

PROFESSIONAL MANUAL

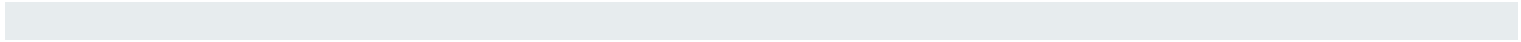
# Nimbus M NET R32

Monobloc Heat Pumps





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# 1. CHARACTERISTICS AND FIELD OF APPLICATION

POWER RATINGS		35		50		80				120				150			
POWER SUPPLY (*)		1-ph	1-ph	1-ph	1-ph	1-ph	1-ph	3-ph	3-ph	1-ph	1-ph	3-ph	3-ph	1-ph	1-ph	3-ph	3-ph
THERMAL ZONES		1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
SPACE HEATING / COOLING + DOMESTIC HOT WATER	 <p>NIMBUS COMPACT M NET R32</p>	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	 <p>NIMBUS FLEX M NET R32</p>	•	-	•	-	•	-	•	-	•	-	•	-	•	-	•	-
HEATING / COOLING	 <p>NIMBUS PLUS M NET R32</p>	•	-	•	-	•	-	•	-	•	-	•	-	•	-	•	-
	 <p>NIMBUS POCKET M NET R32</p>	•	-	•	-	•	-	•	-	•	-	•	-	•	-	•	-

		POWER RATINGS		35		50		80				120				150			
		POWER SUPPLY (*)		1-ph	1-ph	1-ph	1-ph	1-ph	1-ph	3-ph	3-ph	1-ph	1-ph	3-ph	3-ph	1-ph	1-ph	3-ph	3-ph
		THERMAL ZONES		1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
SPACE HEATING / COOLING + DOMESTIC HOT WATER		Heating energy rating at 55°C	A++		A++			A++					A++					A++	
		Heating energy rating at 35°C	A+++		A+++			A+++					A+++						A+++
		Domestic hot water energy class	A+		A+			A+					A+						A+
		Withdrawal profile	XL		XL			XL					XL						XL
SPACE HEATING / COOLING + DOMESTIC HOT WATER		Heating energy rating at 55°C	A++		A++			A++					A++					A++	
		Heating energy rating at 35°C	A+++		A+++			A+++					A+++						A+++
		Domestic hot water energy class	A+		A+			A+					A+						A+
		Withdrawal profile	XL		XL			XL					XL						XL
HEATING / COOLING		Heating energy rating at 55°C	A++		A++			A++					A++					A++	
		Heating energy rating at 35°C	A+++		A+++			A+++					A+++						A+++
		Heating energy rating at 55°C	A++		A++			A++						A++					A++
		Heating energy rating at 35°C	A+++		A+++			A+++					A+++						A+++

## 2. MAIN COMPONENTS



LIST OF COMPONENTS	LIST OF COMPONENTS							
	Description							
Description	NIMBUS EXT R32 35 M	NIMBUS EXT R32 50 M	NIMBUS EXT R32 80 M	NIMBUS EXT R32 80 M - T	NIMBUS EXT R32 120 M	NIMBUS EXT R32 120 M - T	NIMBUS EXT R32 150 M	NIMBUS EXT R32 150 M - T
NIMBUS COMPACT 35 M NET R32	•							
NIMBUS COMPACT 35 M 2Z NET R32	•							
NIMBUS COMPACT 50 M NET R32		•						
NIMBUS COMPACT 50 M 2Z NET R32		•						
NIMBUS COMPACT 80 M NET R32			•					
NIMBUS COMPACT 80 M 2Z NET R32			•					
NIMBUS COMPACT 80 M-T NET R32				•				
NIMBUS COMPACT 80 M-T 2Z NET R32				•				
NIMBUS COMPACT 120 M NET R32					•			
NIMBUS COMPACT 120 M 2Z NET R32					•			
NIMBUS COMPACT 120 M-T NET R32						•		
NIMBUS COMPACT 120 M-T 2Z NET R32						•		
NIMBUS COMPACT 150 M NET R32							•	
NIMBUS COMPACT 150 M 2Z NET R32							•	
NIMBUS COMPACT 150 M-T NET R32								•
NIMBUS COMPACT 150 M-T 2Z NET R32								•
NIMBUS FLEX 35 M NET R32	•							
NIMBUS FLEX 50 M NET R32		•						
NIMBUS FLEX 80 M NET R32			•					
NIMBUS FLEX 80 M-T NET R32				•				
NIMBUS FLEX 120 M NET R32					•			
NIMBUS FLEX 120 M-T NET R32						•		
NIMBUS FLEX 150 M NET R32							•	
NIMBUS FLEX 150 M-T NET R32								•
NIMBUS PLUS 35 M NET R32	•							
NIMBUS PLUS 50 M NET R32		•						
NIMBUS PLUS 80 M NET R32			•					
NIMBUS PLUS 80 M-T NET R32				•				
NIMBUS PLUS 120 M NET R32					•			
NIMBUS PLUS 120 M-T NET R32						•		
NIMBUS PLUS 150 M NET R32							•	
NIMBUS PLUS 150 M-T NET R32								•
NIMBUS POCKET 35 M NET R32	•							
NIMBUS POCKET 50 M NET R32		•						
NIMBUS POCKET 80 M NET R32			•					
NIMBUS POCKET 80 M-T NET R32				•				
NIMBUS POCKET 120 M NET R32					•			
NIMBUS POCKET 120 M-T NET R32						•		
NIMBUS POCKET 150 M NET R32							•	
NIMBUS POCKET 150 M-T NET R32								•



## 3. SPECIFICATION DESCRIPTION

### NIMBUS EXT R32 35 M



Split/hydronic air-to-water heat pump for winter heating, summer air conditioning and domestic hot water production:

Electrical performance:

- / Space heating seasonal energy efficiency class (EU 811/2013):
  - A++ (with delivery at 55°C)
  - A+++ (with delivery at 35°C)

#### OUTDOOR CONDENSING UNIT

- / Galvanised sheet steel panel coated with epoxy-polyester powders;
- / R32 refrigerant gas;
- / Twin Rotary DC single rotary compressor with soft start and direct current hybrid inverter start-up with PAM ("Pulse Amplitude Modulation") and PWM ("Pulse Width Modulation") logics for improved reliability, low energy consumption and vibration-free operation in all operating conditions, and acoustically insulated with sound-absorbing materials. Continuous modulation;
- / Modulating axial single fan with aerofoil profile and variable-speed DC brushless motor, characterised by an innovative profile, designed for guaranteeing improved air distribution and limited noise levels;
- / Electronic expansion valve with self-regulated PWM logic;
- / 4-way cycle reversal valve with optimised defrosting programme;
- / Stainless steel brazed plate heat exchanger with 42 plates, depth 72.8 mm, insulated;
- / 1 continuous modulating primary circulation pump with PWM logic on the temperature, with circulation pump status LED, available head 3.5 m with 1500 l/h;
- / Automatic of deaeration valve;
- / 3-bar safety valve;
- / Flow meter for water circulation and safety monitoring;
- / Electronic management system equipped with all sensors required for the correct operation of the cooling circuit, for electronically detecting the system's operating status parameters, such as: outdoor air temperature, evaporation, liquid, compressor inlet, compressor discharge;
- / Delivery and return temperature sensors for controlling the water circuit temperatures;
- / The unit's operating range in winter reaches a temperature of up to minimum -20°C outdoors, maximum +35°C, with hot water up to +60°C (guaranteed up to -10°C outdoors);
- / The unit's operating range in summer reaches a temperature of up to maximum 43°C outdoors, minimum +10°C, with cold water up to +5°C;
- / Dimensions (HxWxD): 756 mm x 1016 mm x 350 mm;
- / 1" threaded system delivery and return hydraulic fittings;

- / Reverse-cycle vapour compression cooling circuit equipped with: evaporator with manifold, storage tank, silencer, liquid separator, liquid container, lamination valve, distributor;
- / Evaporator with straight fins and Blue Fin treatment for minimising the risk of freezing.

#### TECHNICAL FEATURES

- / Maximum heat output in heating mode with 7°C outdoor temperature and 35/30°C water temperature: 6.35 kW with COP 4.2;
- / Maximum heat output in cooling mode with 35°C outdoor temperature and 7/12°C water temperature: 3.8 kW with EER 2.57;
- / Nominal heat output in heating mode with 7°C outdoor temperature and 35/30°C water temperature: 3.5 kW with CoP 5.1;
- / Nominal cooling power in cooling mode with 35°C outdoor temperature and 7/12°C water temperature: 3.5 kW with EER 3.4;
- / Nominal refrigerant charge: 1 kg;
- / Power supply: 230 V;
- / Max. power input: 2.54 kW;
- / Max. current draw: 11.7 A;
- / Weight: 66 kg;
- / Maximum sound power: 53 dB(A).



## NIMBUS EXT R32 50 M



Split/hydronic air-to-water heat pump for winter heating, summer air conditioning and domestic hot water production:

Electrical performance:

- / Space heating seasonal energy efficiency class (EU 811/2013):
  - A++ (with delivery at 55°C)
  - A+++ (with delivery at 35°C)

### OUTDOOR CONDENSING UNIT

- / Galvanised sheet steel panel coated with epoxy-polyester powders;
- / R32 refrigerant gas;
- / Twin Rotary DC single rotary compressor with soft start and direct current hybrid inverter start-up with PAM ("Pulse Amplitude Modulation") and PWM ("Pulse Width Modulation") logics for improved reliability, low energy consumption and vibration-free operation in all operating conditions, and acoustically insulated with sound-absorbing materials. Continuous modulation;
- / Modulating axial single fan with aerofoil profile and variable-speed DC brushless motor, characterised by an innovative profile, designed for guaranteeing improved air distribution and limited noise levels;
- / Electronic expansion valve with self-regulated PWM logic;
- / 4-way cycle reversal valve with optimised defrosting programme;
- / Stainless steel brazed plate heat exchanger with 42 plates, depth 72.8 mm, insulated;
- / 1 continuous modulating primary circulation pump with PWM logic on the temperature, with circulation pump status LED, available head 3.5 m with 1500 l/h;
- / Automatic of deaeration valve;
- / 3-bar safety valve;
- / Flow meter for water circulation and safety monitoring;
- / Electronic management system equipped with all sensors required for the correct operation of the cooling circuit, for electronically detecting the system's operating status parameters, such as: outdoor air temperature, evaporation, liquid, compressor inlet, compressor discharge;
- / Delivery and return temperature sensors for controlling the water circuit temperatures;
- / The unit's operating range in winter reaches a temperature of up to minimum -20°C outdoors, maximum +35°C, with hot water up to +60°C (guaranteed up to -10°C outdoors);
- / The unit's operating range in summer reaches a temperature of up to maximum 43°C outdoors, minimum +10°C, with cold water up to +5°C;
- / Dimensions (HxWxD): 756 mm x 1016 mm x 374 mm;
- / 1" threaded system delivery and return hydraulic fittings;

- / Reverse-cycle vapour compression cooling circuit equipped with: evaporator with manifold, storage tank, silencer, liquid separator, liquid container, lamination valve, distributor;
- / Evaporator with straight fins and Blue Fin treatment for minimising the risk of freezing.

### TECHNICAL FEATURES

- / Maximum heat output in heating mode with 7°C outdoor temperature and 35/30°C water temperature: 7.57 kW with COP 4.05;
- / Maximum heat output in cooling mode with 35°C outdoor temperature and 7/12°C water temperature: 5.40 kW with EER 2.62;
- / Nominal heat output in heating mode with 7°C outdoor temperature and 35/30°C water temperature: 5.0 kW with CoP 5;
- / Nominal cooling power in cooling mode with 35°C outdoor temperature and 7/12°C water temperature: 5.0 kW with EER 2.85;
- / Nominal refrigerant charge: 1 kg;
- / Power supply: 230 V;
- / Max. power input: 3.06 kW;
- / Max. current draw: 14.3 A;
- / Weight: 66 kg;
- / Maximum sound power: 55 dB(A).

