROL SYSTEM

27 SIZING AN INSTALLATION

27 Sizing heat pumps

29 Selection table models

32 IMPORTANT INFORMATION FOR INSTALLATION

32 Indoor unit installing MID-M

33 Installation of the mono AWHP3R outdoor unit

36 Acoustic integration

37 Hydraulic connection

40 DHW production

42 Electrical connection

44 INSTALLATION EXAMPLE

CONVERSION OF HEAT PUMPS TO R290

ALEZIO M MAX R290

NEW ALEZIO M MAX R290

- De Dietrich presents its range of R290 hydrosplit heat pumps.
- With its system of hydraulic connections, no need to be a refrigeration engineer to install an Alezio M Max R290.

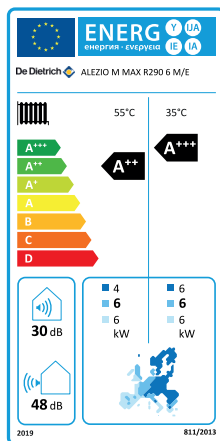
GOOD TO KNOW ABOUT R290 FLUID

- R290 has a higher heat performance than R32.
- R290 is a natural fluid with a GWP of 3, compared with 675 for R32.
- The thermodynamic properties of R290 (or propane) are very good, enabling heat pumps to cover a wide range of applications, particularly at high temperatures.

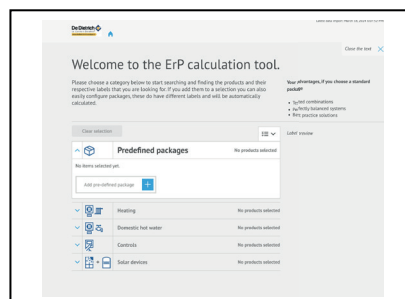
ENERGY LABELLING

Each heat pump is delivered with an energy label displaying a range of information, including energy efficiency, annual energy consumption, manufacturer name and noise level. You can improve the performance of your installation and generate a corresponding “system” label with our “calculator and label generator tool” on the De Dietrich site <https://erp.bdrthermea.com/index.xhtml>.

Example
of a label:



Access to
the tool:



PRESENTATION OF THE RANGE

ALEZIO M MAX R290



ADVANTAGES



SIMPLICITY

- Single module for the entire range.
- No certificate of competence in handling refrigerants required and no leak test.



VERSATILITY

- Electric or hydraulic backup,
- Multi-circuit management to suit all installation configurations, heating, domestic hot water, cooling, swimming pools, etc...
- Integrated decoupling cylinder.
- Outdoor sensor part of standard delivery.



ADAPTABILITY

- Easy hybridisation of existing boiler or combination with a solar system possible.



COMFORT ALL SEASON

- High-temperature water output: up to 75°C.
- Integrated refresh mode as standard.
- Unrivalled heating performance at very low temperatures.
- Domestic hot water production with separate tank.



SILENT

- Sound power level from 26 dB(A).



TABLE OF USE FOR ROOM THERMOSTATS AND SENSORS (OPTIONS)

Description Control	Control system class	Reference	Package	Connection	Batteries	Timer programme	Internet connected
 SMART TC° connected room temperature sensor	Class VI *	7691375	AD324	wired	no	✓	✓
 SMART CDI RF connected room temperature sensor	Class VI *	7900088	-	wireless	✓	✓	✓
 SMART CDI connected room temperature sensor		7899727	-	wired	✓	✓	✓
 Gateway LINK WIFI (GTW IoT)		7898722	-				
 Programmable room thermostat	Class IV *	7768817	AD337	wired	✓	✓	no
 Programmable room thermostat	Class IV *	7768818	AD338	wireless	✓	✓	no

* with wired outside temperature sensor 85757741.

PRESENTATION OF THE RANGE

ALEZIO M MAX R290

MODELS

Reversible air/water heat pump for outdoor temperatures down to -25°C.

For radiator heating or underfloor heating and cooling.

Version with electric back-up via integrated 12 kW stepped electrical resistance and version with hydraulic boiler backup.

VERSIONS WITH ELECTRIC BACK-UP

UP TO		Indoor unit		Outdoor unit						
A+++ (35°C) A+++ (55°C)										
Models	Reference									
		MID-M /E		MONO AWP3R ...						
				... 4 MR	... 6 MR	... 8 MR	... 11 MR	... 11 TR	... 13 MR	...13 TR
ALEZIO M MAX R290 4 M/E	7915261	7890270	7899979	-	-	-	-	-	-	-
ALEZIO M MAX R290 6 M/E	7915263	7890270	-	7899980	-	-	-	-	-	-
ALEZIO M MAX R290 8 M/E	7915265	7890270	-	-	7899981	-	-	-	-	-
ALEZIO M MAX R290 11 M/E	7915267	7890270	-	-	-	7899982	-	-	-	-
ALEZIO M MAX R290 11 T/E	7915269	7890270	-	-	-	-	7899983	-	-	-
ALEZIO M MAX R290 13 M/E	7915271	7890270	-	-	-	-	-	7899984	-	-
ALEZIO M MAX R290 13 T/E	7915273	7890270	-	-	-	-	-	-	-	7899985

M = single
T = three-phase

VERSIONS WITH HYDRAULIC BACK-UP

UP TO		Indoor unit		Outdoor unit						
A+++ (35°C)		Reference								
A+++ (55°C)										
Models										
		MID-M /H		MONO AWP3R ...						
				... 4 MR	... 6 MR	... 8 MR	... 11 MR	... 11 TR	... 13 MR	...13 TR
ALEZIO M MAX R290 4 M/H	7915262	7890269	7899979	-	-	-	-	-	-	-
ALEZIO M MAX R290 6 M/H	7915264	7890269	-	7899980	-	-	-	-	-	-
ALEZIO M MAX R290 8 M/H	7915266	7890269	-	-	7899981	-	-	-	-	-
ALEZIO M MAX R290 11 M/H	7915268	7890269	-	-	-	7899982	-	-	-	-
ALEZIO M MAX R290 11 T/H	7915270	7890269	-	-	-	-	7899983	-	-	-
ALEZIO M MAX R290 13 M/H	7915272	7890269	-	-	-	-	-	7899984	-	-
ALEZIO M MAX R290 13 T/H	7915274	7890269	-	-	-	-	-	-	-	7899985

M = single
T = three-phase

TECHNICAL SPECIFICATIONS

ALEZIO M MAX R290

Certified performances



Certified performances available on:
<https://keymark.eu/en/products/heatpumps>

Operating temperature limits

In heating mode:

Water: +12°C / +75°C,
 Outside air: -25°C / +35°C

In cooling mode:

Water: +5°C / +25°C,
 Outside air: -5°C / +46°C

MODELS

ALEZIO M MAX R290		4 M	6 M	8 M	11 M 11 T	13 M 13 T
SEASONAL PERFORMANCES						
Energy efficiency class (SEER) (heating) (35 °C)		A+++	A+++	A+++	A+++	A+++
Energy efficiency class (SEER) (heating) (55 °C)		A+++	A+++	A+++	A++	A++
Declared thermal output (Prated) (35°C/55°C)	kW	5,3/4,9	6,40/6,1	8,0/7,8	12,1/12,1	13,7/13,7
SCOP (35 °C/55 °C)		5,34/3,99	5,22/3,90	5,20/3,89	4,77/3,75	4,70/3,73
Seasonal space heating energy efficiency under average temperature (35 °C/55 °C) *	%	210/157	206/153	205/153	188/147	185/146
Seasonal space heating energy efficiency under average temperature (35°C/55°C) (with outdoor sensor supplied as standard)	%	212/159	208/155	207/155	190/149	187/148
COP at part load at +7°C/+35°C *		6,74	6,95	6,85	6,98	7,02
COP at part load at +7°C/+55°C *		4,94	5,15	5,05	4,99	5,21
HEAT OUTPUT FOR SIZING THE HEAT PUMP						
Max. heat output at +7 °C/+35 °C	kW	6,86	7,70	11,05	14,72	17,57
Max. heat output at +7 °C/+55 °C	kW	6,20	6,97	10,17	13,61	16,40
For other conditions, please refer to the tables on pages 9 and 11.						
CERTIFIED PERFORMANCES **						
Heat output at +7 °C/+35 °C (1)	kW	4,40	6,26	8,50	11,50	13,50
Heating COP at +7 °C/+35 °C (1)		5,17	4,89	4,98	4,85	4,60
Heat output at +7 °C/+55 °C (1)	kW	4,40	6,10	8,00	11,50	13,50
Heating COP at +7 °C/+55 °C (1)		3,24	3,12	3,18	3,15	3,04
Cooling output at +35 °C/+18 °C (2)	kW	4,56	6,40	9,00	11,90	13,90
Cooling EER at +35 °C/+18 °C (2)		5,49	5,12	4,95	4,52	4,22
Outdoor module sound power (3)	dB[A]	48	48	49	52	52
Indoor module sound power (3)	dB[A]	30	30	30	30	30
TECHNICAL DATA						
Sound pressure outdoor module (4)	dB[A]	26	26	27	30	30
Sound pressure indoor module (4)	dB[A]	22	22	22	22	22
Nominal water flow rate at ΔT = 5 K	m³/h	0,73	1,1	1,44	2,0	2,64
Available manometric height at nominal flow rate at ΔT = 5 K	mbar	740	710	620	460	280
Power supply voltage of the outdoor unit	V	230V mono	230V mono	230V mono	230V mono 380V tri	230V mono 380V tri
Outdoor unit supply voltage	A	16	16	20	32 (mono) 16 (tri)	32 (mono) 16 (tri)
Refrigerant fluid R290	kg	0,7	0,7	1,1	1,25	1,25
CO2 equivalent	tCO ₂ e	0,0021	0,0021	0,0033	0,0038	0,0038
Maximum hydraulic connection distance	m	30	30	30	30	30
Hydraulic connection diameter	inch	1"	1"	1"1/4	1"1/4	1"1/4
Weight of outdoor unit without charge	kg	94	94	121,5	139,5 (mono) 141,5 (tri)	139,5 (mono) 141,5 (tri)
Weight of indoor unit without charge (electrical/hydraulic back-up)	kg	58/53,4	58/53,4	58/53,4	58/53,4	58/53,4

* Values certified according directives n°813/2013 s

** Values given as an indication

(1) Heating mode: outside air temperature/water temperature at outlet, performance in accordance with EN 14511-2

(2) Air conditioning mode: outdoor air temperature/water temperature at the outlet, performance according to EN 14511-2.

(3) Test performed in accordance with standard EN 12102-1

(4) At 1 m in a free field (5 m for the outdoor unit)

TECHNICAL SPECIFICATIONS

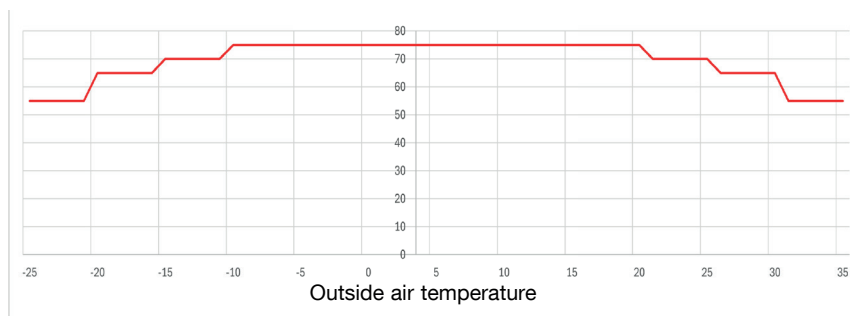
ALEZIO M MAX R290

WATER TEMPERATURE

ALEZIO M MAX R290 heat pump models can produce hot water up to a temperature of 75°C.

The graph shows the water temperature produced for each model based on the outside temperature.

Water temperature (heating mode)

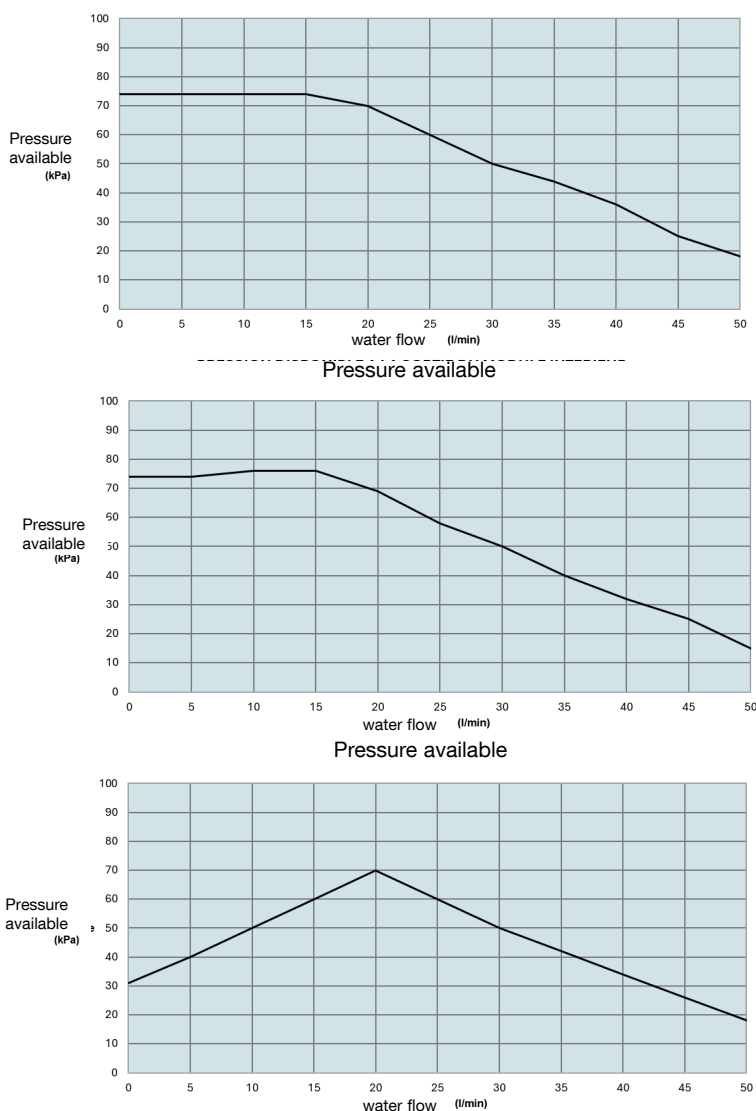


PRESSURE AVAILABLE AT THE OUTLET OF THE CIRCULATOR OF THE OUTDOOR UNIT

The circulator of the outdoor unit is a variable speed pump. Its speed adapts to the distribution network.

The circulator is controlled in speed to reach the set flow.

Pressure available



1 kPa = 10 mbar ≈ 0,1 mH₂O

TECHNICAL SPECIFICATIONS

ALEZIO M MAX R290

DATA TABLES FOR HEATING MODE SIZING

ALEZIO M MAX R290 4 M

OUTSIDE TEMPERATURE (°C)	FLOW TEMPERATURE (°C) HEATING										
	25 Output (kW)	30 Output (kW)	35 Output (kW)	40 Output (kW)	45 Output (kW)	50 Output (kW)	55 Output (kW)	60 Output (kW)	65 Output (kW)	70 Output (kW)	75 Output (kW)
-25	3,24	3,22	3,19	3,15	3,10	3,03	2,87	-	-	-	-
-20	3,92	3,88	3,82	3,77	3,69	3,61	3,33	3,29	3,14	-	-
-15	4,73	4,65	4,56	4,47	4,37	4,24	4,01	3,86	3,69	3,53	-
-10	5,65	5,56	5,45	5,33	5,21	5,06	4,75	4,56	4,35	4,14	3,81
-7	5,94	5,83	5,70	5,58	5,44	5,29	4,95	4,78	4,53	4,34	4,02
0	6,56	6,43	6,28	6,13	5,99	5,83	5,68	5,50	5,26	5,10	4,76
2	6,77	6,64	6,50	6,36	6,19	6,03	5,88	5,69	5,45	5,28	4,93
7	7,18	7,03	6,86	6,71	6,55	6,35	6,20	5,97	5,71	5,52	5,15
12	7,26	7,42	7,23	7,05	6,87	6,69	6,50	6,26	5,98	5,77	5,35
15	6,90	6,74	6,86	6,69	6,51	6,31	6,15	5,91	5,62	5,37	4,94
20	6,48	6,35	6,20	6,32	6,14	5,95	5,78	5,52	5,19	4,92	4,38

ALEZIO M MAX R290 6 M

OUTSIDE TEMPERATURE (°C)	FLOW TEMPERATURE (°C) HEATING										
	25 Output (kW)	30 Output (kW)	35 Output (kW)	40 Output (kW)	45 Output (kW)	50 Output (kW)	55 Output (kW)	60 Output (kW)	65 Output (kW)	70 Output (kW)	75 Output (kW)
-25	3,50	3,46	3,40	3,34	3,28	3,20	3,00	-	-	-	-
-20	4,35	4,30	4,24	4,17	4,08	3,98	3,73	3,60	3,44	-	-
-15	5,29	5,22	5,16	5,07	4,98	4,85	4,55	4,40	4,21	4,04	-
-10	6,21	6,12	6,03	5,95	5,83	5,69	5,33	5,16	4,93	4,26	3,89
-7	6,57	6,47	6,38	6,25	6,12	5,97	5,61	5,40	5,17	4,57	4,17
0	7,50	7,36	7,22	7,04	6,88	6,70	6,57	6,30	6,02	5,79	5,34
2	7,70	7,54	7,39	7,23	7,05	6,87	6,70	6,46	6,19	5,96	5,52
7	8,00	7,85	7,70	7,53	7,35	7,00	6,97	6,75	6,46	6,27	5,84
12	8,16	8,35	8,17	8,00	7,79	7,44	7,40	7,13	6,82	6,58	6,12
15	7,92	7,74	7,92	7,73	7,52	7,19	7,14	6,88	6,57	6,34	5,91
20	7,56	7,38	7,53	7,35	7,14	6,80	6,77	6,49	6,18	5,94	5,46

ALEZIO M MAX R290 8 M

OUTSIDE TEMPERATURE (°C)	FLOW TEMPERATURE (°C) HEATING										
	25 Output (kW)	30 Output (kW)	35 Output (kW)	40 Output (kW)	45 Output (kW)	50 Output (kW)	55 Output (kW)	60 Output (kW)	65 Output (kW)	70 Output (kW)	75 Output (kW)
-25	5,55	5,46	5,37	5,29	5,21	4,99	5,00	-	-	-	-
-20	6,71	6,62	6,54	6,46	6,41	6,15	6,21	5,78	5,38	-	-
-15	7,81	7,72	7,60	7,50	7,39	7,10	6,77	6,32	5,81	5,49	-
-10	9,02	8,90	8,78	8,66	8,54	7,96	7,67	7,22	6,76	6,54	6,12
-7	9,63	9,49	9,37	9,25	9,12	8,78	8,39	7,88	7,37	7,09	6,61
0	10,64	10,50	10,33	10,18	10,02	9,61	9,16	8,47	7,82	7,36	6,72
2	10,95	10,78	10,61	10,45	10,28	9,85	9,88	8,85	8,15	7,64	6,96
7	11,46	11,24	11,05	10,86	10,47	10,16	10,17	9,90	8,79	8,14	7,33
12	12,16	11,95	11,73	11,51	11,08	10,75	10,72	10,41	9,08	8,32	7,36
15	11,93	11,73	11,53	11,30	10,87	10,51	10,48	10,17	9,36	8,55	7,59
20	11,73	11,56	11,35	11,13	10,67	10,31	10,25	9,93	9,56	8,60	7,70

These performances are not certified but can be used for the sizing of the heat pump.