## 3. SPECIFICATION DESCRIPTION

### NIMBUS EXT R32 80 M



Split/hydronic air-to-water heat pump for winter heating, summer air conditioning and domestic hot water production:

Electrical performance:

- / Space heating seasonal energy efficiency class (EU 811/2013):
  - A++ (with delivery at 55°C)
  - A+++ (with delivery at 35°C)

#### OUTDOOR CONDENSING UNIT

- / Galvanised sheet steel panel coated with epoxy-polyester powders;
- / R32 refrigerant gas;
- / Twin Rotary DC single rotary compressor with soft start and direct current hybrid inverter start-up with PAM ("Pulse Amplitude Modulation") and PWM ("Pulse Width Modulation") logics for improved reliability, low energy consumption and vibration-free operation in all operating conditions, and acoustically insulated with sound-absorbing materials. Continuous modulation;
- / Modulating axial single fan with aerofoil profile and variable-speed DC brushless motor, characterised by an innovative profile, designed for guaranteeing improved air distribution and limited noise levels;
- / Electronic expansion valve with self-regulated PWM logic;
- / 4-way cycle reversal valve with optimised defrosting programme;
- / Stainless steel brazed plate heat exchanger with 58 plates, depth 97.2 mm, insulated;
- / 1 continuous modulating primary circulation pump with PWM logic on the temperature, with circulation pump status LED, available head 5 m with 1800 l/h;
- / Automatic of deaeration valve;
- / 3-bar safety valve;
- / Flow meter for water circulation and safety monitoring;
- / Electronic management system equipped with all sensors required for the correct operation of the cooling circuit, for electronically detecting the system's operating status parameters, such as: outdoor air temperature, evaporation, liquid, compressor inlet, compressor discharge;
- / Delivery and return temperature sensors for controlling the water circuit temperatures;
- / The unit's operating range in winter reaches a temperature of up to minimum -20°C outdoors, maximum +35°C, with hot water up to +60°C (guaranteed up to -10°C outdoors);
- / The unit's operating range in summer reaches a temperature of up to maximum 43°C outdoors, minimum +10°C, with cold water up to +5°C;
- / Dimensions (HxWxD): 1106 mm x 1016 mm x 374 mm;
- / 1" threaded system delivery and return hydraulic fittings;

- / Reverse-cycle vapour compression cooling circuit equipped with: evaporator with manifold, storage tank, silencer, liquid separator, liquid container, lamination valve, distributor;
- / Evaporator with straight fins and Blue Fin treatment for minimising the risk of freezing.

#### TECHNICAL FEATURES

- / Maximum heat output in heating mode with 7°C outdoor temperature and 35/30°C water temperature: 11.74 kW with CoP 4.02;
- / Maximum heat output in cooling mode with 35°C outdoor temperature and 7/12°C water temperature: 8.50 kW with EER 3.04;
- / Nominal heat output in heating mode with 7°C outdoor temperature and 35/30°C water temperature: 8.0 kW with CoP 4.80;
- / Nominal cooling power in cooling mode with 35°C outdoor temperature and 7/12°C water temperature: 7.0 kW with EER 3.10;
- / Nominal refrigerant charge: 1.4 kg;
- / Power supply: 230 V;
- / Max. power input: 4.53 kW;
- / Max. current draw: 21.3 A;
- / Weight: 91 kg;
- / Maximum sound power: 56 dB(A).

## NIMBUS EXT R32 80 M-T



Split/hydronic air-to-water heat pump for winter heating, summer air conditioning and domestic hot water production:

Electrical performance:

- / Space heating seasonal energy efficiency class (EU 811/2013):
  - A++ (with delivery at 55°C)
  - A+++ (with delivery at 35°C)

### OUTDOOR CONDENSING UNIT

- / Galvanised sheet steel panel coated with epoxy-polyester powders;
- / R32 refrigerant gas;
- / Twin Rotary DC single rotary compressor with soft start and direct current hybrid inverter start-up with PAM ("Pulse Amplitude Modulation") and PWM ("Pulse Width Modulation") logics for improved reliability, low energy consumption and vibration-free operation in all operating conditions, and acoustically insulated with sound-absorbing materials. Continuous modulation;
- / Modulating axial single fan with aerofoil profile and variable-speed DC brushless motor, characterised by an innovative profile, designed for guaranteeing improved air distribution and limited noise levels;
- / Electronic expansion valve with self-regulated PWM logic;
- / 4-way cycle reversal valve with optimised defrosting programme;
- / Stainless steel brazed plate heat exchanger with 58 plates, depth 97.2 mm;
- / 1 continuous modulating primary circulation pump with PWM logic on the temperature, with circulation pump status LED, available head 5 m with 1800 l/h;
- / Automatic of deaeration valve;
- / 3-bar safety valve;
- / Flow meter for water circulation and safety monitoring;
- / Electronic management system equipped with all sensors required for the correct operation of the cooling circuit, for electronically detecting the system's operating status parameters, such as: outdoor air temperature, evaporation, liquid, compressor inlet, compressor discharge;
- / Delivery and return temperature sensors for controlling the water circuit temperatures;
- / The unit's operating range in winter reaches a temperature of up to minimum -20°C outdoors, maximum +35°C, with hot water up to +60°C (guaranteed up to -10°C outdoors);
- / The unit's operating range in summer reaches a temperature of up to maximum 43°C outdoors, minimum +10°C, with cold water up to +5°C;
- / Dimensions (HxWxD): 1106 mm x 1016 mm x 374 mm;
- / 1" threaded system delivery and return hydraulic fittings;

- / Reverse-cycle vapour compression cooling circuit equipped with: evaporator with manifold, storage tank, silencer, liquid separator, liquid container, lamination valve, distributor;
- / Evaporator with straight fins and Blue Fin treatment for minimising the risk of freezing.

### TECHNICAL FEATURES

- / Maximum heat output in heating mode with 7°C outdoor temperature and 35/30°C water temperature: 11.74 kW with CoP 4.02;
- / Maximum heat output in cooling mode with 35°C outdoor temperature and 7/12°C water temperature: 8.50 kW with EER 3.04;
- / Nominal heat output in heating mode with 7°C outdoor temperature and 35/30°C water temperature: 8.0 kW with CoP 4.80;
- / Nominal cooling power in cooling mode with 35°C outdoor temperature and 7/12°C water temperature: 7.0 kW with EER 3.10;
- / Nominal refrigerant charge: 1.4 kg;
- / Power supply: 400 V three-phase;
- / Max. power input: 4.98 kW;
- / Max. current draw: 8.1 A per phase;
- / Weight: 104 kg;
- / Maximum sound power: 56 dB.

## 3. SPECIFICATION DESCRIPTION

### NIMBUS EXT R32 120 M



Split/hydronic air-to-water heat pump for winter heating, summer air conditioning and domestic hot water production:

Electrical performance:

- / Space heating seasonal energy efficiency class (EU 811/2013):
  - A++ (with delivery at 55°C)
  - A+++ (with delivery at 35°C)

#### OUTDOOR CONDENSING UNIT

- / Galvanised sheet steel panel coated with epoxy-polyester powders;
- / R32 refrigerant gas;
- / Twin Rotary DC single rotary compressor with soft start and direct current hybrid inverter start-up with PAM ("Pulse Amplitude Modulation") and PWM ("Pulse Width Modulation") logics for improved reliability, low energy consumption and vibration-free operation in all operating conditions, and acoustically insulated with sound-absorbing materials. Continuous modulation;
- / Modulating axial double fan with aerofoil profile and variable-speed DC brushless motor, characterised by an innovative profile, designed for guaranteeing improved air distribution and limited noise levels;
- / Electronic expansion valve with self-regulated PWM logic;
- / 4-way cycle reversal valve with optimised defrosting programme;
- / Stainless steel brazed plate heat exchanger with 90 plates, depth 145.8 mm, insulated;
- / 1 continuous modulating primary circulation pump with PWM logic on the temperature, with circulation pump status LED, available head 4.4 m with 2000 l/h;
- / Automatic of deaeration valve;
- / 3-bar safety valve;
- / Flow meter for water circulation and safety monitoring;
- / Electronic management system equipped with all sensors required for the correct operation of the cooling circuit, for electronically detecting the system's operating status parameters, such as: outdoor air temperature, evaporation, liquid, compressor inlet, compressor discharge;
- / Delivery and return temperature sensors for controlling the water circuit temperatures;
- / The unit's operating range in winter reaches a temperature of up to minimum -20°C outdoors, maximum +35°C, with hot water up to +60°C (guaranteed up to -10°C outdoors);
- / The unit's operating range in summer reaches a temperature of up to maximum 43°C outdoors, minimum +10°C, with cold water up to +5°C;
- / Dimensions (HxWxD): 1506 mm x 1016 mm x 374 mm;
- / 1" threaded system delivery and return hydraulic fittings;

- / Reverse-cycle vapour compression cooling circuit equipped with: evaporator with manifold, storage tank, silencer, liquid separator, liquid container, lamination valve, distributor;
- / Evaporator with straight fins and Blue Fin treatment for minimising the risk of freezing.

#### TECHNICAL FEATURES

- / Maximum heat output in heating mode with 7°C outdoor temperature and 35/30°C water temperature: 14.37 kW with CoP 4.48;
- / Maximum heat output in cooling mode with 35°C outdoor temperature and 7/12°C water temperature: 10.30 kW with EER 3.17;
- / Nominal heat output in heating mode with 7°C outdoor temperature and 35/30°C water temperature: 12.0 kW with CoP 4.90;
- / Nominal cooling power in cooling mode with 35°C outdoor temperature and 7/12°C water temperature: 9.05 kW with EER 3.15;
- / Nominal refrigerant charge: 2.100 kg;
- / Power supply: 230 V;
- / Max. power input: 5.15 kW;
- / Max. current draw: 23.9 A;
- / Weight: 124 kg;
- / Maximum sound power: 58 dB(A).

## NIMBUS EXT R32 120 M-T



Split/hydronic air-to-water heat pump for winter heating, summer air conditioning and domestic hot water production:

Electrical performance:

- / Space heating seasonal energy efficiency class (EU 811/2013):
  - A++ (with delivery at 55°C)
  - A+++ (with delivery at 35°C)

### OUTDOOR CONDENSING UNIT

- / Galvanised sheet steel panel coated with epoxy-polyester powders;
- / R32 refrigerant gas;
- / Twin Rotary DC single rotary compressor with soft start and direct current hybrid inverter start-up with PAM ("Pulse Amplitude Modulation") and PWM ("Pulse Width Modulation") logics for improved reliability, low energy consumption and vibration-free operation in all operating conditions, and acoustically insulated with sound-absorbing materials. Continuous modulation;
- / Modulating axial double fan with aerofoil profile and variable-speed DC brushless motor, characterised by an innovative profile, designed for guaranteeing improved air distribution and limited noise levels;
- / Electronic expansion valve with self-regulated PWM logic;
- / 4-way cycle reversal valve with optimised defrosting programme;
- / Stainless steel brazed plate heat exchanger with 90 plates, depth 145.8 mm, insulated;
- / 1 continuous modulating primary circulation pump with PWM logic on the temperature, with circulation pump status LED, available head 4.4 m with 2000 l/h;
- / Automatic of deaeration valve;
- / 3-bar safety valve;
- / Flow meter for water circulation and safety monitoring;
- / Electronic management system equipped with all sensors required for the correct operation of the cooling circuit, for electronically detecting the system's operating status parameters, such as: outdoor air temperature, evaporation, liquid, compressor inlet, compressor discharge;
- / Delivery and return temperature sensors for controlling the water circuit temperatures;
- / The unit's operating range in winter reaches a temperature of up to minimum -20°C outdoors, maximum +35°C, with hot water up to +60°C (guaranteed up to -10°C outdoors);
- / The unit's operating range in summer reaches a temperature of up to maximum 43°C outdoors, minimum +10°C, with cold water up to +5°C;
- / Dimensions (HxWxD): 1506 mm x 1016 mm x 374 mm;
- / 1" threaded system delivery and return hydraulic fittings;

- / Reverse-cycle vapour compression cooling circuit equipped with: evaporator with manifold, storage tank, silencer, liquid separator, liquid container, lamination valve, distributor;
- / Evaporator with straight fins and Blue Fin treatment for minimising the risk of freezing.

### TECHNICAL FEATURES

- / Maximum heat output in heating mode with 7°C outdoor temperature and 35/30°C water temperature: 14.37 kW with CoP 4.48;
- / Maximum heat output in cooling mode with 35°C outdoor temperature and 7/12°C water temperature: 10.30 kW with EER 3.17;
- / Nominal heat output in heating mode with 7°C outdoor temperature and 35/30°C water temperature: 12.0 kW with CoP 4.90;
- / Nominal cooling power in cooling mode with 35°C outdoor temperature and 7/12°C water temperature: 9.05 kW with EER 3.15;
- / Nominal refrigerant charge: 2.100 kg;
- / Power supply: 400 V three-phase;
- / Max. power input: 5.15 kW;
- / Max. current draw: 8.3 A per phase;
- / Weight: 131 kg;
- / Maximum sound power: 58 dB(A).

### 3. SPECIFICATION DESCRIPTION

#### NIMBUS EXT R32 150 M



Split/hydronic air-to-water heat pump for winter heating, summer air conditioning and domestic hot water production:

Electrical performance:

- / Space heating seasonal energy efficiency class (EU 811/2013):
  - A++ (with delivery at 55°C)
  - A+++ (with delivery at 35°C)

#### OUTDOOR CONDENSING UNIT

- / Galvanised sheet steel panel coated with epoxy-polyester powders;
- / R32 refrigerant gas;
- / Twin Rotary DC single rotary compressor with soft start and direct current hybrid inverter start-up with PAM ("Pulse Amplitude Modulation") and PWM ("Pulse Width Modulation") logics for improved reliability, low energy consumption and vibration-free operation in all operating conditions, and acoustically insulated with sound-absorbing materials. Continuous modulation;
- / Modulating axial double fan with aerofoil profile and variable-speed DC brushless motor, characterised by an innovative profile, designed for guaranteeing improved air distribution and limited noise levels;
- / Electronic expansion valve with self-regulated PWM logic;
- / 4-way cycle reversal valve with optimised defrosting programme;
- / Stainless steel brazed plate heat exchanger with 90 plates, depth 145.8 mm, insulated;
- / 1 continuous modulating primary circulation pump with PWM logic on the temperature, with circulation pump status LED, available head 4.4 m with 2000 l/h;
- / Automatic of deaeration valve;
- / 3-bar safety valve;
- / Flow meter for water circulation and safety monitoring;
- / Electronic management system equipped with all sensors required for the correct operation of the cooling circuit, for electronically detecting the system's operating status parameters, such as: outdoor air temperature, evaporation, liquid, compressor inlet, compressor discharge;
- / Delivery and return temperature sensors for controlling the water circuit temperatures;
- / The unit's operating range in winter reaches a temperature of up to minimum -20°C outdoors, maximum +35°C, with hot water up to +60°C (guaranteed up to -10°C outdoors);
- / The unit's operating range in summer reaches a temperature of up to maximum 43°C outdoors, minimum +10°C, with cold water up to +5°C;

- / Dimensions (HxWxD): 1506 mm x 1016 mm x 374 mm;
- / 1" threaded system delivery and return hydraulic fittings;
- / Reverse-cycle vapour compression cooling circuit equipped with: evaporator with manifold, storage tank, silencer, liquid separator, liquid container, lamination valve, distributor;
- / Evaporator with straight fins and Blue Fin treatment for minimising the risk of freezing.

#### TECHNICAL FEATURES

- / Maximum heat output in heating mode with 7°C outdoor temperature and 35/30°C water temperature: 17.65 kW with CoP 4.43;
- / Maximum heat output in cooling mode with 35°C outdoor temperature and 7/12°C water temperature: 11.9 kW with EER 2.87;
- / Nominal heat output in heating mode with 7°C outdoor temperature and 35/30°C water temperature: 15.0 kW with CoP 4.70;
- / Nominal cooling power in cooling mode with 35°C outdoor temperature and 7/12°C water temperature: 11.0 kW with EER 2.93;
- / Nominal refrigerant charge: 2.100 kg;
- / Power supply: 230 V;
- / Max. power input: 6.18 kW;
- / Max. current draw: 28.7 A;
- / Weight: 124 kg;
- / Maximum sound power: 58 dB(A).

## NIMBUS EXT R32 150 M-T



Split/hydronic air-to-water heat pump for winter heating, summer air conditioning and domestic hot water production:

Electrical performance:

- / Space heating seasonal energy efficiency class (EU 811/2013):
  - A++ (with delivery at 55°C)
  - A+++ (with delivery at 35°C)

### OUTDOOR CONDENSING UNIT

- / Galvanised sheet steel panel coated with epoxy-polyester powders;
  - / R32 refrigerant gas;
  - / Twin Rotary DC single rotary compressor with soft start and direct current hybrid inverter start-up with PAM ("Pulse Amplitude Modulation") and PWM ("Pulse Width Modulation") logics for improved reliability, low energy consumption and vibration-free operation in all operating conditions, and acoustically insulated with sound-absorbing materials. Continuous modulation;
  - / Modulating axial double fan with aerofoil profile and variable-speed DC brushless motor, characterised by an innovative profile, designed for guaranteeing improved air distribution and limited noise levels;
  - / Electronic expansion valve with self-regulated PWM logic;
  - / 4-way cycle reversal valve with optimised defrosting programme;
  - / Stainless steel brazed plate heat exchanger with 90 plates, depth 145.8 mm;
  - / 1 continuous modulating primary circulation pump with PWM logic on the temperature, with circulation pump status LED, available head 4.4 m with 2000 l/h;
  - / Automatic of deaeration valve;
  - / 3-bar safety valve;
  - / Flow meter for water circulation and safety monitoring;
  - / Electronic management system equipped with all sensors required for the correct operation of the cooling circuit, for electronically detecting the system's operating status parameters, such as: outdoor air temperature, evaporation, liquid, compressor inlet, compressor discharge;
  - / Delivery and return temperature sensors for controlling the water circuit temperatures;
  - / The unit's operating range in winter reaches a temperature of up to minimum -20°C outdoors, maximum +35°C, with hot water up to +60°C (guaranteed up to -10°C outdoors);
  - / The unit's operating range in summer reaches a temperature of up to maximum 43°C outdoors, minimum +10°C, with cold water up to +5°C;/
- Dimensions (HxWxD): 1506 mm x 1016 mm x 374 mm;
- / 1" threaded system delivery and return hydraulic fittings;

- / Reverse-cycle vapour compression cooling circuit equipped with: evaporator with manifold, storage tank, silencer, liquid separator, liquid container, lamination valve, distributor;
- / Evaporator with straight fins and Blue Fin treatment for minimising the risk of freezing.

### TECHNICAL FEATURES

- / Maximum heat output in heating mode with 7°C outdoor temperature and 35/30°C water temperature: 17.65 kW with CoP 4.43;
- / Maximum heat output in cooling mode with 35°C outdoor temperature and 7/12°C water temperature: 11.9 kW with EER 2.87;
- / Nominal heat output in heating mode with 7°C outdoor temperature and 35/30°C water temperature: 15.0 kW with CoP 4.70;
- / Nominal cooling power in cooling mode with 35°C outdoor temperature and 7/12°C water temperature: 11.0 kW with EER 2.93;
- / Nominal refrigerant charge: 2.100 kg;
- / Power supply: 400 V three-phase;
- / Max. power input: 6.18 kW;
- / Max. current draw: 10.0 A per phase;
- / Weight: 131 kg;
- / Maximum sound power: 58 dB(A).

### 3. SPECIFICATION DESCRIPTION

**NIMBUS FS M R32**  
**NIMBUS FS M 2Z R32**  
**NIMBUS FS-L M R32**  
**NIMBUS FS-L M 2Z R32**



#### INDOOR UNIT

- / Indoor unit with base, galvanised sheet steel panel coated with epoxy powders, with SENSYS HD control panel that can be integrated and removed, featuring a broad 4.3" display;
- / 1" threaded hydraulic fittings on heating system side, 3/4" hydraulic fittings on domestic water system side;
- / 1" self-cleaning magnetic dirt separator filter, complete with pressure transducer, pressure gauge, air separator with automatic drain valve and manual drain valve and 3.0 bar safety valve;
- / 12-litre expansion vessel;
- / Manual-reset safety thermostat for heating element;
- / Sensors for heating, cooling delivery temperature;
- / Integrated hydraulic separator (2 Z models);
- / Relaunch circulation pump for direct zone, continuously modulating with PWM logic on the delivery/return temperature difference, available head 4.2 m WC with 2,000 l/h flow rate (2 Z models);
- / Mixing valve and continuously modulating circulation pump for mixed zone with PWM logic on the delivery/return temperature difference, available head 5 m WC with 2,000 l/h flow rate (2 Z models);
- / Terminal board for connecting thermostats/remote control unit and other devices;
- / Supplementary heating element:
  - 4 kW (2+2 kW) (models 35 - 50 - 80);
  - 6 kW (2+2+2) (models 120 - 150);
- / Maximum current:
  - 19.1 A (models 35-50-80 single-phase)
  - 9.6 A (models 80 three-phase)
  - 30 A (models 120 single-phase)
  - 10 A (models 120 three-phase)
  - 30 A (models 150 single-phase)
  - 10 A (models 150 three-phase);
- / Sound power level of indoor unit (LWA):
  - 35 dB (1Z models)
  - 42 dB (2Z models);
- / Weight:
  - 127 kg (1Z models)
  - 134 kg (2Z models);
- / Dimensions (HxWxD) 1818 mm x 600 mm x 612 mm;
- / Temperature control function with compensated logic and connection of the standard outdoor sensor;

- / Single-coil DHW storage tank with titanium enamelling and corrosion protection by means of an active titanium anode and magnesium anode, Cylinder capacity 200 litres, nominal capacity 180 litres, heat dispersion 1.2 kWh/24h, insulation thickness 75 mm, polyurethane material;
- / Configuration for optional supplementary 2 kW heating element for the DHW Cylinder;
- / Voltage/frequency:
  - 230 V / 1 ph / 50 Hz (single-phase models);
  - 430 V / 3 ph / 50 Hz (three-phase models);
- / OpenTherm communication port;
- / Programmable inputs and outputs;
- / Smart Grid Ready input.

#### CHARACTERISTIC FUNCTIONS

- / Photovoltaic function: possibility of interaction with photovoltaic systems in order to reduce consumption;
- / EDF: management of discounted electricity rates;
- / SG READY: Smart Grid Ready, possibility of connection to applications configured for optimising electricity consumption;
- / Puffer management: possibility of managing thermal loading of a thermal flywheel;
- / Integration with solar heating system: possibility of combined operation with solar heating system;
- / Integration with generic external generator: possibility of replacing the electrical integration with an alternative external generator;
- / Integration with heating elements: possibility of increasing the power delivered by means of integrated heating elements;
- / Dehumidification function: possibility of controlling the machine's operation on the basis of the humidity in the room of installation;
- / Silent mode: possibility of reducing the compressor's frequency for improved silence;
- / External switch-off signal: possibility of switching the heat pump off remotely;
- / Relaunch circulation pump function: possibility of managing a relaunch circulation pump;
- / Anti-Legionella function;
- / Hot water comfort function: programmed Cylinder temperature maintenance.