TECHNICAL SPECIFICATIONS

ALEZIO M MAX R290

DATA TABLES FOR HEATING MODE SIZING

ALEZIO M MAX R290 11 M / 11 T

OUTSIDE TEMPERATURE (°C)	FLOW TEMPERATURE (°C) HEATING										
	25 Output (kW)	30 Output (kW)	35 Output (kW)	40 Output (kW)	45 Output (kW)	50 Output (kW)	55 Output (kW)	60 Output (kW)	65 Output (kW)	70 Output (kW)	75 Output (kW)
-25	7,62	7,20	7,00	6,82	6,64	6,46	6,35	-	-	-	-
-20	9,15	8,71	8,53	8,34	8,18	7,99	7,93	7,69	7,42	-	-
-15	10,99	10,38	10,21	10,03	9,85	9,67	9,62	9,38	8,99	8,45	-
-10	11,86	11,14	10,89	10,64	10,44	10,37	10,47	10,41	10,13	9,73	8,97
-7	12,40	12,16	11,93	11,69	11,44	11,25	11,35	11,29	10,95	10,71	10,02
0	13,99	13,39	13,14	12,87	12,58	12,27	12,14	11,74	10,98	10,50	9,63
2	14,57	13,95	13,68	13,40	13,10	12,77	12,61	12,21	11,60	11,19	10,25
7	15,69	15,02	14,72	14,41	14,06	13,69	13,61	13,13	12,53	12,22	10,89
12	17,67	16,81	15,92	15,56	15,17	14,74	14,54	14,03	13,45	13,09	12,01
15	17,05	16,33	15,55	15,33	15,07	14,78	14,70	14,35	13,93	13,72	13,20
20	14,83	14,25	13,54	13,35	13,11	12,87	12,80	12,49	12,14	11,95	11,12

ALEZIO M MAX R290 13 M / 13 T

OUTSIDE TEMPERATURE (°C)	FLOW TEMPERATURE (°C) HEATING										
	25 Output (kW)	30 Output (kW)	35 Output (kW)	40 Output (kW)	45 Output (kW)	50 Output (kW)	55 Output (kW)	60 Output (kW)	65 Output (kW)	70 Output (kW)	75 Output (kW)
-25	9,50	9,03	8,83	8,64	8,45	8,26	8,18	-	-	-	-
-20	11,26	10,78	10,56	10,39	11,15	9,99	9,82	9,37	8,66	-	-
-15	13,29	12,76	12,56	12,36	12,15	11,60	11,19	10,45	9,67	9,17	-
-10	14,26	13,65	13,34	13,06	12,78	12,35	11,88	11,37	10,82	10,39	9,69
-7	15,02	14,74	14,43	14,16	13,85	13,27	13,13	12,58	11,63	11,35	10,71
0	17,16	16,46	16,13	15,83	15,49	15,11	14,64	13,37	12,16	11,57	10,64
2	17,63	16,91	16,60	16,27	15,94	15,56	15,39	13,86	12,77	11,97	10,79
7	18,67	17,89	17,57	17,21	16,85	16,42	16,40	15,59	14,71	13,89	12,36
12	20,80	19,84	18,87	18,46	18,04	17,55	17,36	16,78	15,35	13,81	12,30
15	19,18	18,33	17,44	17,11	16,72	16,29	16,14	15,61	15,04	14,32	12,88
20	16,84	16,17	15,44	15,24	15,01	14,77	14,72	14,03	13,09	12,14	10,92

These performances are not certified but can be used for the sizing of the heat pump.

TECHNICAL SPECIFICATIONS

ALEZIO M MAX R290

DATA TABLES FOR COOLING MODE SIZING

ALEZIO M MAX R290 4 M

OUTSIDE TEMPERATURE (°C)	FLOW TEMPERATURE (°C) COOLING	
	7 Cooling output [kW]	18 Cooling output [kW]
40	5,33	7,41
35	5,66	7,84
30	5,57	7,78
25	5,28	7,18
20	4,81	6,59

ALEZIO M MAX R290 6 M

OUTSIDE TEMPERATURE (°C)	FLOW TEMPERATURE (°C) COOLING	
	7 Cooling output [kW]	18 Cooling output [kW]
40	5,82	8,07
35	7,14	9,75
30	7,11	9,77
25	6,50	9,03
20	5,90	7,98

ALEZIO M MAX R290 8 M

OUTSIDE TEMPERATURE (°C)	FLOW TEMPERATURE (°C) COOLING	
	7 Cooling output [kW]	18 Cooling output [kW]
40	7,23	10,09
35	9,23	12,13
30	8,73	12,11
25	8,33	11,55
20	7,72	10,83

ALEZIO M MAX R290 11 M and 11 T

OUTSIDE TEMPERATURE (°C)	FLOW TEMPERATURE (°C) COOLING	
	7 Cooling output [kW]	18 Cooling output [kW]
40	10,57	14,68
35	11,96	16,40
30	11,85	16,33
25	11,32	15,67
20	10,46	14,56

ALEZIO M MAX R290 13 M and 13 T

OUTSIDE TEMPERATURE (°C)	FLOW TEMPERATURE (°C) COOLING	
	7 Cooling output [kW]	18 Cooling output [kW]
40	11,13	15,34
35	14,26	18,64
30	13,94	19,18
25	12,93	17,81
20	11,95	16,58

TECHNICAL SPECIFICATIONS

ALEZIO M MAX R290

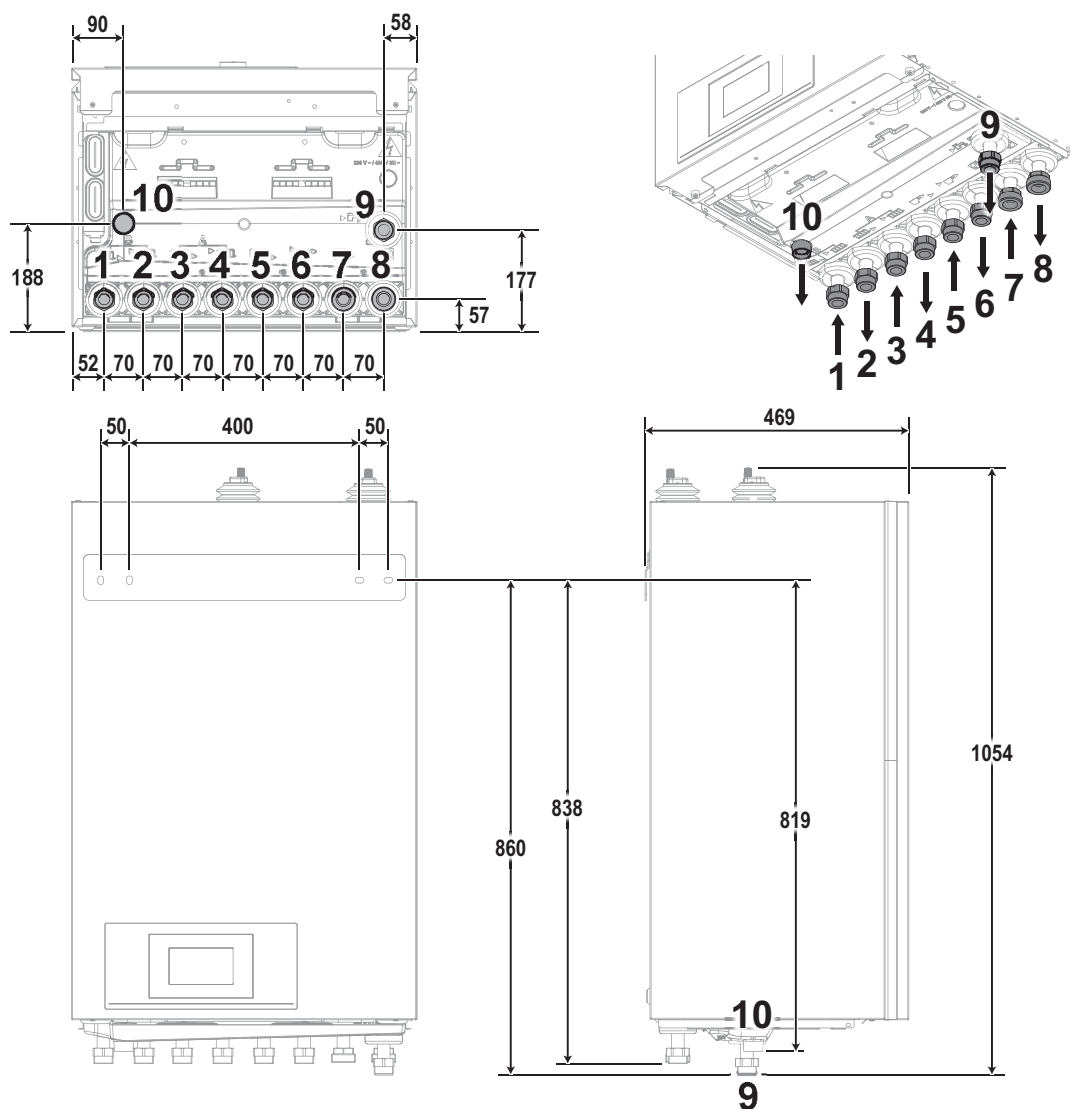
The ALEZIO M MAX R290 heat pumps consist of a MONO AWHP3R outdoor module (see p. 15 and 16) and a MID-M /E indoor module (for electric backup) or a MID-M /H indoor module (for hydraulic backup).

INDOOR MODULE MID-M /E AND MID-M /H

The MID-M /E or MID-M /H indoor module manages the entire system by providing the interface between the outdoor module and the heating installation. It integrates the hydraulic and control components, making it easy to install and simple to use.

It cannot be installed without the outdoor module.

MAIN DIMENSIONS (MM AND INCHES)



MID_M_L2000

Key

1. Heating return B (option) - Ø G1" male
2. Heating flow B (option) - Ø G1" male
3. Heating return A - Ø G1" male
4. Heating flow A - Ø G1" male
5. Return of the auxiliary boiler (model MID-M /H only) - Ø G1" male
6. Flow of the auxiliary boiler (model MID-M /H only) - Ø G1" male
7. Return of the outdoor module - heating mode - Ø G1"1/4 male
8. Flow of the outdoor module - heating mode - Ø G1"1/4 male
9. Flow of the domestic hot water tank (option) - Ø G1" male
10. Condensate outlet and safety valve

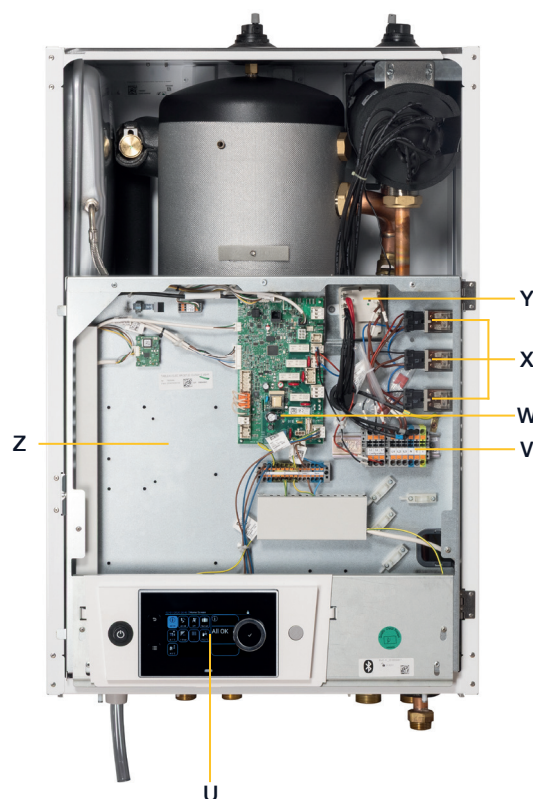
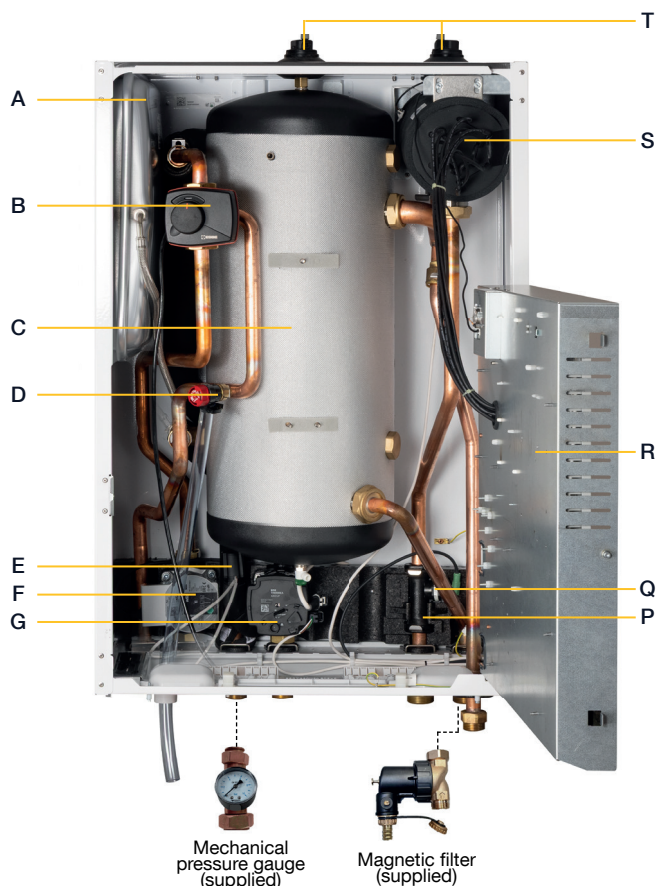
TECHNICAL SPECIFICATIONS

ALEZIO M MAX R290

The MID-M /E or MID-M /H indoor module is accessible from the front and contains all the components necessary for the heating system. All the components are easily accessible.