**NIMBUS WH M 1Z**  
**NIMBUS WH-L M 1Z**



**INDOOR UNIT**

- / Wall-mounted indoor unit with galvanised sheet steel panel coated with epoxy powders, with SENSYS HD control panel that can be integrated and remoted, featuring a broad 4.3" display;
- / 1" threaded hydraulic fittings on heating system side;
- / 1" self-cleaning magnetic dirt separator filter, complete with pressure transducer, pressure gauge, air separator with automatic drain valve and manual drain valve and 3.0 bar safety valve;
- / 12-litre expansion vessel;
- / Manual-reset safety thermostat for heating element;
- / Sensors for heating, cooling delivery temperature;
- / Terminal board for connecting thermostats/remote control unit and other devices;
- / Supplementary heating element:
  - 4 kW (2+2 kW) (model WH);
  - 6 kW (2+2+2 kW) (model WH-L);
- / Maximum current:
  - 19.1 A (model WH single-phase power supply);
  - 9.6 A (model WH three-phase power supply);
  - 30 A (model WH-L single-phase power supply);
  - 10 A (model WH-L three-phase power supply);
- / Sound power level of indoor unit (LWA):
  - 35 dB;
- / Weight:
  - 31 kg (model WH), 29 kg (model WH-L);
- / Dimensions (HxWxD) 716 mm x 600 mm x 358 mm;
- / Temperature control function with compensated logic and connection of the standard outdoor sensor;
- / Voltage/frequency:
  - 230 V / 1 ph / 50 Hz (single-phase models);
  - 430 V / 3 ph / 50 Hz (three-phase models);
- / OpenTherm communication port;
- / Programmable inputs and outputs;
- / Smart Grid Ready input.

**CHARACTERISTIC FUNCTIONS**

- / Photovoltaic function: possibility of interaction with photovoltaic systems in order to reduce consumption;
- / EDF: management of discounted electricity rates;
- / SG READY: Smart Grid Ready, possibility of connection to applications configured for optimising electricity consumption;
- / Puffer management: possibility of managing thermal loading of a thermal flywheel;
- / Integration with solar heating system: possibility of combined operation with solar heating system;
- / Integration with generic external generator: possibility of replacing the electrical integration with an alternative external generator;
- / Integration with heating elements: possibility of increasing the power delivered by means of integrated heating elements;
- / Manual mode: possibility of forcing the heat pump to a pre-defined frequency;
- / Dehumidification function: possibility of controlling the machine's operation on the basis of the humidity in the room of installation;
- / Silent mode: possibility of reducing the compressor's frequency for improved silence;
- / External switch-off signal: possibility of switching the heat pump off remotely;
- / Relaunch circulation pump function: possibility of managing a relaunch circulation pump;
- / Anti-Legionella function;
- / Hot water comfort function: programmed Cylinder temperature maintenance.

### 3. SPECIFICATION DESCRIPTION

#### NIMBUS LB M



#### LIGHT BOX

PCB holder with high- and low-voltage connections for Nimbus Pocket, installable also outdoors; includes the following elements:

- / Product PCB;
- / Terminal board for low-voltage connections;
- / Terminal board for high-voltage connections;
- / Terminal board for power supply;
- / Dimensions (WxHxD): 376 x 275 x 61 mm;
- / Weight: 2.5 kg;
- / Electrical protection rating IPX5.

#### SENSYS HD CONTROL PANEL



System manager featuring a 4.3" high-resolution modulating display for measuring the room temperature and controlling the system's operating parameters. The BUS BridgeNet® protocol allows for:

- / Switching the heat pump on and off;
- / Setting the operating modes;
- / Viewing and setting the room temperature and the domestic hot water temperature, and the system diagnostics values;
- / Performing multi-temperature, daily and weekly time scheduling of the room temperature in the heating and cooling modes;
- / Performing time scheduling of the domestic hot water production;
- / Activating/setting the AUTO function (climate temperature control);
- / Controlling all functions of the heat pump and of the indoor unit;
- / Performing guided setting/configuration of the system parameters;
- / Viewing and releasing errors;
- / Viewing the energy reports (sensitive statistics of the boiler and heat pump, SCOP, SEER, estimate of the hot water available);
- / Personalising the home screen;
- / Powering and connecting the ARISTON system via bus (ARISTON BUS BridgeNet® proprietary protocol);
- / Electrical protection rating: IP20;
- / Operating temperatures: -10°C/+50°C.

## ARISTON NET WI-FI LIGHT GATEWAY



A device for connecting the new generation ARISTON system and the home Wi-Fi network:

- / Compatible with Wi-Fi ADSL router with WEP and WPA/ WPA2 Personal encryption 2.5 GHz;
- / Powering and connection con ARISTON system via bus (ARISTON BUS BridgeNet® proprietary protocol);
- / Configuration for housing and powering the Sensys modulating system manager;
- / Electrical protection rating: IP20;
- / Operating temperatures: 0°C/+50°C.

## OUTDOOR SENSOR



Modulating sensor to read outdoor temperature. Connectible via cable at a maximum distance of 50 m.

### 3. SPECIFICATION DESCRIPTION

#### NIMBUS EXT M ACCESSORIES

- / Exogel kit: a mechanical valve that allows the anti-freeze function to take place in the heating circuit. It represents the last protection element of the heat pump, also in the event of a power outage. The valve opens towards the outside, enabling the gradual discharge of the circuit, when the system temperature drops to 1°C, and closes again when the temperature rises to above 4°C. The valve must be mounted near the outdoor unit on the system return (more specifically, on the fitting present in the outdoor unit); For all models;
- / Valve and filter kit: Pair of 1" M/F ball valves with shut-off valves to be installed on the outdoor machine. An additional 1" M/F tap connectible through a nipple with Y-shaped filter with metal mesh (1 mm<sup>2</sup> gap size), inspectable through an insert with bolt head;
- / Rubber feet kit for outdoor unit: to be used in order to reduce the effects of vibrations to a minimum; Dimensions (WxDxH): 600x185x100 mm. Weight: 7.6 kg. Maximum load 300 kg. Material made of recycled rubber bound with high-quality adhesive with 1 kg/cm<sup>3</sup> density. Internal guides made of galvanised steel and drainage profiles made on the lower part of the foot.
- / Wall-mounting brackets for outdoor unit: pair of brackets for mounting of the outdoor unit onto the wall.
- / Vibration-damping feet for wall mounting: 4 vibration-damping feet for the outdoor unit support used for wall mounting, aimed at reducing vibrations of the outdoor unit. For all models;
- / Condensate collection tray: for outdoor unit, made of plastic, to be attached to the lower part so as to collect the condensate produced during operation in a single point and channelling it through a 10 mm rubber hose to the existing drainage outlet. For all models;
- / Anti-freeze heating element for outdoor unit: additional heating element to be positioned at the base of the outdoor unit, for preventing the condensate formed from freezing up. The accessory can be mounted with both single-phase and three-phase connection.

#### NIMBUS FS M ACCESSORIES

- / Dedicated heating element for DHW production easily installable inside the Cylinder. The heating elements have an appropriate back-up interface that interacts with the Energy Manager to ensure smart management of the DHW production with this dedicated accessory capable of guaranteeing simultaneous operation in cooling and DHW production mode, thus enhancing the user's comfort;
- / Expansion vessel for hot water Cylinder entirely installable inside the FS 35-50-80 unit, having the following characteristics: 10 bar operating pressure, 8 l volume, -10°C / +100°C temperature range, 3.5 bar pre-charge;
- / Thermal flywheel with 15-litre nominal volume to be easily integrated into the rear part of the FS 35-150 M - 1 Zone unit. The flywheel allows for expanding the system's minimum water content with an integrated and space-saving solution. Warning: not suitable for 2-zone FS units.

## NIMBUS WH M ACCESSORIES

- / MONO BARS KIT - OUT (pipes outside wall)  
Connection kit that facilitates the system's connection to the monobloc wall-mounted indoor unit. It contains all the pipes required for the installation, even with a hot water Cylinder. It also contains the filling tap. For pipe entry at 90° downwards. For all models;
- / MONO BARS KIT - IN (pipes inside wall)  
Connection kit that facilitates the system's connection to the monobloc wall-mounted indoor unit. It contains all the pipes required for the installation, even with a hot water Cylinder. It also contains the filling tap. For entry of pipes in the wall. For all models steel braided hoses are supplied, with 19 mm thickness. Connection with 1" female fittings. For all models.
- / DHW KIT  
Three-way valve and pipes for completing the installation of the separate hot water Cylinder and connecting it hydraulically and electrically to the wall-mounted indoor unit. Can be fully integrated into the indoor unit. For all WH models;
- / UNIVERSAL Cylinder SENSOR  
Universal Cylinder sensor for connection to a generic Cylinder.

## NIMBUS LB M ACCESSORIES

- / DHW KIT  
Three-way valve and pipes for completing the installation of the separate hot water Cylinder and connecting it hydraulically and electrically to the wall; mounted indoor unit;
- / UNIVERSAL Cylinder SENSOR  
Universal Cylinder sensor for connection to a generic Cylinder.

## SYSTEM ACCESSORIES

- / Differential by-pass valve: 10–60 kPa calibration range with 3/4" F and 1 1/4" M fittings.  
Brass body and shutter, EPDM seals and O-rings. ABS handle, stainless steel springs.  
Fluid used: water or glycol solutions (max. glycol percentage 30%).  
Maximum operating pressure 10 bar, temperature range 0–110°C.  
It must be installed if thermostatic valves or zones valves are mounted on all terminals, to ensure the minimum operating flow rate of the heat pump.  
For all models;
- / Hoses: Kit with pair of hoses with 1, 3 or 10-metre length made of braided steel, with 19 mm-thick insulation.  
Connection with 1" female fittings. For all models.
- / Room humidistat: an instrument designed to monitor the relative humidity, in air conditioning systems, in air conditioning cabinets, to control air humidifiers and dehumidifiers, to adjust dehumidification in swimming pools and in all rooms requiring this type of control. The one-stage room humidistat conforms to the IP30 and Class I protection standards. The PCB of the heat pump has an input for detecting the humidistat signal and an output for activating a load if this signal is detected (e.g. dehumidifier).

### 3. SPECIFICATION DESCRIPTION



#### **CD1 200 HHP SINGLE-COIL HOT WATER CYLINDER FOR HEAT PUMPS**

- / Titanium-enamelled hot water Cylinder with installation on base and white-coated covering sheet;
- / 190-litre capacity;
- / Side inspection flange;
- / Thermal insulation: polyurethane foam;
- / Heat dispersion: 1.28 kWh/day;
- / ERP Class: B;
- / High-performance coil with 2 m<sup>2</sup> surface;
- / Heat exchanger power as per EN 12897: 22.7 kW;
- / Coil capacity: 13 litres;
- / Head losses from coil at 15 l/min: 88 mbar;
- / Magnesium anode;
- / Active anode;
- / 1" M hydraulic fittings for cold water inlet and hot water outlet;
- / 1" F hydraulic fittings for connection of the coil to the heat pump;
- / 3/4" F hydraulic fitting for domestic water recirculation;
- / 3/4" F hydraulic fitting for domestic water drainage;
- / 3 thermowells diameter 10 mm;
- / Maximum operating pressure: 7 bar;
- / Maximum operating temperature: 90°C;
- / Dimensions: diameter 66 cm, height 133 cm;
- / No-load weight: 83 kg;
- / Possibility of adding a supplementary electrical kit.

#### **CD1 300 HHP SINGLE-COIL HOT WATER CYLINDER FOR HEAT PUMPS**

- / Titanium-enamelled hot water Cylinder with installation on base and white-coated covering sheet;
- / 280-litre capacity;
- / Side inspection flange;
- / Thermal insulation: polyurethane foam;
- / Dispersion equal to 1.64 kWh/day;
- / ERP Class: B;
- / High-performance coil with 3.5 m<sup>2</sup> surface;
- / Heat exchanger power as per EN 12897: 33.8 kW;
- / Coil capacity: 18 litres;
- / Head losses from coil at 15 l/min: 92 mbar;
- / Magnesium anode;

- / Active anode;
- / 1" M hydraulic fittings for cold water inlet and hot water outlet;
- / 1" F hydraulic fittings for connection of the coil to the heat pump;
- / 3/4" F hydraulic fitting for domestic water recirculation;
- / 3/4" F hydraulic fitting for domestic water drainage;
- / 3 thermowells diameter 10 mm;
- / Maximum operating pressure: 7 bar;
- / Maximum operating temperature: 90°C;
- / Dimensions: diameter 66 cm, height 185 cm;
- / No-load weight: 120 kg;
- / Possibility of adding a supplementary electrical kit.

#### **CD1 450 HHP SINGLE-COIL HOT WATER CYLINDER FOR HEAT PUMPS**

- / Titanium-enamelled hot water Cylinder with installation on base and white-coated covering sheet;
- / 435-litre capacity;
- / Side inspection flange;
- / Thermal insulation: polyurethane foam;
- / Dispersion equal to 1.9 kWh/day;
- / ERP Class: B;
- / High-performance coil with 4.5 m<sup>2</sup> surface;
- / Heat exchanger power as per EN 12897: 30.8 kW;
- / Coil capacity: 18 litres;
- / Head losses from coil at 15 l/min: 90 mbar;
- / Magnesium anode;
- / Active anode;
- / 1" M hydraulic fittings for cold water inlet and hot water outlet;
- / 1" F hydraulic fittings for connection of the coil to the heat pump;
- / 3/4" F hydraulic fitting for domestic water recirculation;
- / 3/4" F hydraulic fitting for domestic water drainage;
- / 3 thermowells diameter 10 mm;
- / Maximum operating pressure: 7 bar;
- / Maximum operating temperature: 90°C;
- / Dimensions: diameter 76 cm, height 198 cm;
- / No-load weight: 160 kg;
- / Possibility of adding a supplementary electrical kit.

### **CD2 300 HHP** **DOUBLE-COIL HOT WATER CYLINDER FOR HEAT PUMPS**

- / Titanium-enamelled hot water Cylinder with installation on base and white-coated covering sheet;
- / 279-litre capacity;
- / Side inspection flange;
- / Thermal insulation: polyurethane foam;
- / Dispersion equal to 1.62 kWh/day;
- / ERP Class: B;
- / High-performance upper coil with 2.5 m<sup>2</sup> surface;
- / Heat exchanger power as per EN 12897: 27.9 kW;
- / Coil capacity: 13 litres;
- / Head losses from upper coil at 15 l/min: 80 mbar;
- / High-performance lower coil with 1 m<sup>2</sup> surface;
- / Heat exchanger power as per EN 12897: 12.5 kW;
- / Coil capacity: 5 litres;
- / Head losses from lower coil at 15 l/min: 50 mbar;
- / Magnesium anode;
- / Active anode;
- / 1" M hydraulic fittings for cold water inlet and hot water outlet;
- / 1" F hydraulic fittings for connection of the upper coil;
- / 1" F hydraulic fittings for connection of the lower coil;
- / 3/4" F hydraulic fitting for domestic water recirculation;
- / 3/4" F hydraulic fitting for domestic water drainage;
- / 3 thermowells diameter 10 mm;
- / Maximum operating pressure: 7 bar;
- / Maximum operating temperature: 90°C;
- / Dimensions: diameter 66 cm, height 185 cm;
- / No-load weight: 122 kg;
- / Possibility of adding a supplementary electrical kit on 1 1/2" fitting.

### **CD2 450 HHP** **DOUBLE-COIL HOT WATER CYLINDER FOR HEAT PUMPS**

- / Titanium-enamelled hot water Cylinder with installation on base and white-coated covering sheet;
- / 433-litre capacity;
- / Side inspection flange;
- / Thermal insulation: polyurethane foam;
- / Dispersion equal to 1.89 kWh/day;
- / ERP Class: B;
- / High-performance upper coil with 3.5 m<sup>2</sup> surface;
- / Heat exchanger power as per EN 12897: 27.3 kW;
- / Coil capacity: 18 litres;
- / Head losses from upper coil at 15 l/min: 83 mbar;
- / High-performance lower coil with 1 m<sup>2</sup> surface;
- / Heat exchanger power as per EN 12897: 16.5 kW;
- / Coil capacity: 5 litres;
- / Head losses from lower coil at 15 l/min: 50 mbar;
- / Magnesium anode;
- / Active anode;
- / 1" M hydraulic fittings for cold water inlet and hot water outlet;
- / 1" F hydraulic fittings for connection of the upper coil;
- / 1" F hydraulic fittings for connection of the lower coil;
- / 3/4" F hydraulic fitting for domestic water recirculation;
- / 3/4" F hydraulic fitting for domestic water drainage;
- / 3 thermowells diameter 10 mm;
- / Maximum operating pressure: 7 bar;
- / Maximum operating temperature: 90°C;
- / Dimensions: diameter 76 cm, height 198 cm;
- / No-load weight: 164 kg;
- / Possibility of adding a supplementary electrical kit on 1 1/2" fitting.

### **CD1 300/100 H** **HOT WATER CYLINDER WITH INTEGRATED PUFFER FOR HEAT PUMPS**

- / Double pre-assembled storage tank for domestic hot water and technical system water, consisting of an upper hot water Cylinder and a lower technical water puffer;
- / 300-litre titanium-enamelled hot water Cylinder installed on base with white-coated covering sheet with top flange;
- / Puffer for technical water for heating/cooling thermal system, with 100-litre capacity;
- / Insulation consisting of 50 mm high-density compressed polyurethane with 1.818 kWh/24h dispersion;
- / Domestic hot water heat exchanger coil with 3.2 m<sup>2</sup> surface;
- / 1" domestic hot water side inlet and outlet fittings;
- / 1 1/4" coil delivery and return hydraulic fittings;
- / 1" delivery and return hydraulic fittings on both the primary and secondary sides on the puffer;
- / 1" recirculation inlet hydraulic fitting;
- / Sheath for 1/2" sensor on both the Cylinder and the puffer;
- / Inspection flange for hot water Cylinder, configured for connecting an additional coil flanged heat exchanger;
- / Maximum operating pressure of the hot water Cylinder 10 bar;
- / Maximum hot water heat exchanger pressure 10 bar;
- / Hot water heat exchanger capacity 18.5 l;
- / Maximum operating pressure of the puffer 3 bar;
- / Maximum operating temperature 95°C;
- / Maximum operating temperature of the heat exchanger 110°C;
- / No-load weight 220 kg.

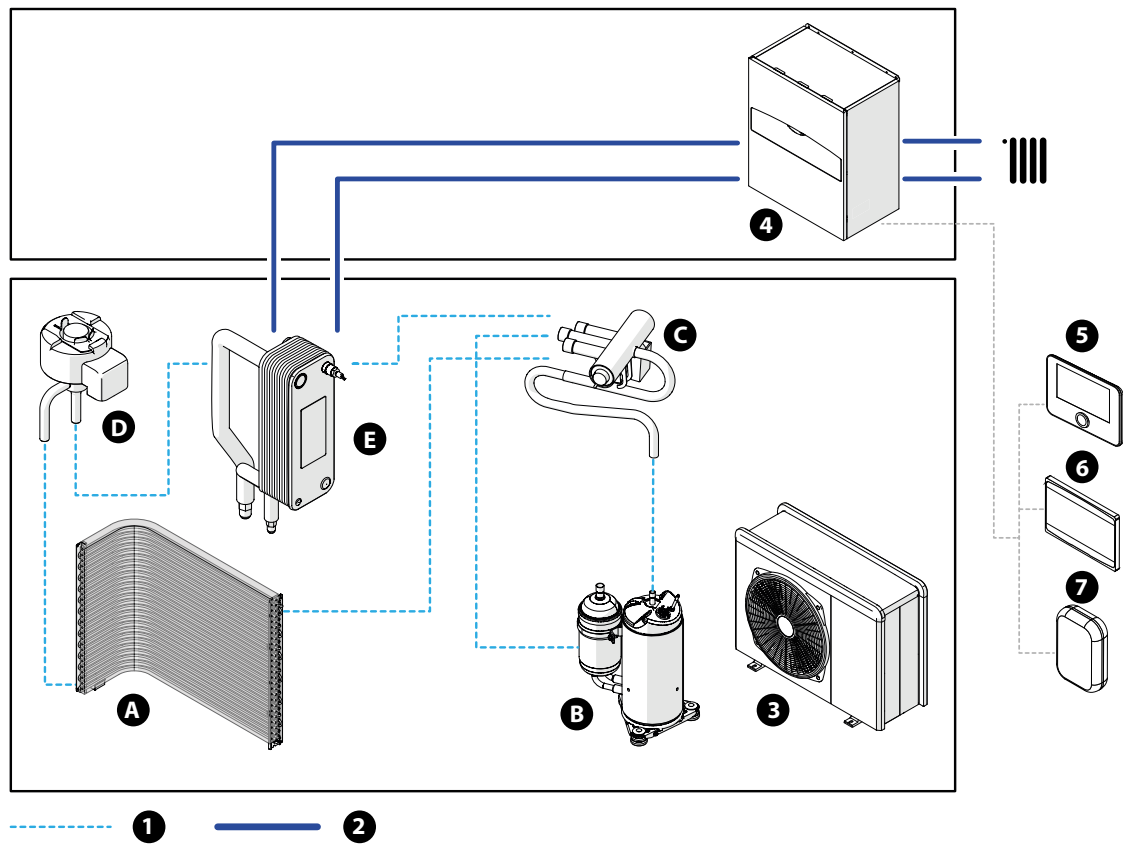
## 4. DESCRIPTION OF THE SYSTEM

### NIMBUS PLUS M NET R32

The NIMBUS PLUS M NET R32 system is made up of the following elements:

- / An indoor unit;
- / An outdoor unit;
- / An external temperature sensor;
- / A user interface;
- / A connectivity package.

For further information on the available accessories, please consult the product catalogue.