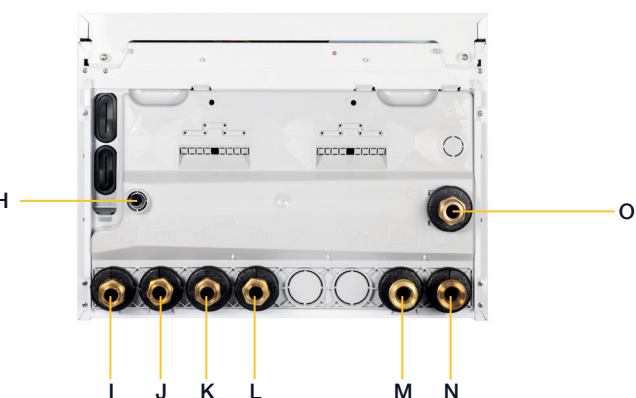
INDOOR UNIT COMPONENTS (FRONT PANEL REMOVED):

MID-M /E (ELECTRIC BACK-UP)



Key

- A Expansion vessel (10 litres)
- B Mixing valve and motor 2nd circuit (option)
- C Decoupling cylinder (40 litres)
- D Safety valve
- E Electronic manometer
- F 2nd circuit B heating pump (option)
- G Integrated pump heating circuit A
- H Condensate outlet and safety valve
- I Return to 2nd heating circuit (inlet B of MID) - G1" male (option)
- J 2nd heating circuit flow (outlet B of MID) - G1" male (option)
- K Heating circuit return (inlet A of MID) - G1" male
- L Heating circuit flow (outlet A of MID) - G1" male
- M Outdoor unit return - G1"1/4 male
- N Outdoor unit flow - G1"1/4 male
- O Domestic hot water tank flow - G1" male (option)
- P Flow sensor
- Q Outdoor unit outlet temperature sensor
- R Electrical box
- S Electrical resistance
- T Automatic air vents
- U Diematic Evolution control panel
- V Electrical resistance power terminal block
- W Main electronic board EHC-16
- X Electrical resistance relay
- Y Safety thermostat
- Z SCB-10 board

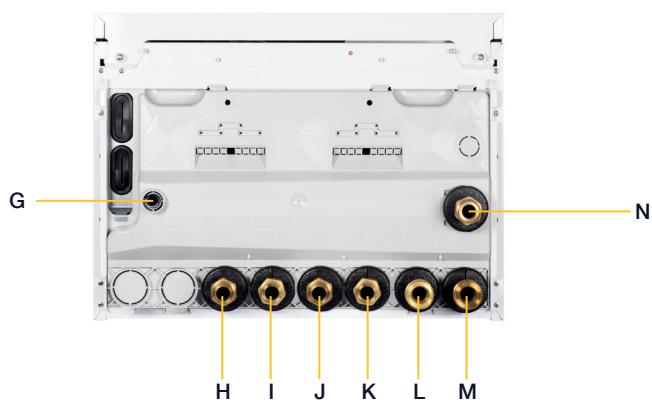
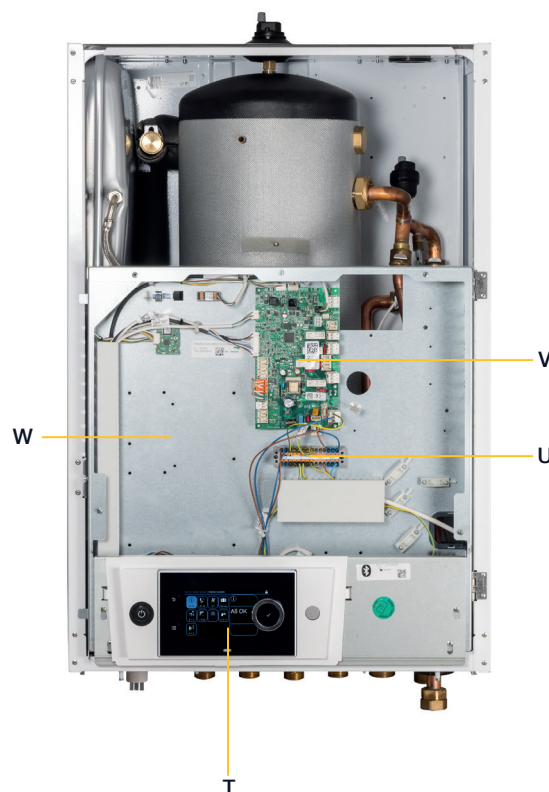
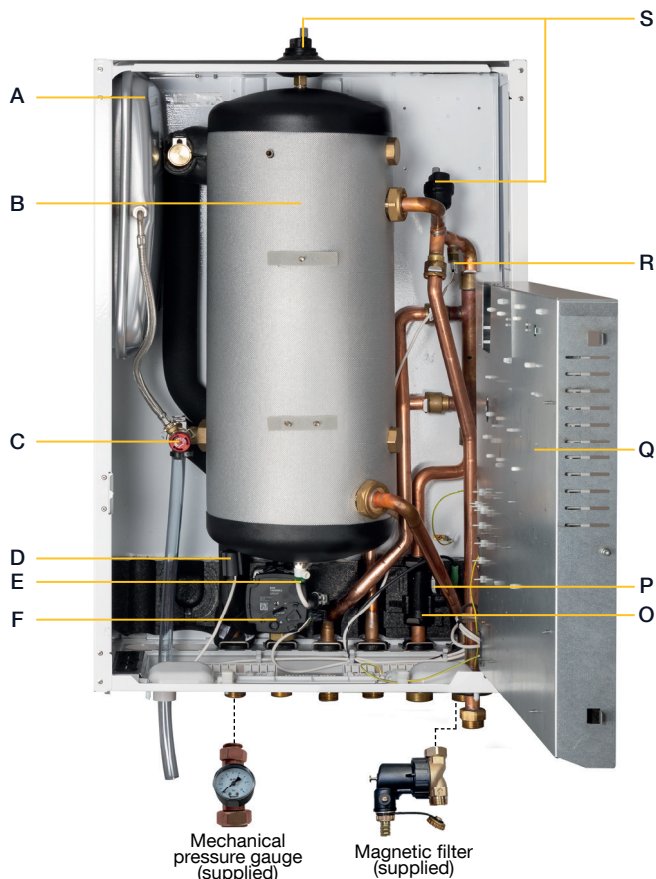


TECHNICAL SPECIFICATIONS

ALEZIO M MAX R290

The MID-M /E or MID-M /H indoor module is accessible from the front and contains all the components necessary for the heating system. All the components are easily accessible.

INDOOR UNIT COMPONENTS (FRONT PANEL REMOVED): MID-M /H (HYDRAULIC BACK-UP)



Key

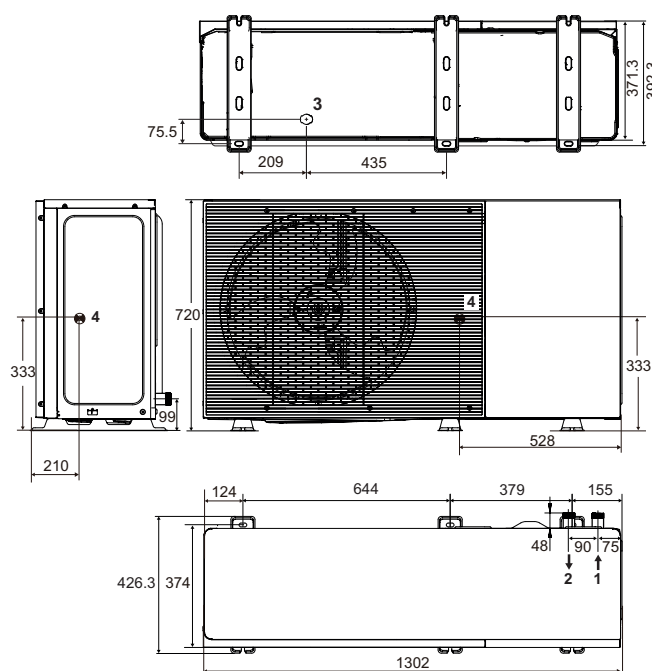
- A Expansion vessel (10 litres)
- B Decoupling cylinder (40 litres)
- C Safety valve
- D Electronic manometer
- E Draining valve
- F Heating circuit pump
- G Condensate outlet and safety valve
- H Heating circuit return (inlet A of MID)- G1" male
- I Heating circuit flow (outlet A of MID) - G1" male
- J Return of the auxiliary boiler - G1"male
- K Flow to the auxiliary boiler - G1"male
- L Outdoor unit return - G1"1/4 male
- M Outdoor unit flow - G1"1/4 male
- N Domestic hot water tank flow - G1" male (option)
- O Flowmeter
- P Outdoor unit outlet temperature sensor
- Q Electrical box
- R Temperature sensor heating flow
- S Automatic air vent
- T Diematic Evolution control panel
- U Indoor module power terminal block
- V Main electronic board EHC-16
- W SCB-10 board

TECHNICAL SPECIFICATIONS

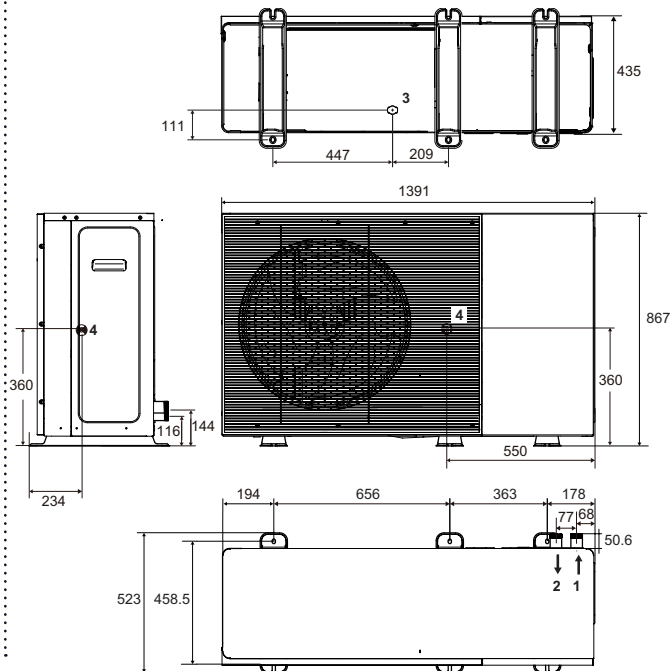
ALEZIO M MAX R290

MAIN DIMENSIONS (MM AND INCHES)

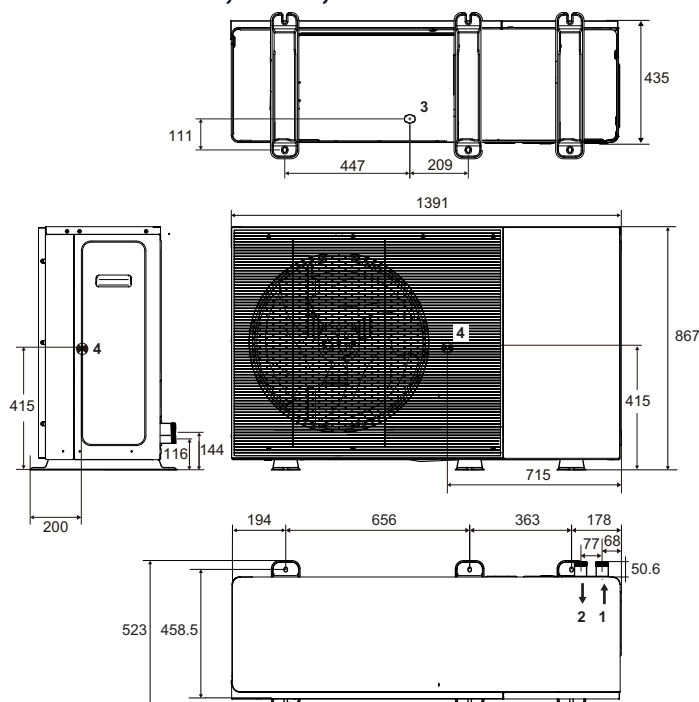
**Outdoor unit
MONO AWHP3R 4 MR AND 6 MR**



**Outdoor unit
MONO AWHP3R 8 MR**



**Outdoor unit MONO AWHP3R
11 MR, 11 TR, 13 MR AND 13 TR**



Key

1. Outlet MONO AWHP3R:

G1" (4MR and 6 MR)

G1"1/4 (8MR, 11MR, 13MR, 11TR and 13TR)

2. Return MONO AWHP3R:

G1" (4MR and 6 MR)

G1"1/4 (8MR, 11MR, 13MR, 11TR and 13TR)

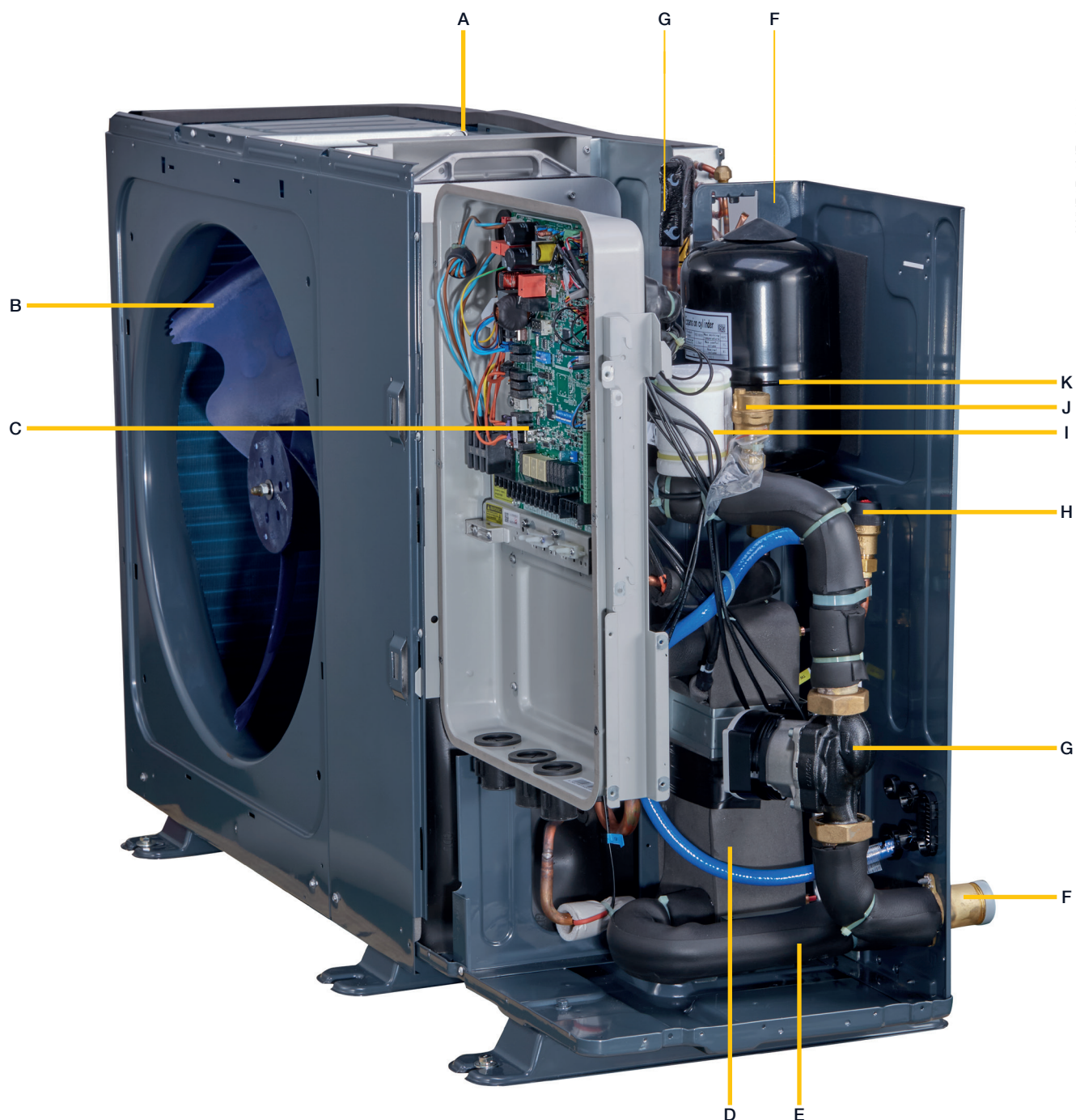
3. Opening condensate evacuation

4. Centre of gravity

TECHNICAL SPECIFICATIONS

ALEZIO M MAX R290

COMPONENTS OF THE OUTSIDE MODULE (FRONT PANEL REMOVED)



Key:

- | | | | |
|---|-------------------------------------|---|---------------------------|
| A | Evaporator | G | Circulating pump |
| B | Fan | H | Safety valve 3 bars |
| C | Electronic card with terminal block | I | Flow switch |
| D | Condenser | J | Automatic air vent |
| E | MID-M indoor module water return | K | 8 litres expansion vessel |
| F | Water outlet to MID-M indoor module | | |