**A** Finned heat exchanger

**B** Compressor

**C** 4-way valve

**D** Expansion valve

**E** Plate heat exchanger

**1** R32 gas circuit

**2** Water supply distribution network

**3** Outdoor unit

**4** Indoor unit

**5** User interface

**6** Gateway connectivity

**7** Outdoor sensor

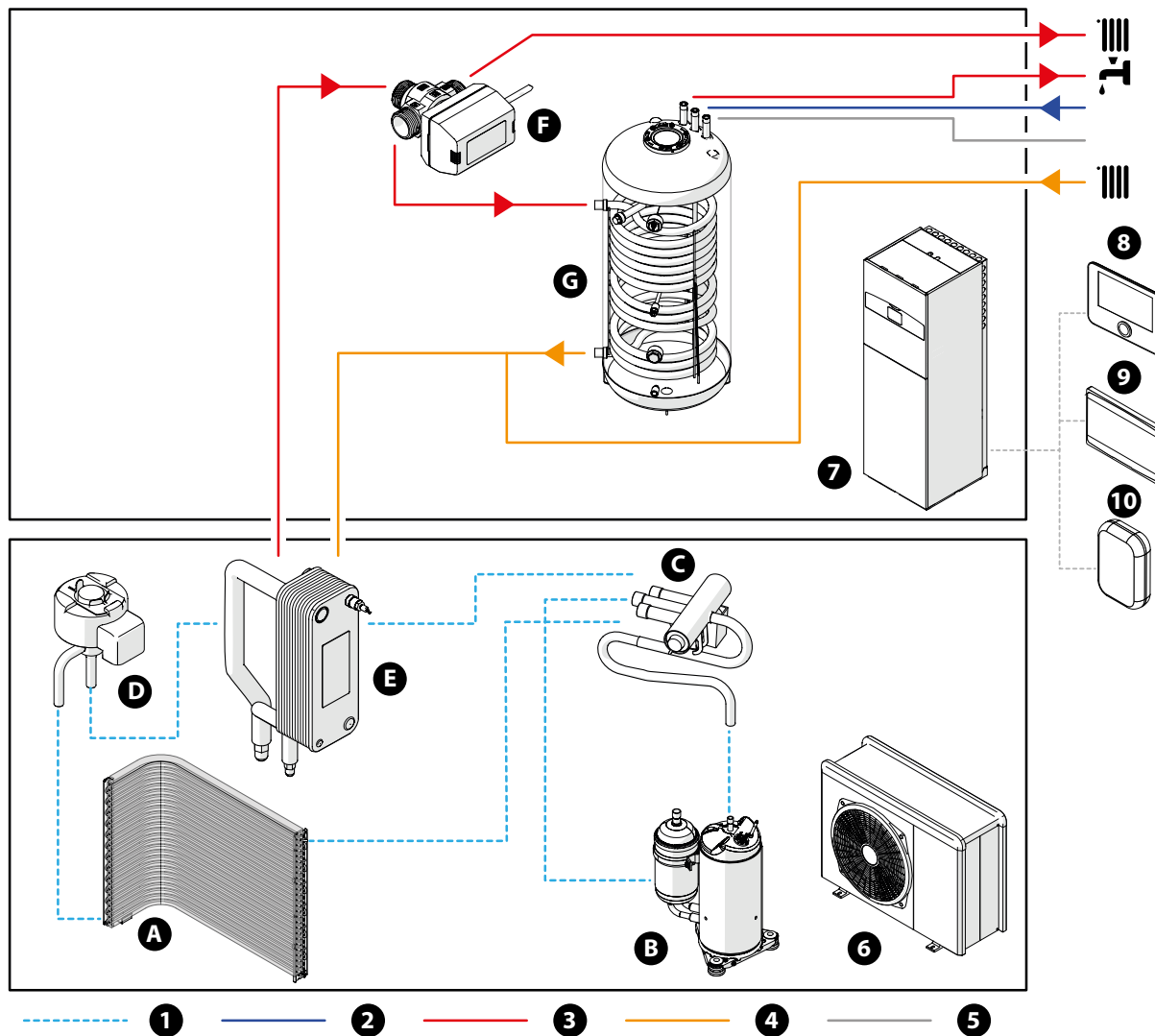


## NIMBUS COMPACT M NET R32

The NIMBUS COMPACT M NET R32 system is made up of the following elements:

- / An indoor unit;
- / An outdoor unit;
- / An external temperature sensor;
- / A user interface;
- / A connectivity package.

For further information on the available accessories, please consult the product catalogue.



A Finned heat exchanger

B Compressor

C 4-way valve

D Expansion valve

E Plate heat exchanger

F Motor-driven 3-way valve

G Cylinder

2 Domestic cold water inlet

3 System/DHW delivery

4 System return

5 Recirculation (if present)

6 Outdoor unit

7 Indoor unit

8 User interface

9 Gateway connectivity

1 R32 gas circuit

10 Outdoor sensor

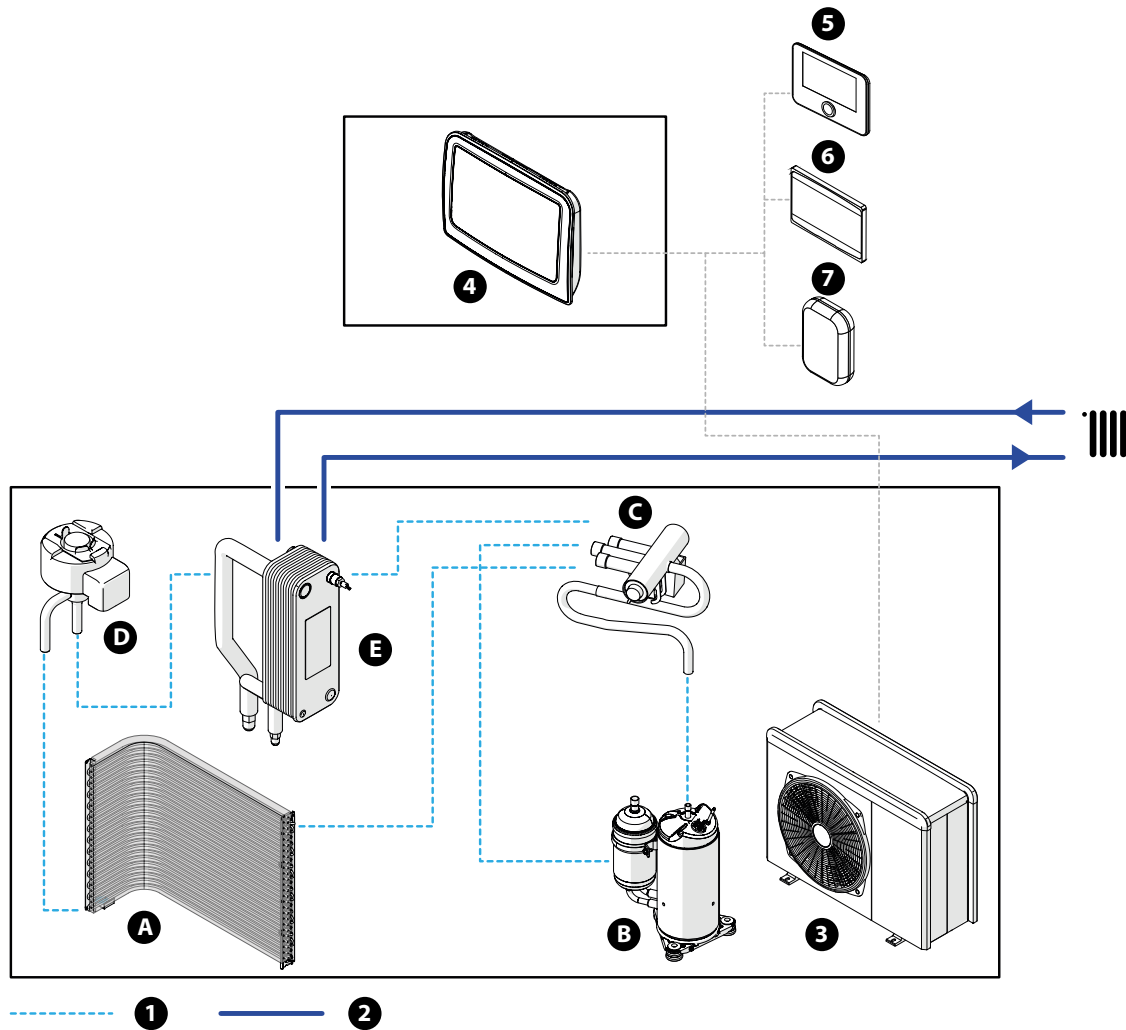
## 4. DESCRIPTION OF THE SYSTEM

### NIMBUS POCKET M NET R32

The NIMBUS POCKET M NET R32 system is made up of the following elements:

- / An indoor unit;
- / An outdoor unit;
- / An external temperature sensor;
- / A user interface;
- / A connectivity package.

For further information on the available accessories, please consult the product catalogue.



**A** Finned heat exchanger

**B** Compressor

**C** 4-way valve

**D** Expansion valve

**E** Plate heat exchanger

**1** R32 gas circuit

**2** Water supply distribution network

**3** Outdoor unit

**4** Indoor unit

**5** User interface

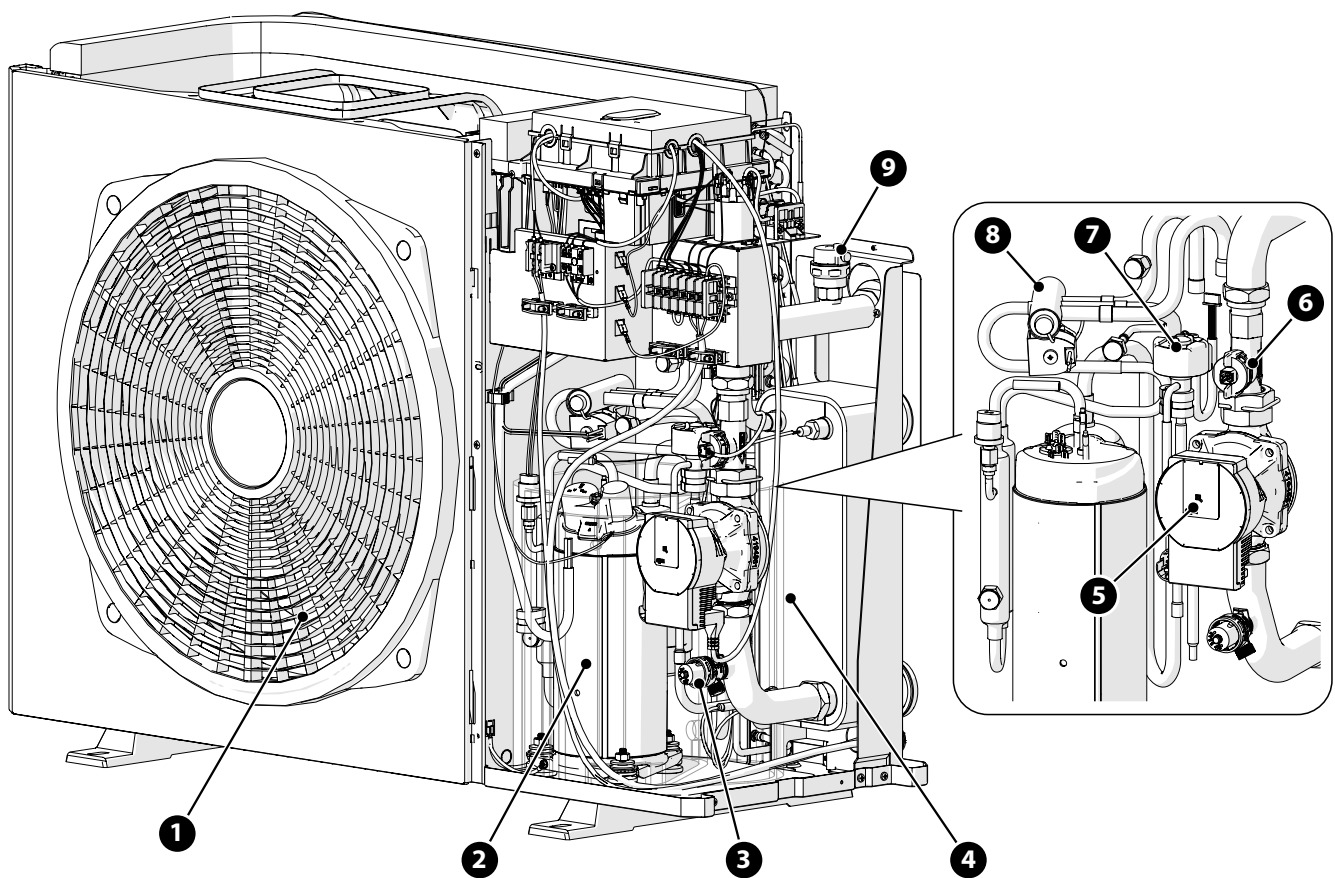
**6** Gateway connectivity

**7** Outdoor sensor

## 5. HEAT PUMP OUTDOOR UNIT

The outdoor unit supplied is one of the following models:

- / NIMBUS 35 M EXT R32;
- / NIMBUS 50 M EXT R32;
- / NIMBUS 80 M EXT R32;
- / NIMBUS 80 M-T EXT R32;
- / NIMBUS 120 M EXT R32;
- / NIMBUS 150 M EXT R32;
- / NIMBUS 120 M-T EXT R32;
- / NIMBUS 150 M-T EXT R32.



1 Fan

2 Compressor

3 Safety valve

4 Plate heat exchanger

5 Circulation pump

6 Flow meter

7 Expansion valve

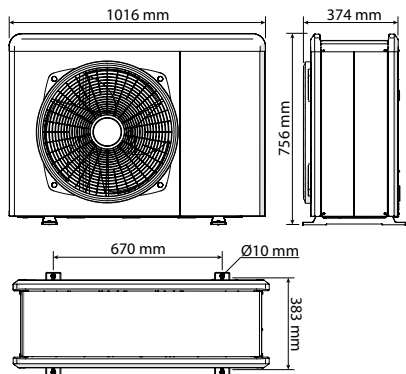
8 4-way valve

9 Deaerator

## 5. HEAT PUMP OUTDOOR UNIT

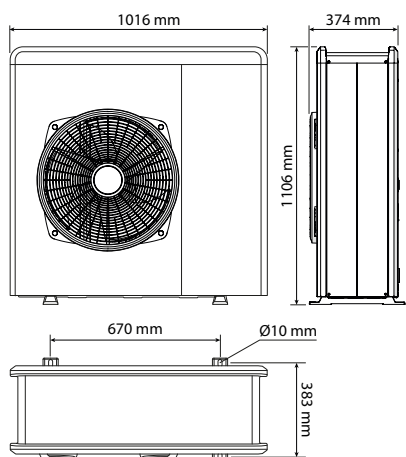
### DIMENSIONS AND WEIGHTS

NIMBUS EXT R32 35 M  
NIMBUS EXT R32 50 M



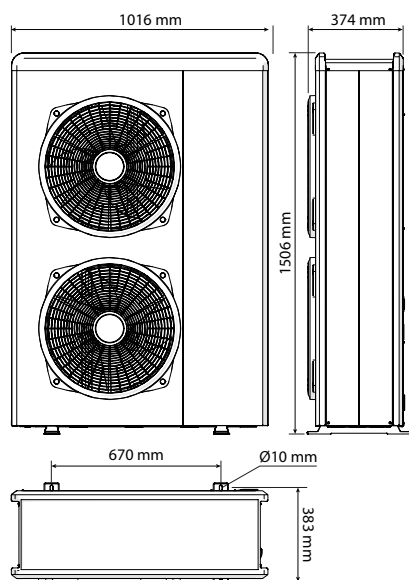
NIMBUS	kg
EXT R32 35 M	66
EXT R32 50 M	66

NIMBUS EXT R32 80 M - NIMBUS EXT R32 80 M - T



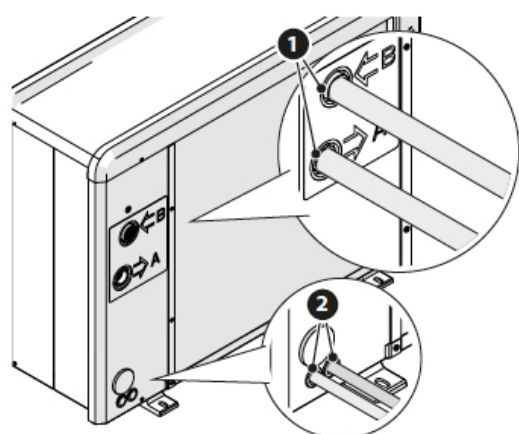
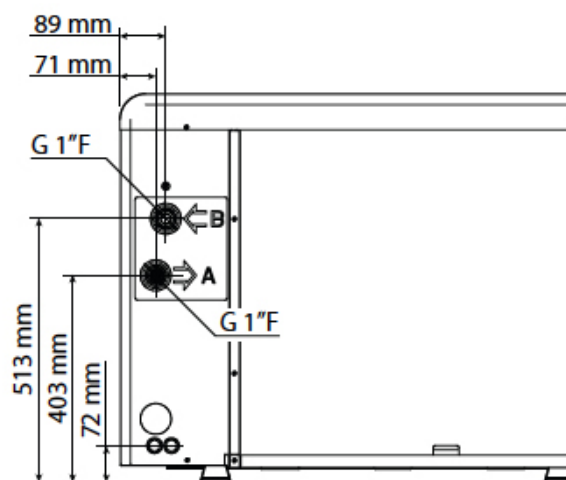
NIMBUS	kg
EXT R32 80 M	91
EXT R32 80 M - T	104

NIMBUS EXT R32 120 M - NIMBUS EXT R32 120 M - T  
NIMBUS EXT R32 150 M - NIMBUS EXT R32 150 M - T



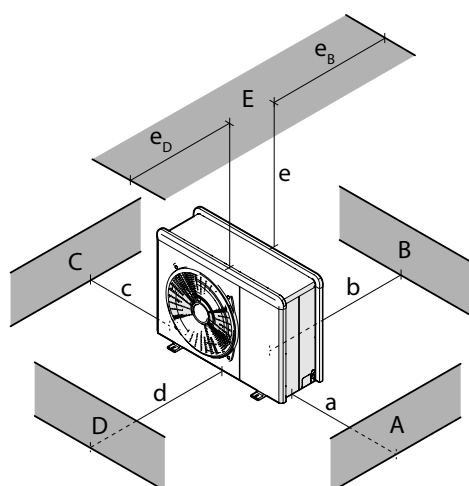
NIMBUS	kg
EXT R32 120 M	124
EXT R32 120 M - T	131
EXT R32 150 M	124
EXT R32 150 M - T	131

## HYDRAULIC FITTINGS



- 1 Hydraulic connections
- 2 Electrical connections passage

## MINIMUM INSTALLATION DISTANCES



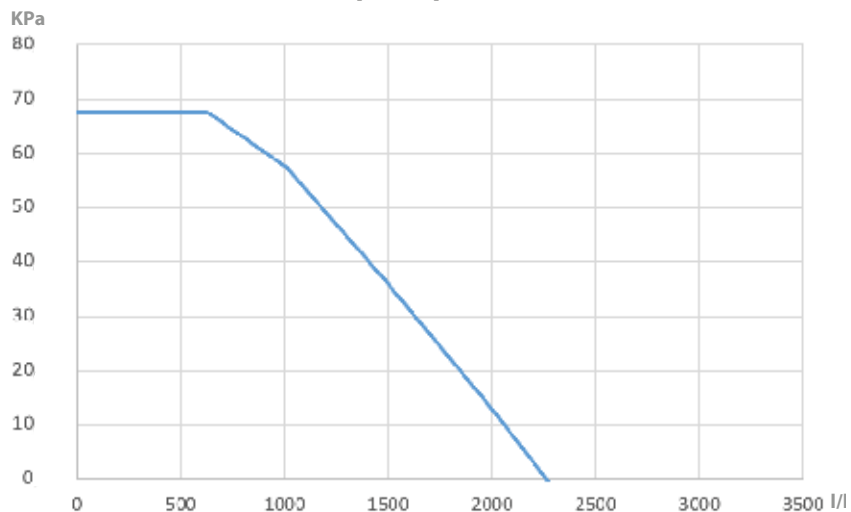
	a (mm)	b (mm)	c (mm)	d (mm)	e (mm)	eD (mm)	eB (mm)
A-B-C	≥ 150	≥ 150	≥ 300				
B		≥ 150					
D				≥ 500			
B-E		≥ 150			≥ 500		≥ 150
B-D		≥ 150		≥ 1000			
D-E				≥ 1000	≥ 1000	≥ 1000	

## 5. HEAT PUMP OUTDOOR UNIT

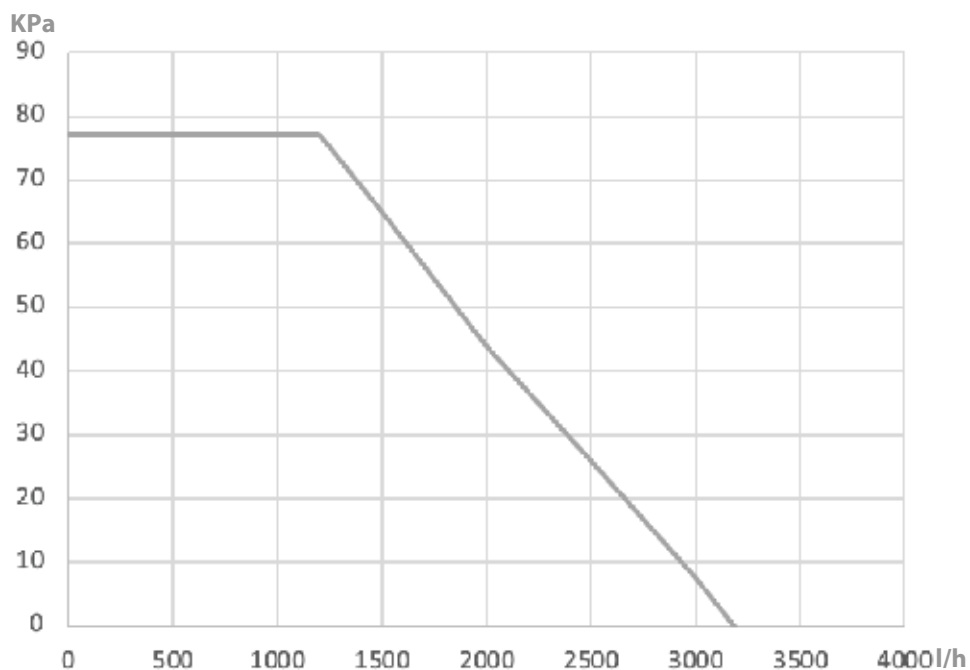
### AVAILABLE PRESSURE

/ Available residual head at the outdoor unit outlet in relation to the flow rate [kPa-l/h].

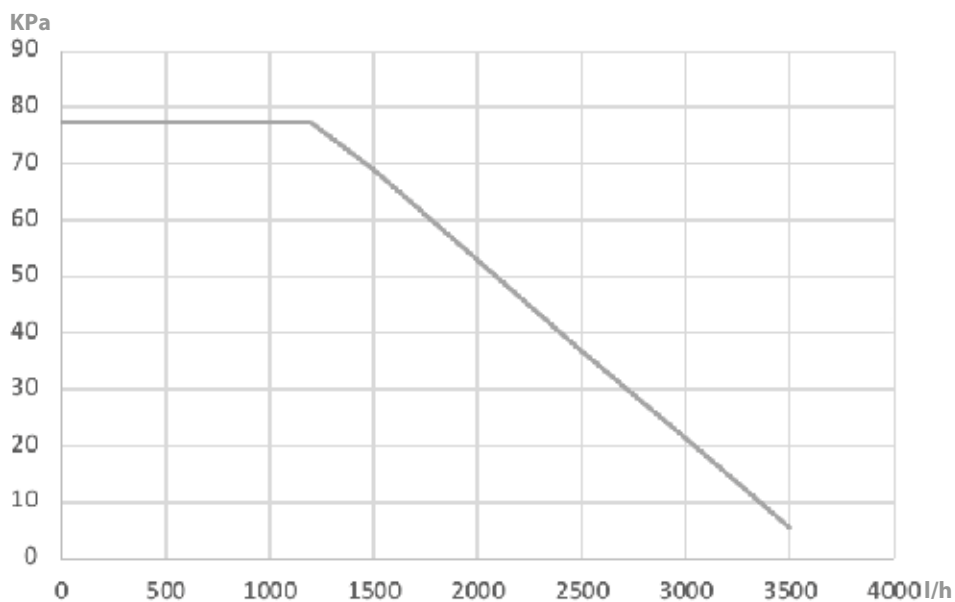
NIMBUS EXT 35 M R32  
NIMBUS EXT 50 M R32



NIMBUS EXT 80 M R32  
NIMBUS EXT 80 M-T R32



NIMBUS EXT 120 M R32  
NIMBUS EXT 120 M-T R32  
NIMBUS EXT 150 M R32  
NIMBUS EXT 150 M-T R32



## NOMINAL AND MINIMUM FLOW RATES

/ The minimum flow rate must always be guaranteed in all operating conditions.