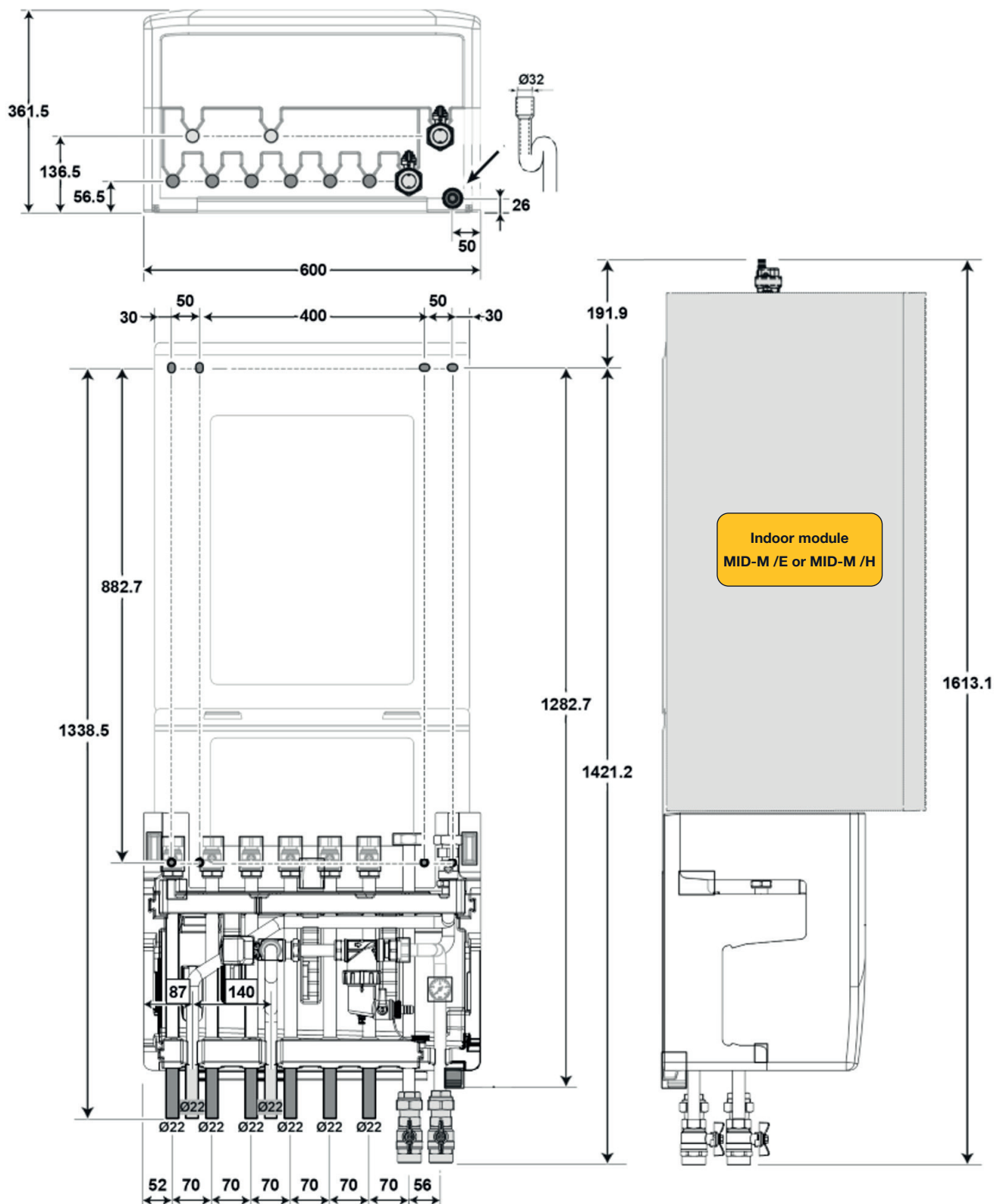
TECHNICAL SPECIFICATIONS

ALEZIO M MAX R290

DHW CONNECTION KIT (OPTIONAL)

ALEZIO M MAX R290 heat pumps can be equipped with a hydraulic kit (optional) for connecting an external domestic hot water tank. This kit contains the reversing valve, connecting pipes and mounting brackets. It is mounted underneath the indoor module of the ALEZIO M MAX R290.

MAIN DIMENSIONS (MM AND INCHES)

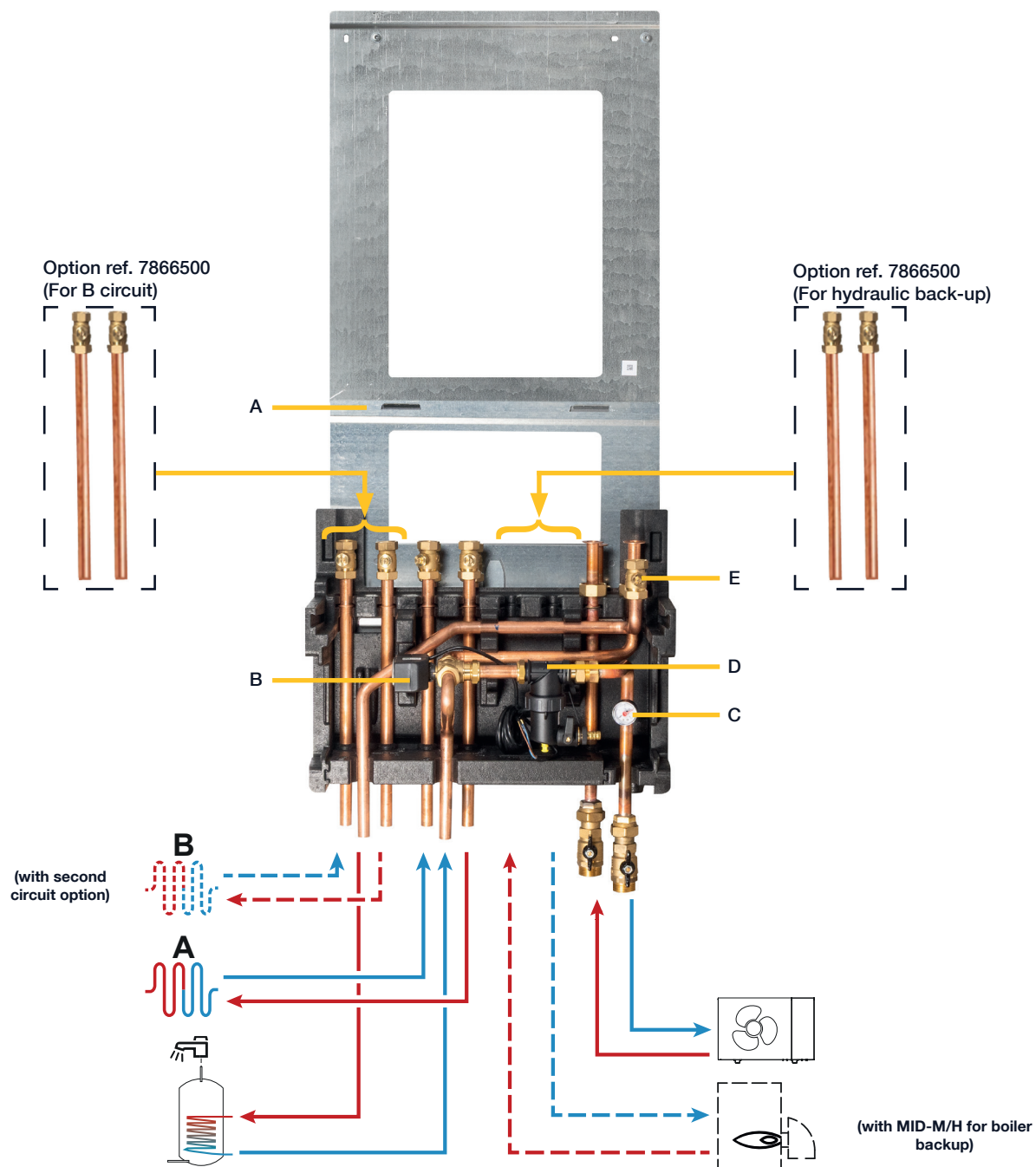


TECHNICAL SPECIFICATIONS

ALEZIO M MAX R290

DHW CONNECTION KIT (OPTIONAL)

TECHNICAL DESCRIPTION



Key

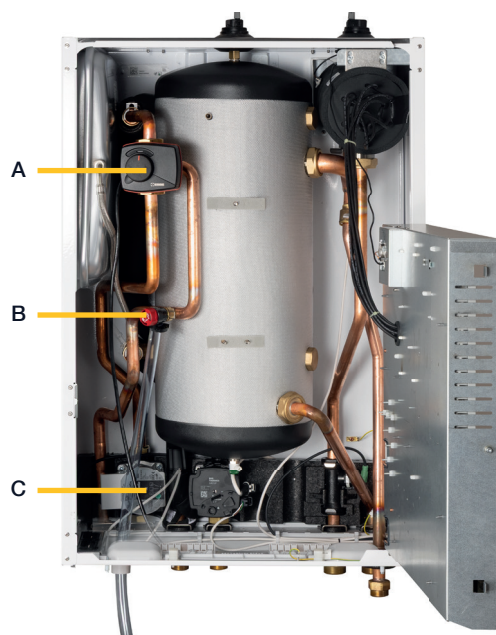
- A Positioning frame
- B 3-way valve (DHW)
- C Manometer
- D Magnetic filter
- E Safety valve

TECHNICAL SPECIFICATIONS

ALEZIO M MAX R290

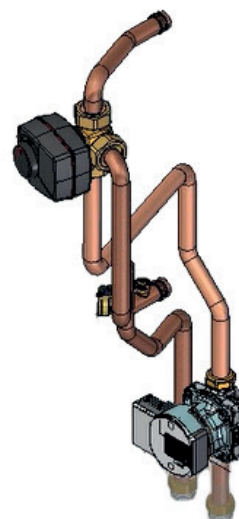
SECOND MIXED CIRCUIT KIT (OPTIONAL)

TECHNICAL DESCRIPTION



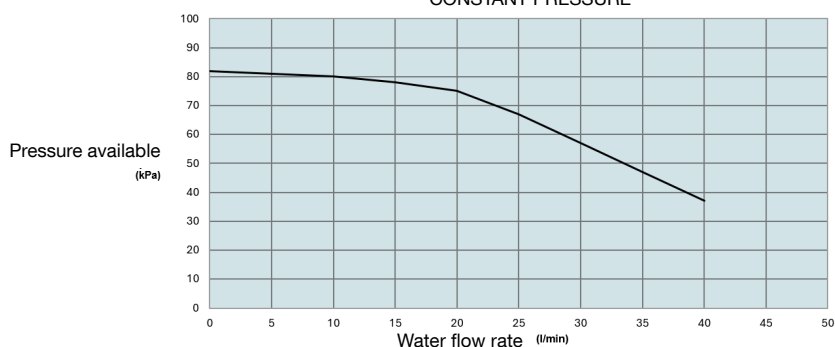
Key

- A Motor + 3-way mixing valve
- B Safety valve
- C Mixed circuit pump

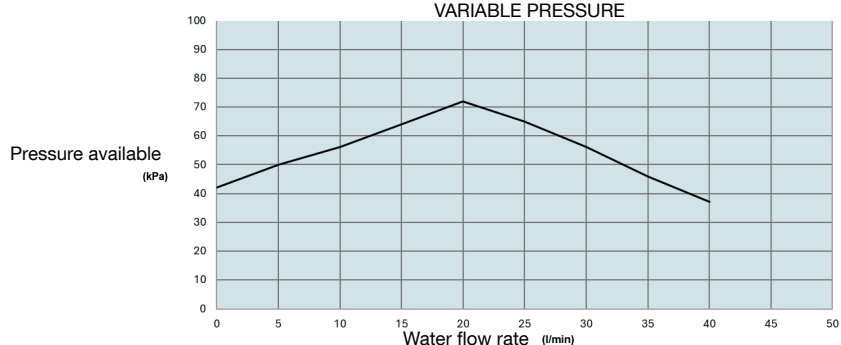


WATER PRESSURE AVAILABLE AT THE OUTLET OF THE CIRCULATOR FOR THE SECOND CIRCUIT OPTION (OUTLET B)

Pressure available at the outlet of the indoor unit - Outlet B (mix)
CONSTANT PRESSURE



Pressure available at the outlet of the indoor unit - Outlet B (mix)
VARIABLE PRESSURE



1 kPa = 10 mbar $\approx$ 0,1 mH₂O
Circulator speed at 100%

CONTROL PANEL

ALEZIO M MAX R290

DIEMATIC EVOLUTION CONTROL PANEL

The control panels fitted to the ALEZIO M MAX R290 heat pumps incorporate an electronic control system used to adapt heating output to the actual needs of the installation according to the outside temperature (sensor provided).

To do this, the control system operates the modulation of the compressor (via the BUS cable connecting the outside unit to the indoor unit) and, where applicable, manages backup via the boiler or the electrical resistor.

With MID-M, it can be used to manage a single direct circuit, which may be a radiator circuit or a low temperature underfloor heating circuit. With MID-M, it can also be used to manage an additional circuit with a 3-way mixing valve. Moreover, this control system manages the reversibility of the heating in winter/cooling in summer.

The Diematic Evolution control panel can also be used to manage domestic hot water.



SELECTION OF OPTIONS ACCORDING TO THE CIRCUITS CONNECTED

TYPE OF CIRCUIT (1)		DHW		Direct	Direct + 1 valve	2 valves	3 valves
DIEMATIC EVOLUTION CONTROL PANEL	CONTROL OPTIONS	100000030 (DHW sensor) 		as standard	7847503 (SCB-10 + outlet sensor) 	7892685 (SCB-10) + 2 x 88017017 (outlet senso) 	7892685 (SCB-10) + 2 x 88017017 (outlet senso)
	HYDRAULIC OPTIONS	7863529 (DHW connection kit) 		as standard	7866494 (internal hydraulic kit) 	7866496 + 100020165 + 100020164 + 2 x 100020168	7866496 + 100020165 + 100020164 + 3 x 100020168

(1) Each of the 'heating' circuits can be supplemented by a room sensor or thermostat listed in the options.

THE APPLICATIONS

ALEZIO M MAX R290



App **DE DIETRICH SMART** for remote control

When combined with its application, our room units, available as an option, combine the height of comfort with ease of installation and use. The temperature of your home and your domestic hot water can be controlled wherever you are, both at home and remotely, and programmed hours entered to suit your lifestyle or requirements.



- « User friendly » with room units with attractive design
- Remote heating management via the application
- Quick and easy programming aid
- Monitoring of heating and DHW consumption *
- Fault alert

* depending on model



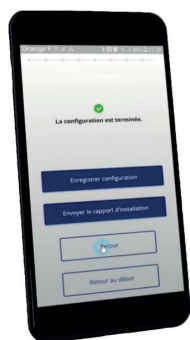
Control your heating wherever you are in the world. Our room units work in conjunction with your Alezio M MAX R290 heat pump, giving you new ways to use it.



App **DE DIETRICH START** for professional commissioning

The DE DIETRICH START application is used with the GTW35-Bluetooth option to guide you step-by-step through the commissioning of De Dietrich products.

You configure the products by answering questions – simple and intuitive, with no parameter codes to remember.



With this application, you can:

- Configure De Dietrich products
- Program the zone temperatures
- Save an installation configuration
- Send an installation report by e-mail
- Duplicate an installation configuration
- Free application compatible with all De Dietrich products (boilers and heat pumps) that support the service tool or are factory-equipped with the Bluetooth® function.

THE APPLICATIONS

ALEZIO M MAX R290



App **DE DIETRICH PRO** for diagnostics

Diagnose each De Dietrich heat pump quickly and easily. This application is a practical tool which can be used for all types of work: installation, maintenance and troubleshooting.

The local Bluetooth connection ensures quick and easy access to all of the control system parameters:

- The status of the generator
- The values and measurements
- Viewing and resetting of errors
- Viewing and resetting of meters
- Fault messages in clear text format
- Viewing and resetting of service messages

Free application compatible with all De Dietrich products (boilers and heat pumps) that support the service tool or are factory-equipped with the Bluetooth® function.



OPTIONS

ALEZIO M MAX R290

CONTROL OPTIONS



Wired programmable room thermostat
Ref.: 7768817 / AD337

Wireless programmable room thermostat - Ref.: 7768818 / AD338

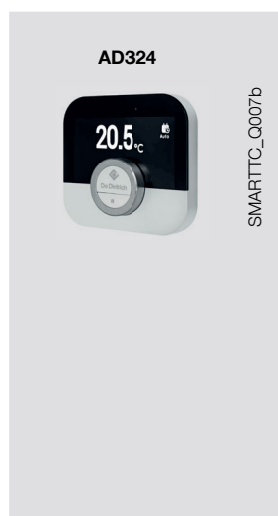
Programmable thermostats provide weekly programming and regulation of the heating according to the various operating modes:

AUTOMATIC: depending on the programming.

PERMANENT: at a set temperature or **HOLIDAY**.

The wireless version includes an emitter module which is fixed to the wall near the MIV-S.

The non-programmable thermostat is only used to regulate the room temperature based on the specific setpoint.



SMART TC° room temperature sensor R-BUS (wired)
Ref.: 7691375 / AD324

SMART TC° enables remote control of the heating and domestic hot water via a free to download application easy for the user to learn, with the option of providing a professional with access to their installation.

It enables a precise remote temperature and modulation control, integrates several timer programs with programming help, gives access to the installation parameters including energy consumption indicators with data saving.

If the SMART TC° can operate as a classic remote control, without Wifi or application, it is recommended to connect it to the internet to benefit from the latest updates.



SMART CDI RF room temperature sensor
Ref.: 7900088

SMART CDI room temperature sensor
Ref.: 7899727

Smart CDI is a room sensor that connects to all DE DIETRICH appliances equipped with a Diematic Evolution or E-Pilot panel. In combination with WiFi Link (GTW IoT), the system can be remotely connected and controlled.

Gateway LINK WIFI (GTW IoT)
Ref.: 7898722



Domestic hot water sensor (length 5 M)
Ref.: 100000030 / AD212



Humidity sensor kit
Ref.: 100019114 / HK27

Sensor for measuring humidity in the flow part of an installation with underfloor heating/ cooling. In « refreshing » mode, the heat pump is stopped if the humidity detected is high, avoiding the appearance of condensation.



Humidity sensor (0 - 10 v)
Ref.: 7622433 / HZ64

Collector for measuring the humidity in your installation in the flow part of the underfloor heating/cooling. In cooling mode, it is used to adapt the water flow temperature to avoid the appearance of condensation.



Flow sensor downstream of valve (length 2.5 M) - Ref.: 88017017 / AD199

This sensor is installed after the mixing valve.



PCB + sensor for 1 mixing valve
Ref.: 100013304 / AD249

It is used to control an electromechanical or electrothermal mixing valve.



Direct underfloor heating wiring kit
Ref.: 7866499

This wiring harness connects to the Grundfos heating pump and includes wires for connecting a safety thermostat for underfloor heating for the integrated circuit A.

OPTIONS

ALEZIO M MAX R290

OPTIONS FOR THE OUTDOOR UNIT



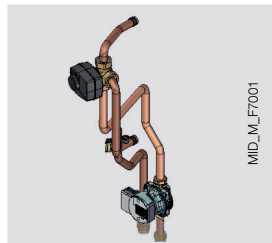
HK602

PAC_Q9120

Kit 3 x rubber floor support 600 mm
Ref.: 7816801 / HK602

Kit of 3 rubber floor support for mounting the outdoor module on the ground.

HYDRAULIC OPTIONS

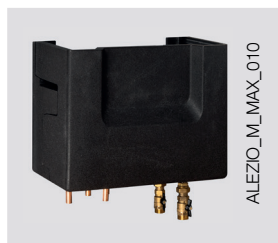


MID_M_F7001

Kit second circuit 3-way valve MID
Ref. : 7866494

This kit consists of a mixing valve with motor, a PARA 15-130/7-50/SC-3 circulator, a safety valve and flow/return pipes.

DHW OPTIONS



ALEZIO_M_MAX_010

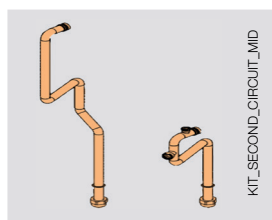
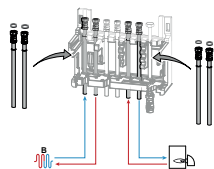
DHW kit MID
Ref. : 7863529

This kit connects under the indoor unit. It consists of a reversing valve with motor, shut-off valves, flow/return pipes, as well as the wall connection backplate and insulating shell.



TUBES_ECS_MID

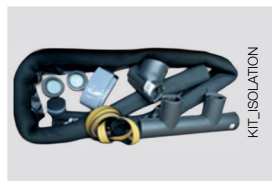
Kit of 2 tubes for MID DHW kit or hydraulic relief valve
Ref. : 7866500



KIT_SECOND_CIRCUIT_MID

Pipe kit second circuit MID
Ref. : 7866496

This kit consists of supply/return pipes for connecting to the MID-M indoor module.



KIT_ISOLATION

Insulation kit
-for MID-H- Ref. : 7866497
-for MID-E- Ref. : 7866498

Cooling mode insulation kit for MID-M indoor module.



EC790
EC795
ER615

BLC_Q0001A

DHW Tanks (in combination with package EH812)
Ref.: 7684175)

- BPB 401 - Ref.: 7682199 / EC790

- BPB 501 - Ref.: 7682313 / EC795

- BEPC 300 - Ref.: 7620661 / ER615



EH812

8531Q019

Heating/DHW reversal valve
Ref.: 7684175 / EH812

This kit includes the motor and the body of the motorised reversal valve.

It enables the MIV-M R32 to be connected to an independent DHW tank.



EH85

EH60

PAC_Q0021 - 89620024

Buffer Tank:

• **B 80 T - Ref.: 100008841 / EH85**

• **B 150 T - Ref.: 100004415 / EH60**

This 80- or 150-litre tank is used to limit compressor short-cycle operation and to provide a reserve for the defrosting phase on reversible air-to-water heat pumps.

It is also recommended for all heat pumps connected to installations with a water volume of less than 5 l/kW of heat output.

Example: Heat pump output = 10 kW.

Minimum volume of installation: 50 litres.

Dimensions:

B 80 T: H 850 x L 440 x D 450 mm.

B 150 T: H 1003 x Ø 601 mm.



HK150

PAC_Q6005

Differential by-pass valve
Ref.: 7746242 / HK150

This differential by-pass valve has to be installed on circuits equipped with thermostatic valves, in order to ensure a minimum flow rate in the heat pump.

OPTIONS

ALEZIO M MAX R290

HYDRAULIC MODULE OPTIONS

EA143



EA144



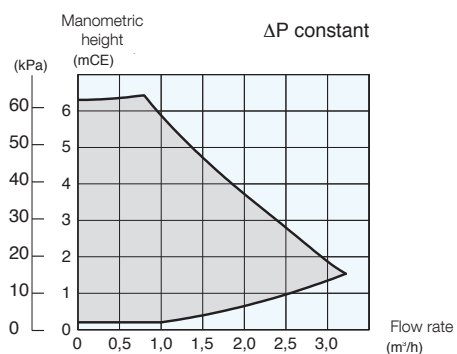
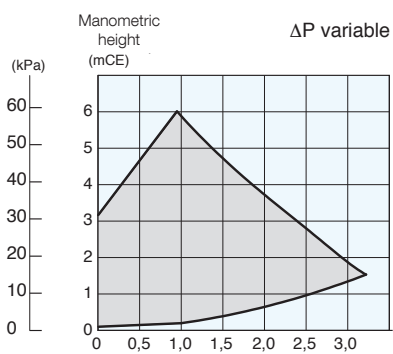
8575Q062 / 8575Q063

Hydraulic module:

- for 1 direct circuit - ref. : 100020167 / EA143
- for 1 circuit with valve - ref. : 100020168 / EA144

Fully assembled, insulated and tested; fitted with a pump, motorised 3-way mixing valve (EA144), thermometers integrated into the isolation valves, and a non-return valve integrated into the return valve.

Specifications heating circulating pump (WILO-yonos PARA RS 25/6 fitted to the module EA143 and EA144):



8575_F0202A

EA140

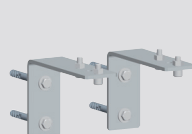


8575Q065

Insulated collector for 2 or 3 modules Ref. : 100020164 / EA140

With an installation with 2 or 3 circuits with modules EA143/144.

EA141

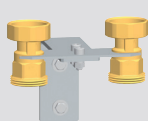


8575Q066

Set of 2 wall consoles for collector Ref. : 100020165 / EA141

These consoles are used to fix the collector to the wall.

EA142



8575Q067

Collector for 1 hydraulic module Ref. : 100020166 / EA142

This console allows secure one hydraulic module for one direct circuit or circuit with mixing valve on the wall.

Is used only when one of the two hydraulic modules is mounted. It includes two brass male / female connectors.

EH896



TF1 + raccords Fernox

Fernox TF1 filter Ref. : 100020045 / EH896

ADDITIONAL FEATURES

OF THE CONTROL SYSTEM

THE "ENERGY METERING" FEATURE

The control system fitted to the indoor modules has a standard function for measuring the thermal energy produced. The control system measures each type of energy for each operating mode (DHW, heating, cooling). Electrical energy can be measured by estimation (without a pulse meter) or by direct measurement: in this case, an energy meter must be added and the settings configured on the heat pump display.

« HYBRID » FEATURE

The hybrid feature incorporated into the control system of the indoor module is used to manage solutions which combine a heat pump (partially using renewable energy) and a low-temperature boiler or condensing boiler (oil-fired or gas) which operate alone or simultaneously depending on the weather conditions and the heating requirements.

The hybrid feature serves to meet the needs of the installation by always optimising energy consumption between gas, oil and electricity, and it does so by:

- Either using the cheapest energy source (to minimise heating costs).
- Or using the one with the lowest primary energy consumption based on sustainable management.

The « energy tariff » or « primary energy co-efficient » values can be changed by adjusting the control system parameters.

This regulation mode also offers the following advantages:

- Reduction in the heat pump output to minimise electricity bills.
- Heating and DHW requirements are fully covered by the heat pump + boiler system.
- In the existing home, energy savings are higher compared to using a boiler alone, the installed boiler's CO₂ emissions are reduced, and connection is possible without changing the existing heat emitters, and no need to use a very high temperature.

Primary energy

Energy (fuel oil, wood, gas, electricity) is consumed for heating, lighting and producing domestic hot water. This final energy used by consumers is not always available in its natural state (e.g. electricity) and sometimes requires conversion.

Primary energy represents the energy used to carry out these transformations. Primary energy is quantified by the 'primary energy coefficient', which expresses the amount of primary energy required to obtain one unit of energy. For electricity, the coefficient is 2.3, which means that 2.3 kWh of primary energy must be consumed to obtain 1 kWh of electrical energy. For natural gas and fuel oil, this coefficient is 1 (gas and fuel oil are primary energy sources).

Hybrid solution performance

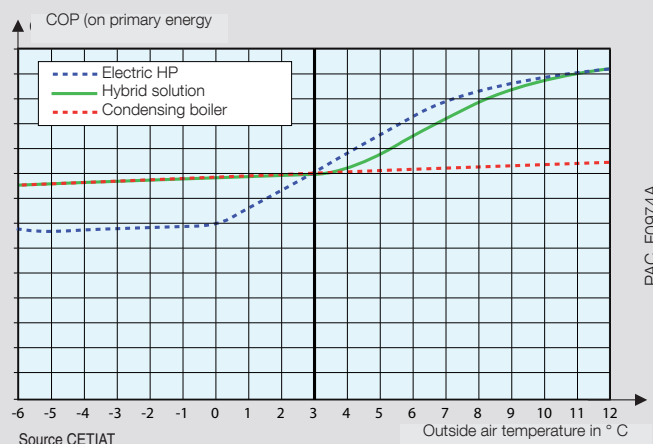
The graph below shows a comparison of the performance (COP) in terms of primary energy (for heating and DHW production) of various solutions:

- The hybrid solution: combination of a heat pump and a condensing boiler (renewable energy, electrical energy and energy from gas or oil).
- The solution with a heat pump alone (renewable energy with an electrical backup).
- The solution with a condensing boiler alone (energy from gas or oil).

For an outside air temperature below the tipping point, the hybrid solution improves the performance (primary energy COP) of the system compared to using a heat pump alone.

Moreover, for an outside air temperature above the tipping point, the hybrid solution offers superior performance compared to using a condensing boiler alone.

Comparison of the primary energy performance levels of an electric heat pump, a condensing boiler and a hybrid solution



SIZING AN INSTALLATION

ALEZIO M MAX R290

EXAMPLES OF HYBRID SOLUTIONS

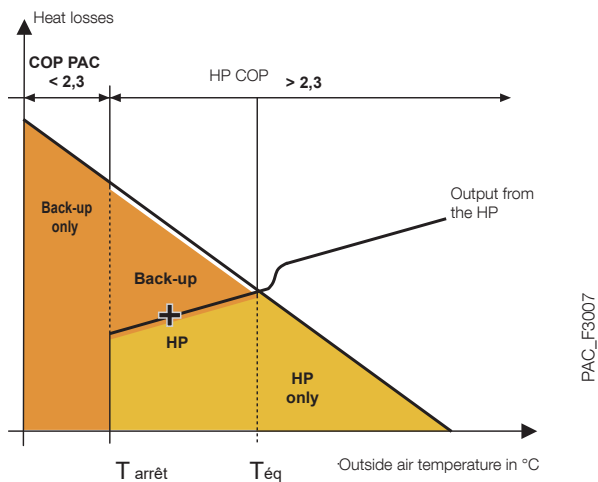
Example of a hybrid solution according to the primary energy co-efficient

The graph shows the different hybrid solutions according to the outside air temperature and the primary energy consumption.

When the COP of the heat pump > 2.5 and the $T_{air} > T_{bal}$ only the heat pump will be used. For $T_{stop} < T_{air} < T_{bal}$, the control system will manage the heat pump in combination with the boiler. When the COP of the heat pump < 2.5 , the control system will only manage the boiler.

Therefore, for each configuration, it is the control system which decides which generator or combination of generators will be used to meet the heating and DHW requirements.

This principle of management according to primary energy is especially valid for new builds.



Example of a hybrid solution according to energy costs

The graph shows the operating principle of the hybrid feature according to the outside air temperature and energy costs.

To calculate the energy cost ratio, R:

$$R = \frac{\text{Cost of electricity (a/kWh)}}{\text{Cost of gas (a/kWh)}} = 0,15/0,07 = 2,1$$

(the energy cost takes into account the annual tariff)

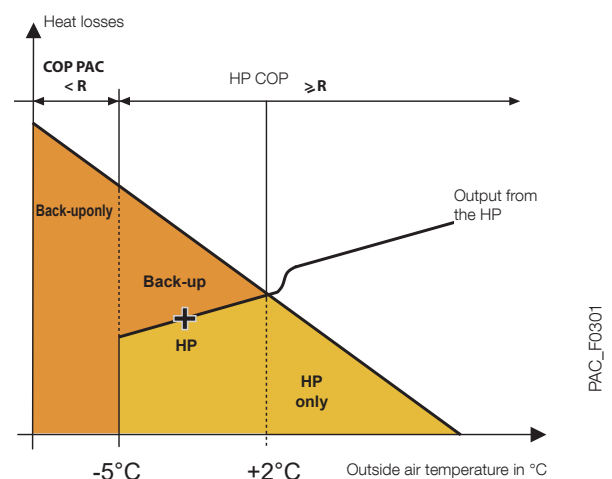
The co-efficient R (the calculated energy cost ratio) and the outside air temperature are the parameters which the control system uses to define the various operating modes. In the example hereunder:

- The heat pump is a ALEZIO M MAX R290 11 M model paired with a natural-gas-fired condensing boiler.
- The generators are installed in a 130-m² house.

When the heat pump COP > 3 and $T_{air} > +2^{\circ}\text{C}$, the control system only manages the heat pump to meet the heating and DHW production requirements.

When the heat pump COP > 3 and $-5^{\circ}\text{C} < T_{air} < +2^{\circ}\text{C}$, the control system manages the heat pump in combination with the boiler. When the COP of the heat pump < 3 , the control system will only manage the boiler.

Therefore, for each configuration, it is the control system which decides which generator or combination of generators will be used to meet the requirements.

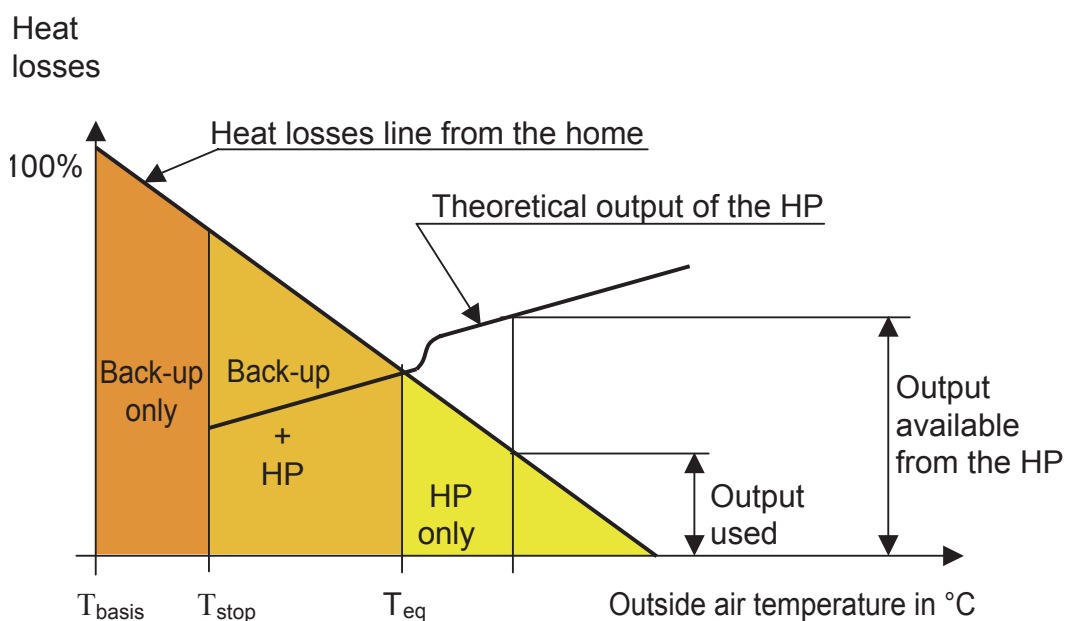


SIZING AN INSTALLATION

ALEZIO M MAX R290

SIZING AIR-TO-WATER HEAT PUMPS

Air-to-water heat pumps alone cannot compensate for the heat losses of a home, as their output is reduced when the outside temperature drops, and they stop working at a certain temperature, known as the "stop temperature". For the ALEZIO M MAX R290 range, this temperature is - 25 °C. Therefore, an electrical backup via an immersion heater or a hydraulic backup via a boiler is necessary. The balance temperature corresponds to the outside temperature at which the heat pump's output is equal to the losses.



TO OPTIMISE SIZING, IT IS RECOMMENDED TO APPLY THE FOLLOWING RULES

- 70% of losses $\leq$ Heat pump output at $T_o \leq 100\%$ of losses where $T_o = T_{base}$ si $T_{stop} < T_{base}$ and $T_o = T_{stop}$ otherwise (take a value of 80% if the building has low inertia, e.g. timber frame).
- Heat pump output at $T_{base} + \text{Backup power} = 120\%$ of losses.

T_{base} = Base outside temperature, T_{bal} = Balance temperature, T_{stop} = Stop temperature.

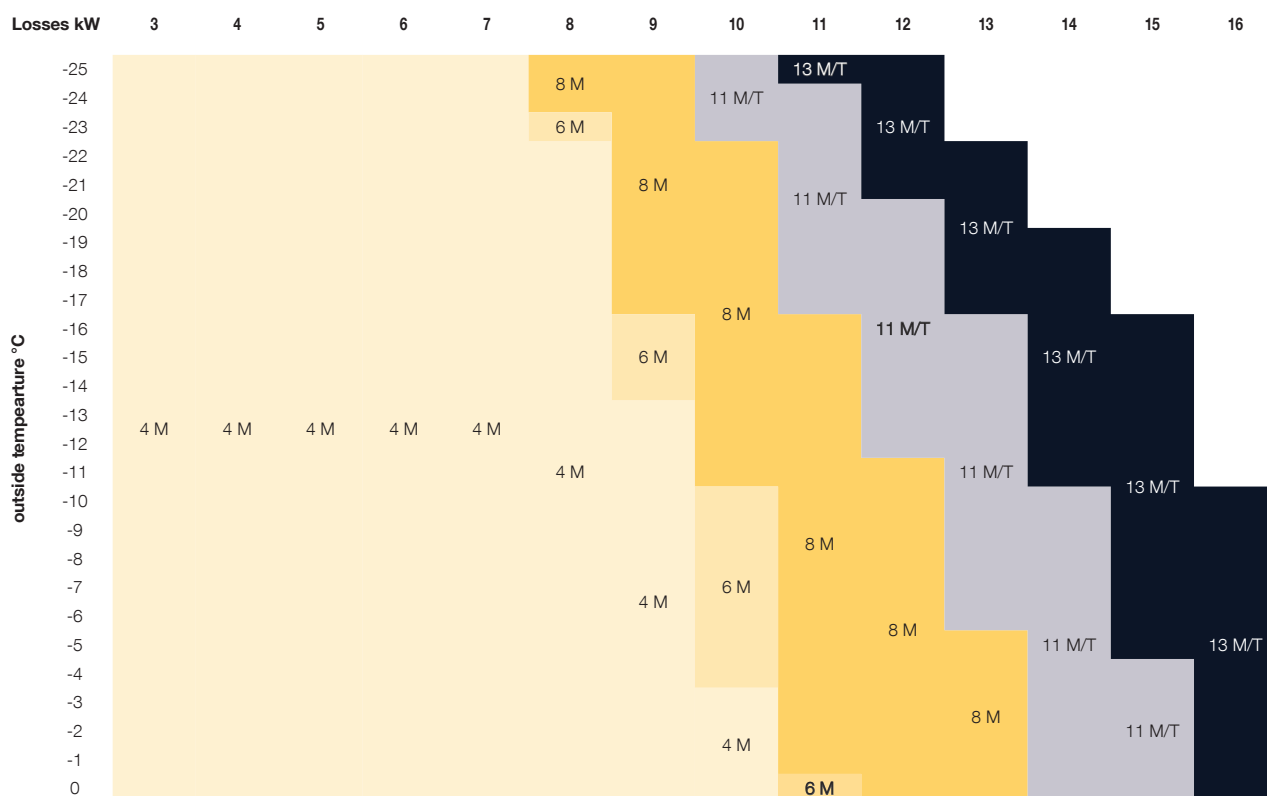
SIZING AN INSTALLATION

ALEZIO M MAX R290

SELECTION TABLE MODELS ALEZIO M MAX R290

These tables provide a simplified definition of the capacity of the heat pump to be installed.

• ALEZIO M MAX R290 FOR A FLOW TEMPERATURE AT 35°C (UNDERFLOOR HEATING)



NOTES

- Selection table given for each flow temperature (70% of heat loss for the heat pump and 120% heat loss for the heat pump + backup).
- The heat losses must be determined precisely and without any over-power coefficient.
- Below the outdoor shutdown temperature for the heat pump (-25°C), only the backup units operate.

SIZING AN INSTALLATION

ALEZIO M MAX R290

SELECTION TABLE MODELS ALEZIO M MAX R290

These tables provide a simplified definition of the capacity of the heat pump to be installed.

• ALEZIO M MAX R290 FOR A FLOW TEMPERATURE AT 45°C (LOW TEMPERATURE RADIATOR)

Losses kW	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Outside temperature °C														
-25						8 M			13 M/T					
-24								11 M/T						
-23						6 M				13 M/T				
-22							8 M							
-21									11 M/T					
-20											13 M/T			
-19														
-18														
-17														
-16							6 M	8 M		11 M/T				
-15												13 M/T		
-14														
-13	4 M	4 M	4 M	4 M	4 M									
-12														
-11						4 M								
-10											11 M/T			
-9												13 M/T		
-8							4 M		8 M					
-7														
-6														
-5								6 M		8 M				
-4														
-3												11 M/T		13 M/T
-2														
-1													11 M/T	
0														

NOTES

- Selection table given for each flow temperature (70% of heat loss for the heat pump and 120% heat loss for the heat pump + backup).
- The heat losses must be determined precisely and without any over-power coefficient.
- **Below the outdoor shutdown temperature for the heat pump (-25°C), only the backup units operate.**

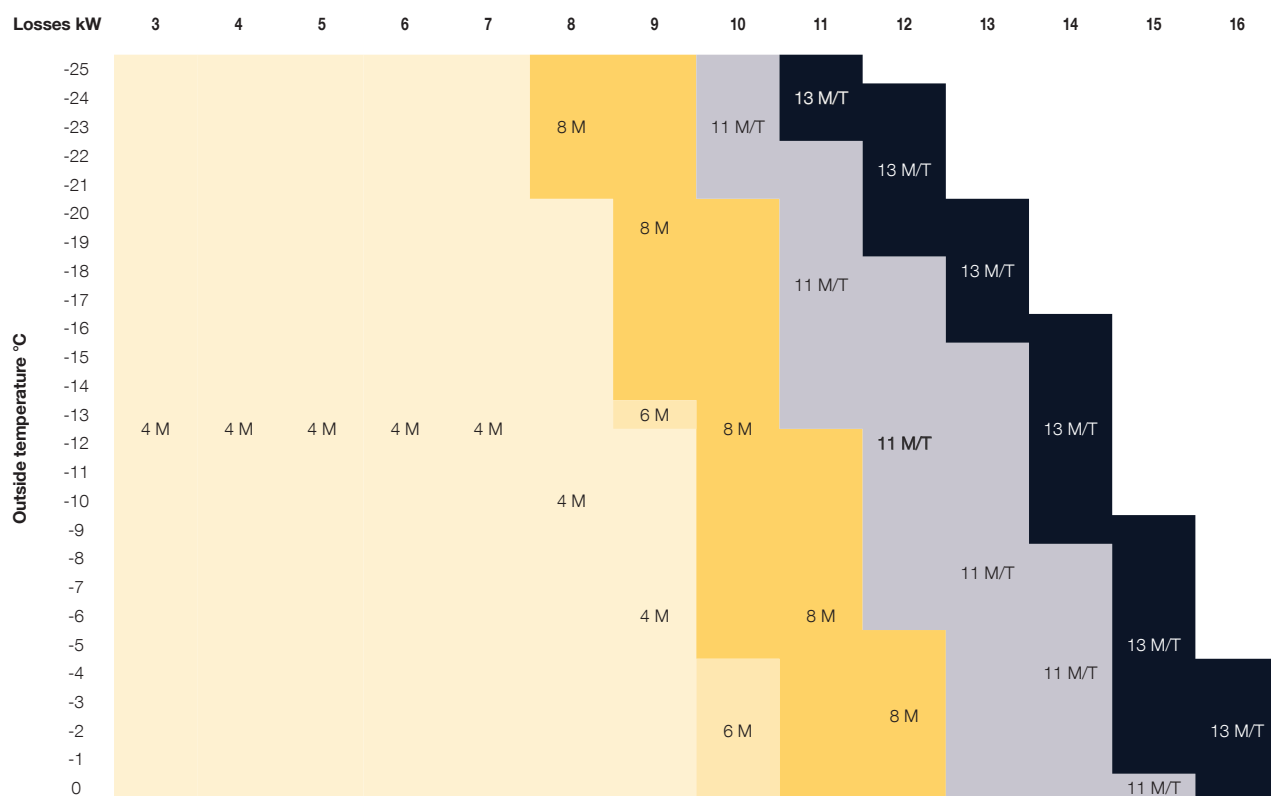
SIZING AN INSTALLATION

ALEZIO M MAX R290

SELECTION TABLE MODELS ALEZIO M MAX R290

These tables provide a simplified definition of the capacity of the heat pump to be installed.

• ALEZIO M MAX R290 FOR A FLOW TEMPERATURE AT 55°C (AVERAGE TEMPERATURE RADIATOR)



NOTES

- Selection table given for each flow temperature (70% of heat loss for the heat pump and 120% heat loss for the heat pump + backup).
- The heat losses must be determined precisely and without any over-power coefficient.
- Below the outdoor shutdown temperature for the heat pump (-25°C), only the backup units operate.

IMPORTANT INFORMATION FOR INSTALLATION

ALEZIO M MAX R290

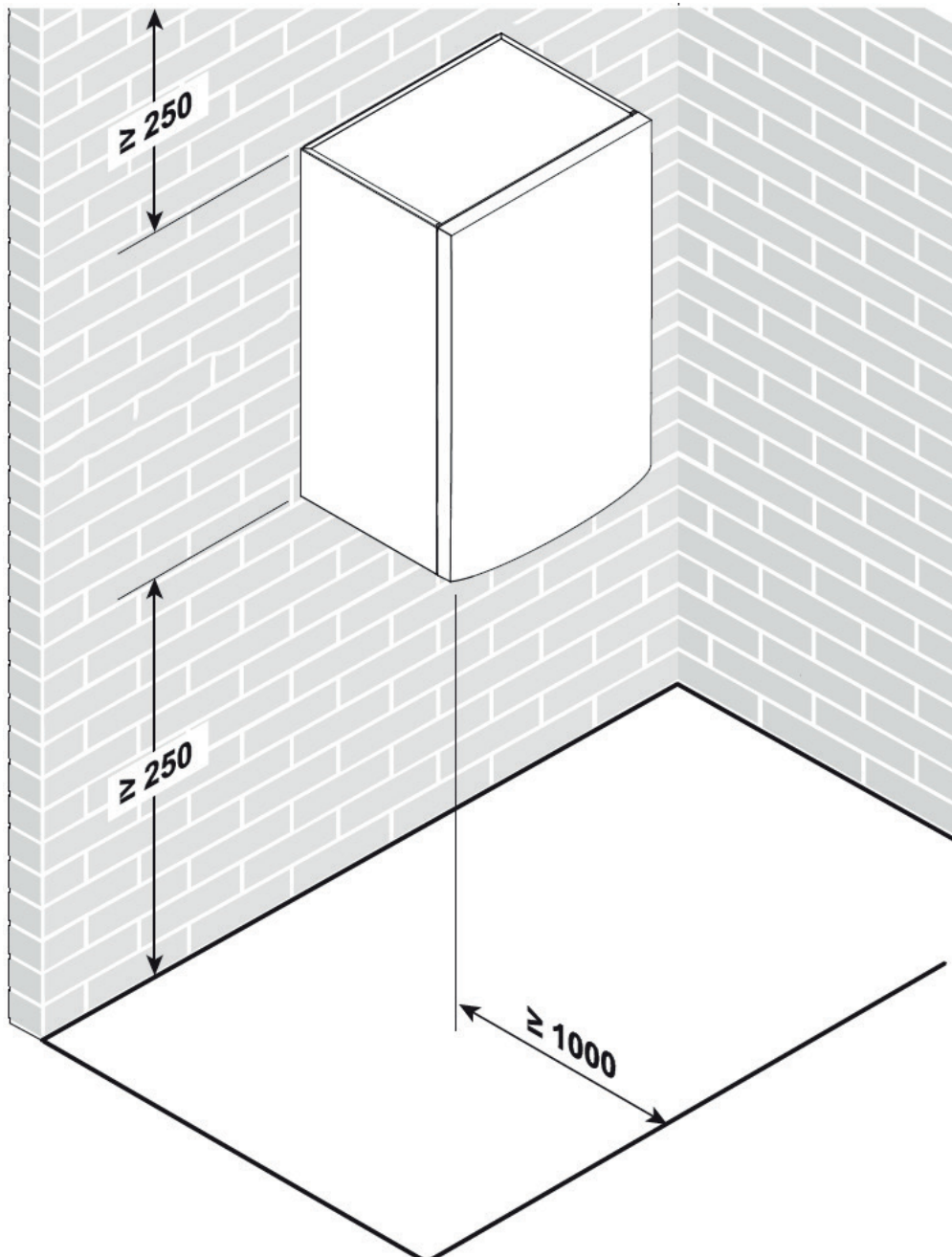
INDOOR UNIT INSTALLING

The MID-M/E or MID-M/H indoor module of the ALEZIO M MAX R290 must be installed in a frost-free room on a flat surface as close as possible to the draw-off points in order to limit losses.

The front panel must be accessible to facilitate maintenance of the unit.

The indoor module can be mounted in a cabinet or against a wall.

INDOOR UNIT: MINIMUM DISTANCES FOR INSTALLATION (MM)



MID_M_F0001

IMPORTANT INFORMATION FOR INSTALLATION

ALEZIO M MAX R290

INSTALLATION OF THE MONO AWHP3R OUTDOOR UNIT: GENERAL INFORMATION

Choose the most suitable location, taking into account the space required and legal requirements.

The IP24 protection rating of the device during installation.

The following locations should be avoided to prevent noise pollution:

- Prevailing winds.
- Proximity to sleeping areas, terraces, etc.
- Facing a wall with windows.

Nothing must obstruct the free circulation of air around the appliance (air inlet and outlet).

Ensure that the support meets the following specifications:

- Flat surface capable of supporting the weight of the appliance and its accessories (concrete base, concrete or steel blocks).
- No rigid connection to the building to prevent the transmission of vibrations and noise.
- Position at least 200 mm above ground level to keep the appliance above rainwater and ice. In regions with a lot of snow, the position of the appliance should be calculated according to local weather conditions and in any case at least 200 mm above snow level.
- Provide a base with a metal frame or other resistant material to allow condensation to drain properly. In terms of fire resistance, the base must be classified M0.

Indoor installation is prohibited.

The condensate drain should be cleaned regularly to avoid blockages.

LOCATION IN COLD AND SNOWY REGIONS

The performance of the device may be reduced if the following conditions are not met:

- Install the appliance at a sufficient height to allow condensate to drain properly.
- If outside temperatures fall below zero, take the necessary precautions to avoid the risk of freezing in the condensate pipes.
- A condensate drain pipe heating solution may be required to prevent freezing.

Ensure that the base meets the following requirements:

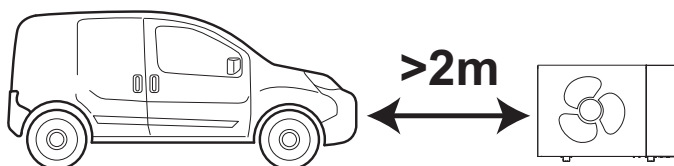
FEATURES	REASON
At least 200 mm higher than the average snow depth.	Protects the heat exchanger from snow and prevents the formation of ice during defrosting.
As far away as possible from the place of passage.	The condensate drain could freeze and become a hazard (icy patches).

SAFETY ZONE IN RELATION TO A MOTOR VEHICLE



IMPORTANT

Motor vehicles must not drive or park within 2 metres of the outdoor unit.



IMPORTANT INFORMATION FOR INSTALLATION

ALEZIO M MAX R290

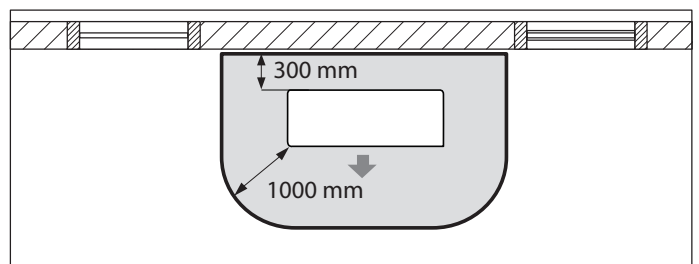
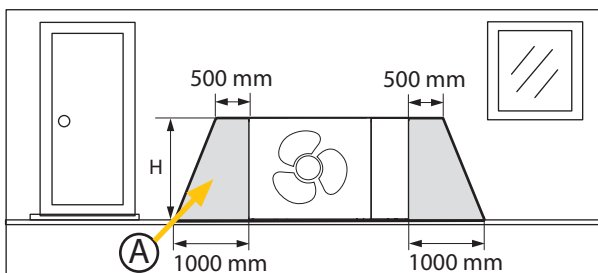
AWPH3R MONO OUTDOOR UNIT: INSTALLATION RULES TO BE OBSERVED

- The MONO AWP3R outdoor units of the ALEZIO M MAX R290 heat pumps are installed close to the house, on a terrace, on the facade or in the garden.
- They are designed to operate in the rain, but can also be installed under a ventilated shelter.
- The outdoor module should be installed away from prevailing winds, which can affect the performance of the installation.
- It is recommended that the module is positioned above the average snow height in the region where it is installed.
- The location of the outdoor module must be chosen carefully to ensure that it is compatible with the requirements of the environment: integration into the site, compliance with town planning or co-ownership regulations.
- There must be no obstructions to the free flow of air through the exchanger at the intake and discharge, so a clear space must be left all around the appliance. This will also allow connection, commissioning and maintenance operations to be carried out (see installation diagrams below)..

SAFETY ZONE IN FRONT OF AN EXTERNAL WALL (MM)

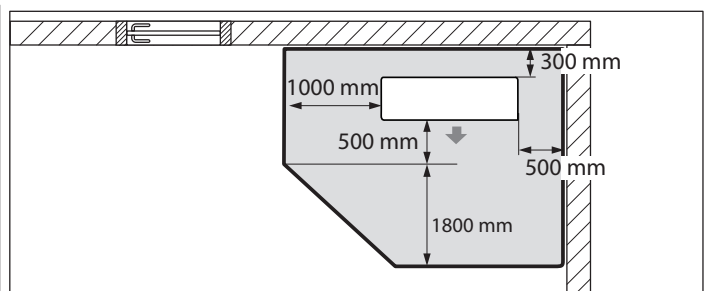
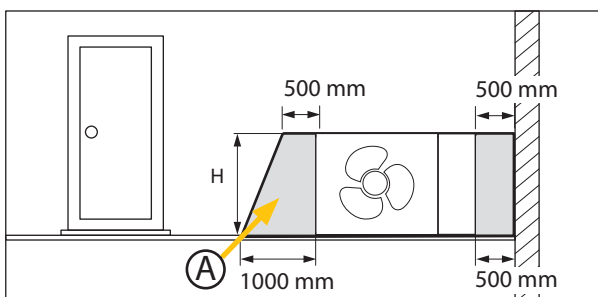
- There must be no obstructions to the free flow of air through the exchanger at the intake and discharge, so a clear space must be left all around the appliance.
- This will also allow connection, commissioning and maintenance operations to be carried out (see installation diagrams below).
- This refrigerant has a higher density than air. In the event of a leak, escaping refrigerant can be collected near the ground. The following conditions must be avoided in the safety zone:
 - Building openings such as windows, doors, skylights and flat roof windows;
 - Outside air and exhaust air openings for ventilation and air-conditioning systems;
 - Property boundaries, neighbouring properties, paths and driveways;
 - Pump shafts, wastewater system inlets, downpipes and wastewater wells, etc.;
 - Household power supply connections;
 - Electrical systems, sockets, lamps and switches.
- Do not introduce sources of ignition into the safety zone.

Installation of the outdoor module in front of an external wall



Distances_MONO_AWHP3R

Installation of the outdoor module in a corner



A Protection zone

H Height of the protective perimeter: greater than or equal to the height of the external module above ground level

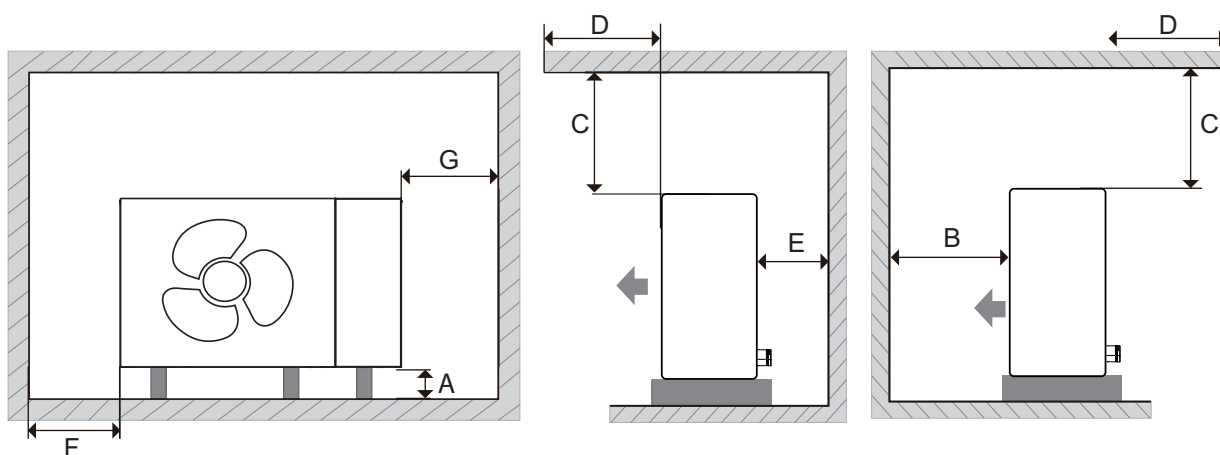
IMPORTANT INFORMATION FOR INSTALLATION

ALEZIO M MAX R290

OUTDOOR UNIT MONO AWP3R: SITING RULES TO BE RESPECTED

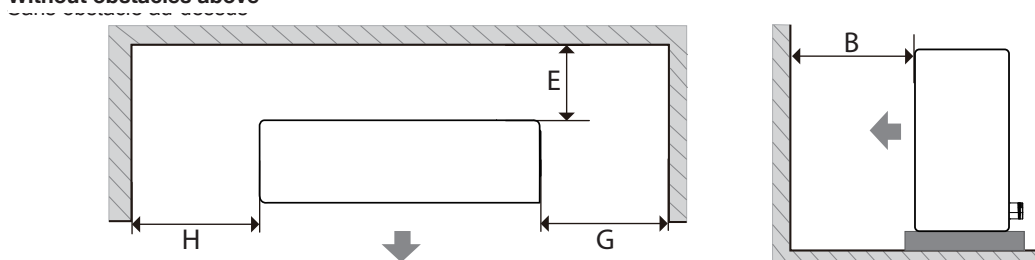
MINIMUM DISTANCES FOR INSTALLATION (MM)

With obstacles above

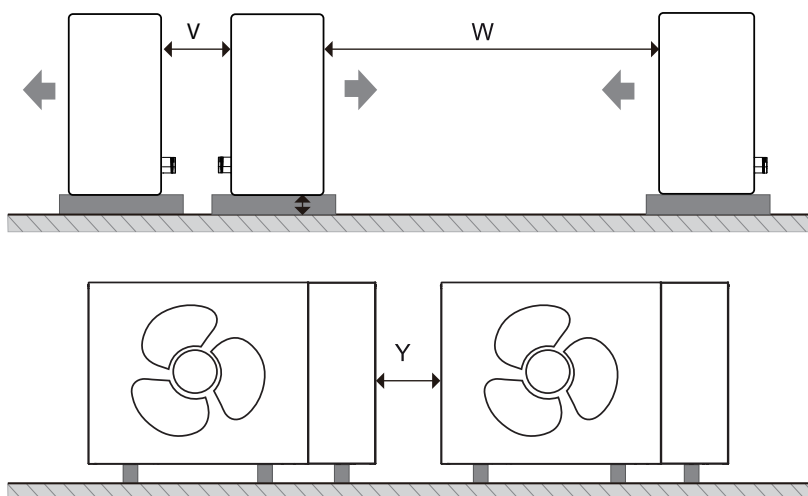


MONO_AWP3R_F5002

Without obstacles above



Clearance between outdoor modules



MODEL	DIMENSIONS										
	A*	B	C	D	E	F	G	H	V	W	Y
4 MR, 6 MR and 8 MR	≥ 100 mm	≥ 1000 mm	≥ 500 mm	≤ 500 mm	≥ 300 mm	≥ 500 mm	≥ 500 mm	≥ 500 mm	≥ 600 mm	≥ 2500 mm	≥ 500 mm
11/13 MR and 11/13 TR	≥ 100 mm	≥ 1500 mm	≥ 500 mm	≤ 500 mm	≥ 300 mm	≥ 500 mm	≥ 500 mm	≥ 500 mm	≥ 600 mm	≥ 3000 mm	≥ 500 mm

* In cold weather, take into account snow on the ground.

IMPORTANT INFORMATION FOR INSTALLATION

ALEZIO M MAX R290

ACOUSTIC INTEGRATION OF ALEZIO M MAX R290 HEAT PUMPS

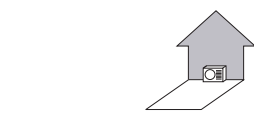
Definitions

The acoustic performance levels of the outdoor units are defined by the following two values:

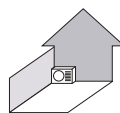
- The sound power L_w expressed in dB[A] : this characterises the sound emission capacity of the source, independently of its environment. It enables appliances to be compared.
- The sound pressure L_p expressed in dB[A]: this is the value perceived by the human ear, and depends on parameters such as the distance from the source, the size and the type of walls in the building.

Recommendations for acoustic integration of the outdoor unit

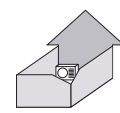
- Do not position the module close to bedrooms.
- Avoid placing it close to a terrace, and do not install the module opposite a wall. The increase in the noise level due to the installation configuration is shown in the diagrams below:



Module positioned against a wall: + 3 dB[A]



Module positioned in a corner: + 6 dB[A]



Module positioned in an inner courtyard:
+ 9 dB[A]

HPL_F0029

- The following configurations must not be used:



Ventilation directed towards the neighbouring property



Module positioned at the boundary of the property



Module positioned under a window

HPL_F0029

The following recommendations should be followed to reduce environmental noise and the transmission of vibrations:

- Installing the outdoor module on a metal frame or an inertia base. This base must be at least twice as heavy as the module and be independent of the building.

Anti-vibration mounts will still need to be installed to reduce the transmission of vibrations.

- The use of suitable sleeves at the points where the refrigerant connections are routed through the walls.
- The use of flexible, anti-vibration materials for mountings.
- The installation of vibration-damping devices such as loops or elbows on the refrigerant connections.

It is also recommended to install an acoustic attenuation device, for example:

- A wall dampener fitted on the wall behind the module.
- A sound barrier: the surface of the barrier must be larger than the outdoor module and be positioned as close as possible to it, while allowing air to circulate freely. The barrier must be made from a suitable material such as acoustic bricks or concrete blocks covered with absorbent material. It is also possible to use natural barriers, such as banks of earth.

IMPORTANT INFORMATION FOR INSTALLATION

ALEZIO M MAX R290

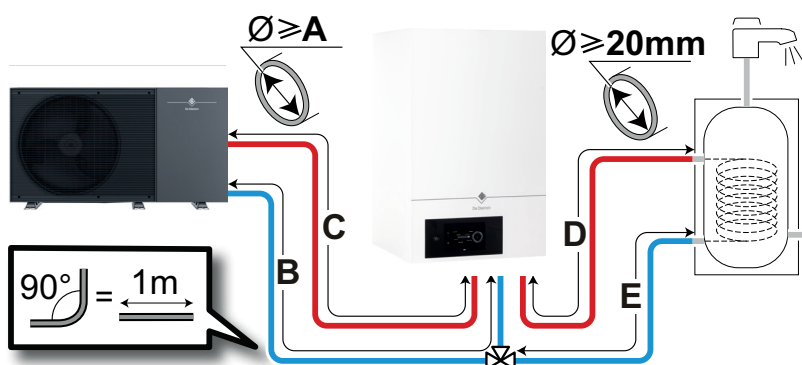
MAXIMUM CONNECTION DISTANCES AND MINIMUM PIPE DIAMETERS

Respecting the maximum pipe length, the internal diameter of the pipes and the number of bends between the internal and external modules will limit pressure losses and guarantee optimum performance.



IMPORTANT

Identify the power rating of the outdoor unit using the nameplate.
Respect the internal diameter of the pipes



Key

- A. Minimum internal diameter of pipes (mm)
- B. Maximum length of heat pump outlet pipes (m)
- C. Maximum length of heat pump return pipes (m)
- D. Maximum length of pipes leading from the DHW heater (m)
- E. Maximum length of return pipes for DHW heater (m)

ML_MAX_F2000

The pressure losses in the connection between the two modules must ensure an available pressure at the outlet of the external module of:

- 33 kPa at nominal flow rate for 4, 6 and 8 kW outdoor units,
- 41 kPa at nominal flow rate for 11 and 13 kW outdoor units..

NON-GLYCOLISED INSTALLATION	MODEL				
	4 M	6 M	8 M	11 M / 11 T	13 M / 13 T
Minimum internal diameter of pipes A (mm)	20	20	26	26	26
Maximum length of pipes B + C (PAC) (m)	60	60	60	60	60
Maximum length of pipes D + E (DHW tank) (m)	20	20	20	20	20

EXPANSION VESSEL VOLUME

The volume of the expansion vessel must be compatible with the volume of water in the circuit, taking into account the maximum temperature in heating mode (by default at least 55°C).

If the volume of the expansion vessels built into the outdoor module (8 litres) and indoor module (8 litres) is insufficient, add an external vessel to the heating circuit.

Underfloor heating system: maximum temperature of 40 °C

MAXIMUM WATER TEMPERATURE	STATIC HEIGHT (M)	EXPANSION TANK PRESSURE	INSTALLATION VOLUME (LITRES)							
			75	100	125	150	175	200	225	250
			INSTALLATION VOLUME (LITRES)							
40°C	5	1 bar	7	7	8	8	8	9	9	9
	10	1,3 bar	7	8	8	9	9	10	10	11
	15	1,8 bar	10	10	11	11	12	13	13	14

Radiator installation: maximum temperature of 70 °C

MAXIMUM WATER TEMPERATURE	STATIC HEIGHT (M)	EXPANSION TANK PRESSURE	INSTALLATION VOLUME (LITRES)							
			75	100	125	150	175	200	225	250
			INSTALLATION VOLUME (LITRES)							
70°C	5	1 bar	8	9	10	11	12	13	14	15
	10	1,3 bar	9	11	12	13	14	15	16	17
	15	1,8 bar	12	13	15	16	18	19	21	22

IMPORTANT INFORMATION FOR INSTALLATION

ALEZIO M MAX R290

FLOW RATE RANGE FOR THE OUTDOOR MODULE

Check that the minimum flow rate in the system is guaranteed under all conditions. This flow rate is required during defrosting and when the backup heating system is operating.

SPECIAL PRECAUTIONS FOR CONNECTING THE HEATING CIRCUIT



When one or more heating circuits are controlled by remote valves, the minimum water flow rate (threshold) must be guaranteed, even if all the valves are closed. (see table below).

If the minimum flow rate cannot be met, E0 and E8 (outdoor unit shutdown) will be triggered.

MIN. FLOW IN EXTERNAL GROUP	UNIT	MODEL ALEZIO M MAX R290				
		4 M	6 M	8 M	11 M / T	13 M / T
Threshold flow (critical)	l/mn	6,6	6,6	6,6	11,6	11,6
	m³/h	0,40	0,40	0,40	0,70	0,70
(Functional) flow rate range	l/mn	6,6-15	6,6-20,8	6,6-27,5	11,6-41,6	11,6-50
	m³/h	0,40 - 0,90	0,40 - 1,25	0,40 - 2,10	0,70 - 2,50	0,70 - 3,00

MINIMUM WATER VOLUME

Check the compatibility between the pressures available at the device outlet and the pressure drops in the installation.



IMPORTANT

The water volume of the installation must be sufficient to prevent short operating cycles and allow for optimal defrosting.

The minimum volume of circulating water must be available at all times, even when there is no demand for heating or when all valves are closed.

If the volume of the installation does not cover the minimum volume to be added, it is necessary to install a buffer tank with an additional volume as indicated in the tables (minus the volume of the hydraulic connections):

APPLICATION: 35°C (UNDERFLOOR HEATING)	MODEL ALEZIO M MAX R290				
	4 M	6 M	8 M	11 M / 11 T	13 M / 13 T
Internal water volume of the indoor E/H module (litres)	37/40	37/40	37/40	37/40	37/40
Minimum water volume required (litres)	27	29	77	81	91
Buffer volume to be added (litres)	-	-	40	44	54

APPLICATION : 45°C (FAN COIL UNITS OR LOW-TEMPERATURE RADIATORS)	MODEL ALEZIO M MAX R290				
	4 M	6 M	8 M	11 M / 11 T	13 M / 13 T
Internal water volume of the indoor E/H module (litres)	37/40	37/40	37/40	37/40	37/40
Minimum water volume required (litres)	23	23	49	54	59
Buffer volume to be added (litres)	-	-	12	17	22

APPLICATION : 55°C (MEDIUM TEMPERATURE RADIATORS)	MODEL ALEZIO M MAX R290				
	4 M	6 M	8 M	11 M / 11 T	13 M / 13 T
Internal water volume of the indoor E/H module (litres)	37/40	37/40	37/40	37/40	37/40
Minimum water volume required (litres)	26	26	42	49	51
Buffer volume to be added (litres)	-	-	5	12	14

APPLICATION : 65°C (HIGH-TEMPERATURE RADIATORS)	MODEL ALEZIO M MAX R290				
	4 M	6 M	8 M	11 M / 11 T	13 M / 13 T
Internal water volume of the indoor E/H module (litres)	37/40	37/40	37/40	37/40	37/40
Minimum water volume required (litres)	26	26	38	49	49
Buffer volume to be added (litres)	-	-	1	12	12

IMPORTANT INFORMATION FOR INSTALLATION

ALEZIO M MAX R290



IMPORTANT NOTES

THE DIFFERENT TRANSMITTERS

R290 heat pumps are not limited in terms of water outlet temperature: maximum 75°C. It is therefore possible to work on low-temperature emitters, i.e. cooling underfloor heating and radiators sized for low temperature, as well as radiators sized for high temperature.

For cooling mode, only underfloor heating with a compatible slab and covering is suitable. It is also necessary to comply with the minimum flow temperatures for underfloor cooling in relation to the geographical area where the system is installed, to avoid any condensation (between 18°C and 22°C).

REFRIGERANTS

The R290 refrigerant has properties suited to high-temperature heat pumps.

It is better known as propane.

It contains no chlorine, so preserves the ozone layer.

COOLING OR AIR-CONDITIONING MODE

Reversible heat pumps can be used for cooling in summer. A 4-way valve, known as a cycle reversal valve, automatically switches the cycle from heating to cooling mode. The compressor inlet is connected to the indoor heat exchanger, which becomes the evaporator. The compressor discharge is connected to the outdoor exchanger, which becomes the condenser.

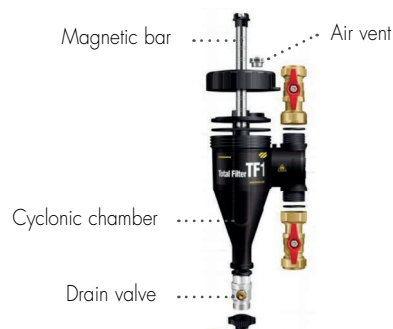
NOTE: For Air/Water heat pumps, this 4-way valve is also used for the evaporator defrost phase.

In the case of an underfloor heating and cooling system (flow/return water temperature: + 18 °C/+ 23 °C), the cooling capacity is limited, but sufficient to maintain pleasant comfort conditions in the home. On average, this reduces the room temperature by 3 to 4°C.

MAGNETIC FILTER

The magnetic sieve filter is a safe and durable technical solution for guaranteeing the smooth operation of our heat pump solutions over time. All our heat pumps and hybrid systems are factory fitted with a brand new filter designed by Caleffi and specifically adapted to our products.

This filter consists of a sieve with a large collection surface area, three times larger than a conventional sieve filter, and a very high-capacity magnetic bar to retain all types of particles found in the heating network. It also acts as a sludge trap and has an integrated drain valve which can be operated with the back of the plug to remove the collected residue.



IMPORTANT

Installing this filter does not exempt you from complying with good installation and commissioning practice. The filter must be cleaned simply and quickly at every annual service and if the flow rate is insufficient. Please comply with the heating water specifications given in the manual. Do not allow air to enter the hydraulic circuit. It is important to ensure that the expansion vessel is correctly sized and that it is inflated to the correct pressure.

ALEZIO M MAX R290

It is possible to connect a domestic hot water heater to the indoor unit.

During DHW production, the circulation does not pass through the buffer tank but directly through the tank coil (figure below).

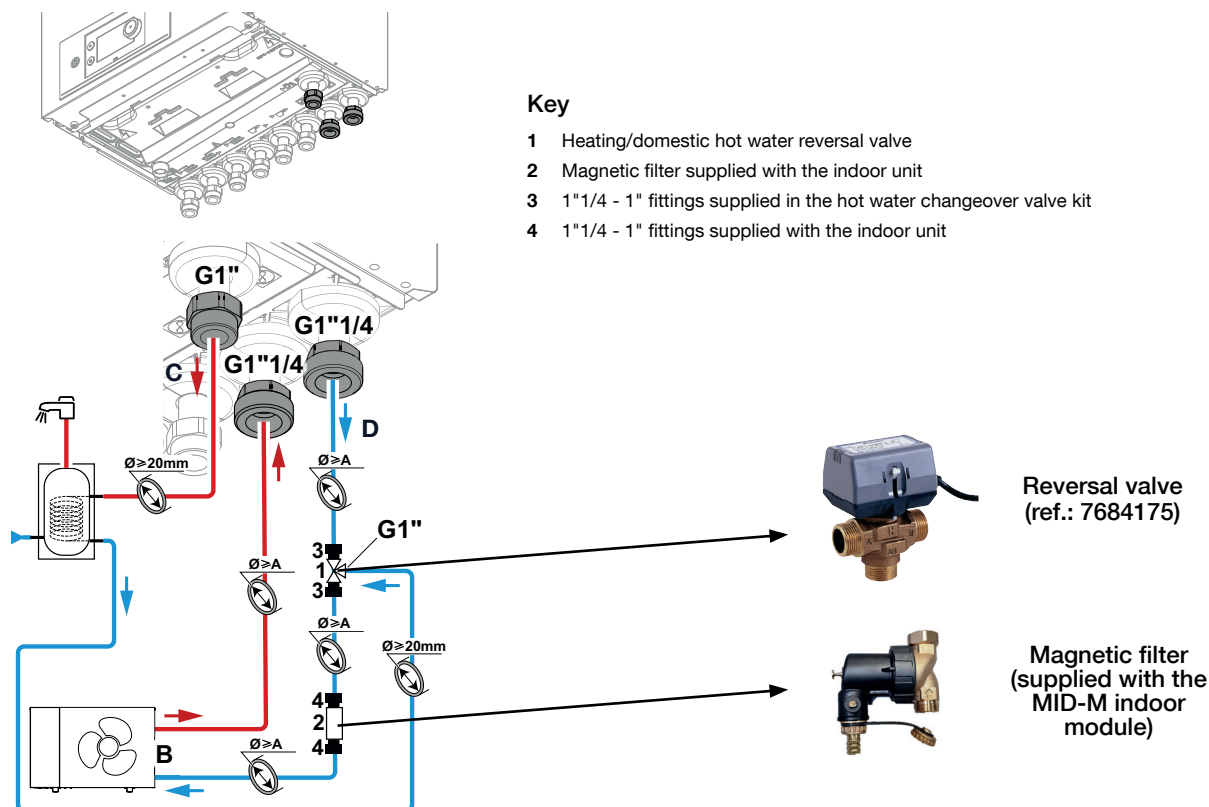
The diagram illustrates a closed-loop heating system. A central red 'BUFFER TANK' is connected to four components: a circulator pump on the left, a heating coil on the right, a radiator at the bottom right, and a boiler at the bottom center. Red solid lines with arrows show the flow from the pump to the buffer tank, then to the heating coil, radiator, and boiler, before returning to the pump. Blue solid lines with arrows show the return flow from the boiler back to the pump. A dashed red line indicates a bypass loop between the heating coil and the radiator. A dashed blue line indicates a bypass loop between the radiator and the boiler. A valve is located on the main return line from the radiator to the boiler. A label 'Electrical resistance (on MID-M/E)' points to the heating coil.

IMPORTANT INFORMATION FOR INSTALLATION

ALEZIO M MAX R290

DOMESTIC HOT WATER PRODUCTION

- Installation with reversal valve only



	MODEL				
	4 M	6 M	8 M	11 M / 11 T	13 M / 13 T
Recommended DHW tank volume	100 to 250 litres	100 to 250 litres	150 to 300 litres	175 to 500 litres	175 to 500 litres
Maximum pipe length C + D	20 m	20 m	20 m	20 m	20 m
Minimum exchange surface area of the tank	> 1,7 m ²	> 1,7 m ²	> 1,7 m ²	> 1,7 m ²	> 1,7 m ²
Minimum internal diameter A	20 mm	20 mm	26 mm	26 mm	26 mm
Heat pump diameter B (inch)	1"	1"	1"1/4	1"1/4	1"1/4
Fittings 3 and 4	Not required	Not required	Necessary	Necessary	Necessary

- Installation with connection kit (optional): see pages 17 and 18



IMPORTANT



Observe a maximum pipe length of 10 metres when connecting the domestic hot water heater to the indoor module. Select a domestic hot water heater with a minimum heat exchange surface area of 1.7 m². Each elbow is equivalent to a straight length of 1 metre of pipe.

IMPORTANT INFORMATION FOR INSTALLATION

ALEZIO M MAX R290

ELECTRICAL CONNECTION

The electrical installation of the heat pumps must be carried out in accordance with good practice and in compliance with current standards, decrees and related texts, in particular standard NF C 15 100. The product's power cables must be separated from communication cables and probes. It is recommended to use shielded cables to avoid any interference with the low-voltage network.

RECOMMENDED CABLE CROSS-SECTIONS AND CIRCUIT-BREAKERS TO BE USED

ALEZIO M MAX R290 ...	Type ...phase	POWER SUPPLY MONO OUTDOOR UNIT AWHP3R		POWER SUPPLY INDOOR UNIT MID-M		COMMUNICATION BUS
		SC (mm ²)	DISJ typ. B or C	SC (mm ²)	DISJ typ. B or C	SC (mm ²)
4 M and 6 M	Mono	3 x 2,5	16 A	3 x 1,5	10 A	3 x 0,75 shielded (< 30 metres)
8 M	Mono	3 x 4	20 A	3 x 1,5	10 A	3 x 0,75 shielded (< 30 metres)
11 M and 13 M	Mono	3 x 6	32 A	3 x 1,5	10 A	3 x 0,75 shielded (< 30 metres)
11 T and 13 T	Tri	5 x 2,5	16 A	3 x 1,5	10 A	3 x 0,75 shielded (< 30 metres)

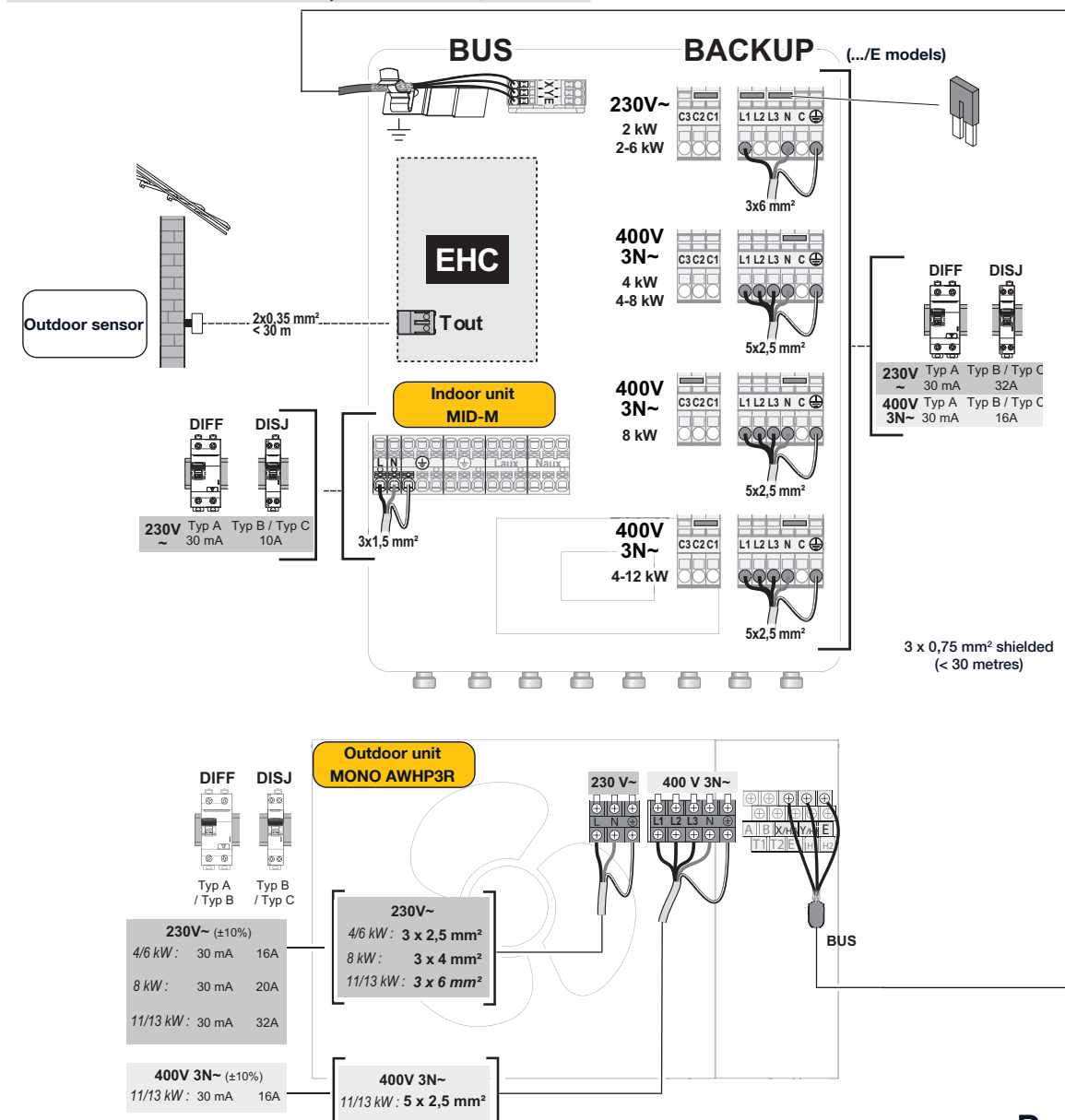
ELECTRICAL BACKUP (.../E MODEL)		
MONO: 2 or 6 kW	SC	3 x 6 mm ²
	DISJ	Typ. B or C, 32 A
	Max. intensity	23 A
TRI: 4, 8 or 12 kW	SC	5 x 2,5 mm ²
	DISJ	Typ. B or C, 16 A
	Max. intensity	3 x 15,5 A

Key

SC = cable section in mm²

DISJ = circuit breaker

DIFF = Residual Current Differential Device



M_MAX_R290_F2000a

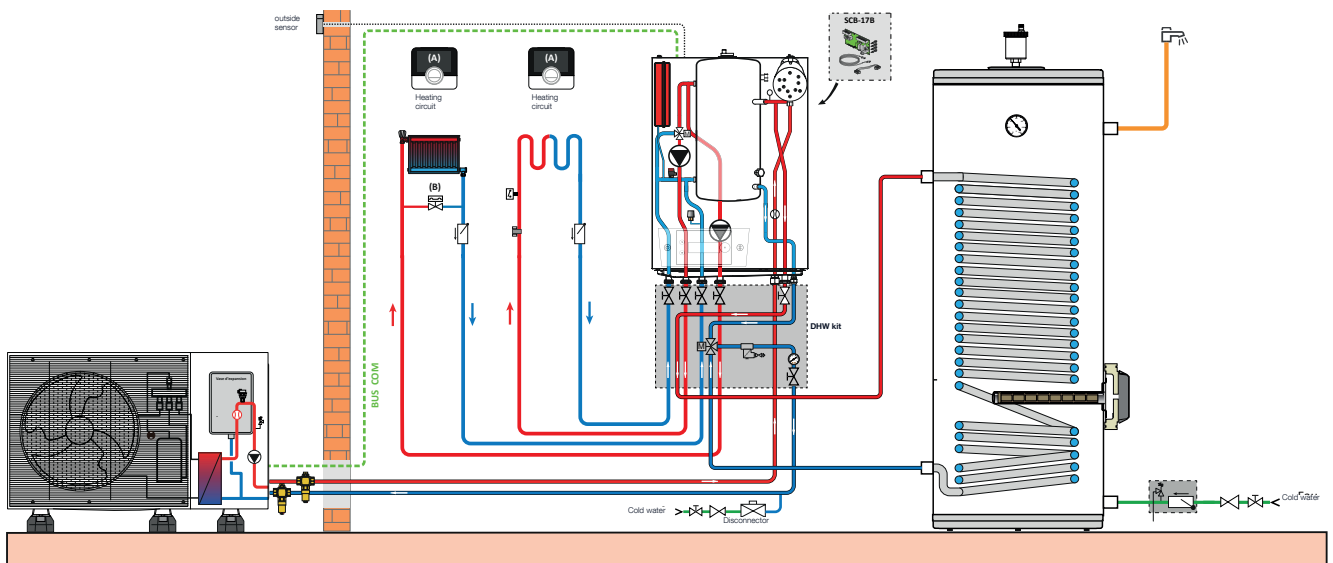
Elec_MONO_AWHP3R

INSTALLATION EXAMPLE

ALEZIO M MAX R290

ALEZIO M MAX R290 HEAT PUMP WITH ELECTRICAL BACKUP AND DHW CONNECTION KIT

- 1 direct "radiator" circuit
- 1 circuit mixed by V3V "underfloor heating"
- 1 domestic hot water production with connection kit and independent tank



ALEZIO M MAX-2CIRCUITS + ECS



IMPORTANT RECOMMENDATIONS

In order to make the most of the performance of heat pumps for optimum comfort and to extend their service life as much as possible, we recommend that you take particular care with their installation, commissioning and maintenance; to this end, please refer to the various manuals supplied with the units. De Dietrich also offers heat pump commissioning in its catalogue, and a maintenance contract is also highly recommended.



BDR THERMEA FRANCE

S.A.S. with corporate capital of 229 288 696 €

57, rue de la Gare - F - 67580 Mertzwiller

Tél. +33 3 88 80 27 00 - Fax +33 3 88 80 27 99

www.dedietrich-heating.com