Model	Nominal flow rate [l/h]	Minimum flow rate [l/h]	Flow meter ON threshold [l/h]
NIMBUS EXT R32 35 M	600	430	390
NIMBUS EXT R32 50 M	860	430	390
NIMBUS EXT R32 80 M NIMBUS EXT R32 80 M-T	1200	600	540
NIMBUS EXT R32 120 M NIMBUS EXT R32 120 M-T	1550	770	702
NIMBUS EXT R32 150 M NIMBUS EXT R32 150 M-T	1900	940	852

## MINIMUM WATER CONTENT

/ The system must be sized for a minimum water content of at least 5 litres for every kW of rated power.  
If the minimum water content is not observed, the appliance is not guaranteed to function.

## ACCESSORIES

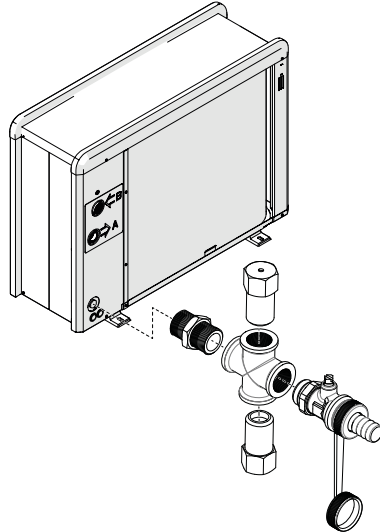
The outdoor unit can be equipped with the following accessories:

- / anti-freeze kit;
- / condensate collection tray;
- / condensate collection tray heating element.

## 5. HEAT PUMP OUTDOOR UNIT

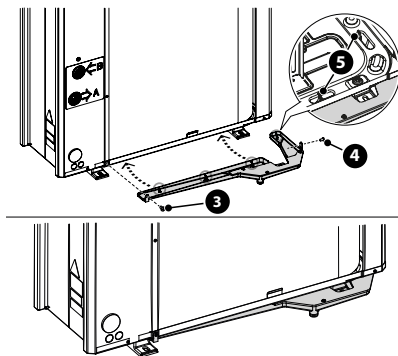
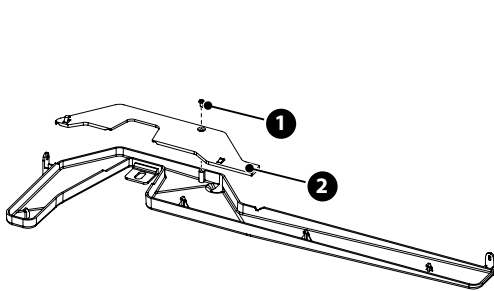
### INSTALLING THE ACCESSORY KIT

#### Anti-freeze kit

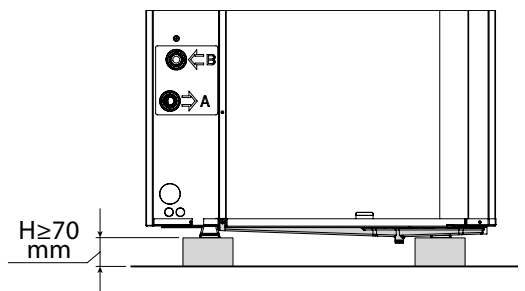


#### Condensate collection tray

- / Loosen the screw (1) and remove the panel (2)
- / Loosen screws (3) and (4)

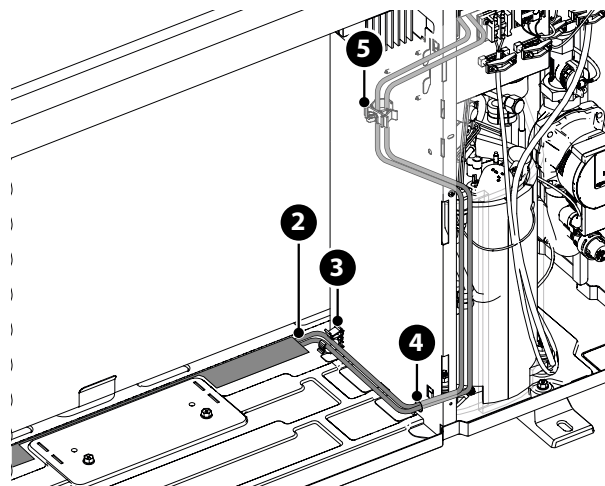
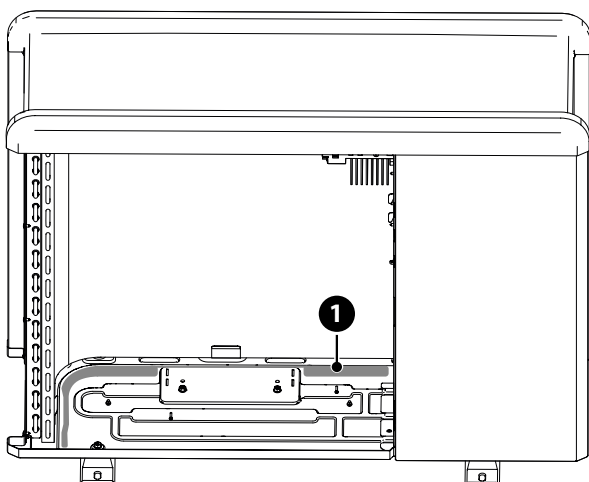


- / To ensure correct operation of the kit, the unit must rest on a base measuring at least 70 mm



#### Condensate collection tray heating element

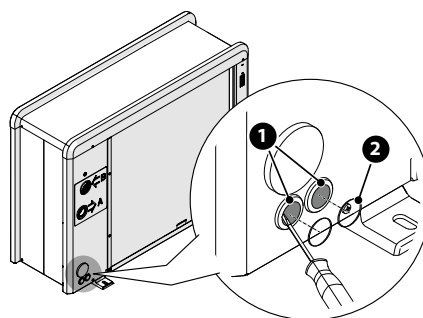
- / Position the heating element (1) on the bottom of the unit;
- / Pass the power cables (2) of the heating element through collar (3), cable hole (4) and collar (5).



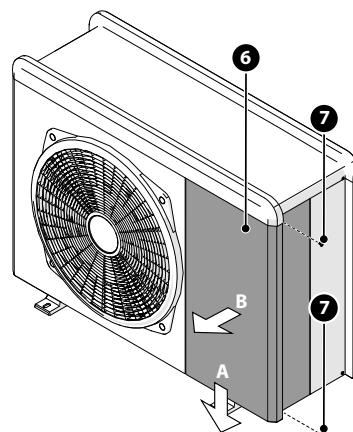


## ARRANGING THE CONNECTIONS

- / To allow the passage of cables, use a screwdriver to remove the pre-cut pieces (1) from the unit's frame;
- / To detach the pre-cut pieces effectively, keep the unit's front panel fitted on;
- / Before passing the cables, position the cable grommets (2) contained in the documentation envelope.



- / Loosen the screws (3) and remove the front panel (4) by pulling it downwards and forward.



## POWER SUPPLY TECHNICAL DATA

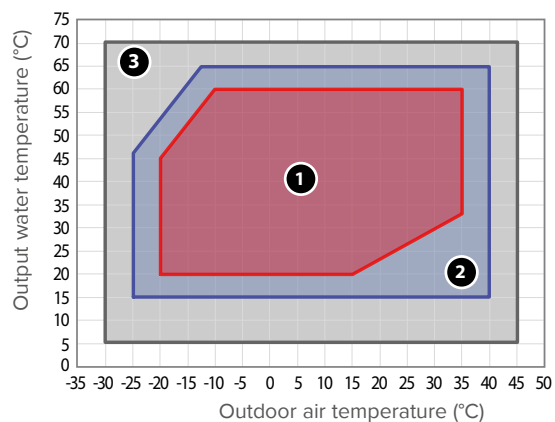
OUTDOOR UNIT		NIMBUS EXT R32								
		35 M	50 M	80 M	80 M-T	120 M	120 M-T	150 M	150 M-T	
Rated current / live	A	11.0	13.5	20.0	7.6	22.5	7.8	26.9	9.41	
Maximum current / live	A	11.7	14.3	21.3	8.1	23.9	8.3	28.7	10.0	
Maximum electricity absorption <sup>(1)</sup>	kW	1.91	2.54	3.98	3.77	4.74	4.74	5.71	5.71	
Thermal cut-out size	A	16 - C type	20 - C type	32 - C type	13 - C type	32 - C type	13 - C type	32 - C type	13 - C type	
Residual-current circuit breaker (RCCB) size	mA	30 - F or B type			30 - B type	30 - F or B type	30 - B type	30 - F or B type	30 - B type	
Surge current	A	< 3								
Rated voltage	V	230	230	230	400	230	400	230	400	
Permissible voltage fields	V	216 - 243	216 - 243	216 - 243	276 - 424	216 - 243	276 - 424	216 - 243	276 - 424	
Cos phi		> 0.9								
Power supply wiring	Reference	H07RN-F								
	Cable min. cross-sectional size	3G4	3G4	3G4	3G4	3G6	5G2.5	3G6	5G2.5	
	Max. diameter [mm]	14	16.2	16.2	17	17	17	18	18	
	Recommended cable cross-sectional size	3G4	3G4	3G6	5G4	3G6	5G4	3G6	5G4	
Communication cabling	Reference	H05RN-F								
	Cable cross-sectional size	3 x 0.75 mm <sup>2</sup>								
	Max. length	50 m								

The power supplies for the indoor and outdoor units must be connected respectively to a dedicated residual-current circuit breaker (RCCB) with a minimum trip threshold of 30 mA. For the unit equipped with an inverter (outdoor unit), we suggest using type B residual current devices for 3-phase power supplies and type B or F (depending on the electrical system to which it is connected) for 1-phase supplies. For the unit lacking an inverter (indoor unit), a type A residual current device will suffice. The type of connection must nonetheless be made in a workmanlike manner by qualified personnel in order to fulfil the applicable national regulations.

<sup>(1)</sup> "In relation to the product's actual operating conditions, which depend on the delivery temperature and on the outdoor temperature, the maximum electrical absorption values could be higher – by up to 20% – than the declared values".

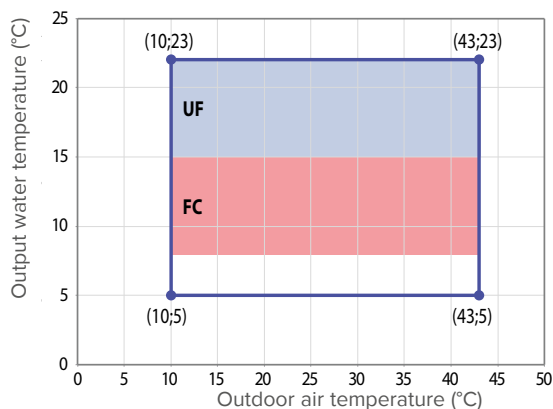
## 5. HEAT PUMP OUTDOOR UNIT

### OPERATING LIMITS FOR THE SPACE HEATING MODE



- 1 Operation without restrictions
- 2 Operation with possible capacity reduction
- 3 Operation with back-up heating element necessary

### OPERATING LIMITS FOR THE SPACE COOLING MODE



- UF Underfloor heating
- FC Fan coil units

### COMPRESSOR FREQUENCY TABLE

The maximum allowed frequency varies with the outdoor air temperature. The values shown in the table refer to the following conditions:

- / Heating: outdoor air temperature < 0°C;
- / Cooling: outdoor air temperature > 30°C.

	NIMBUS EXT R32				
	35 M	50 M	80 M & 80 M-T	120 M & 120 M-T	150 M & 150 M-T
Min. frequency [Hz]	18	18	18	18	18
Max. frequency (heating) [Hz]	80	100	90	75	90
Max. frequency (cooling) [Hz]	65	80	70	57	70

### TECHNICAL DATA TABLE FOR REFRIGERANT

	NIMBUS EXT R32			
	35 M	50 M	80 M & 80 M-T	120 M & 120 M-T 150 M & 150 M-T
Type of refrigerant	R32	R32	R32	R32
Refrigerant charge [g]	1000	1000	1400	2100
GWP	675	675	675	675
CO <sub>2</sub> equivalent [t]	0.7	0.7	0.9	1.4

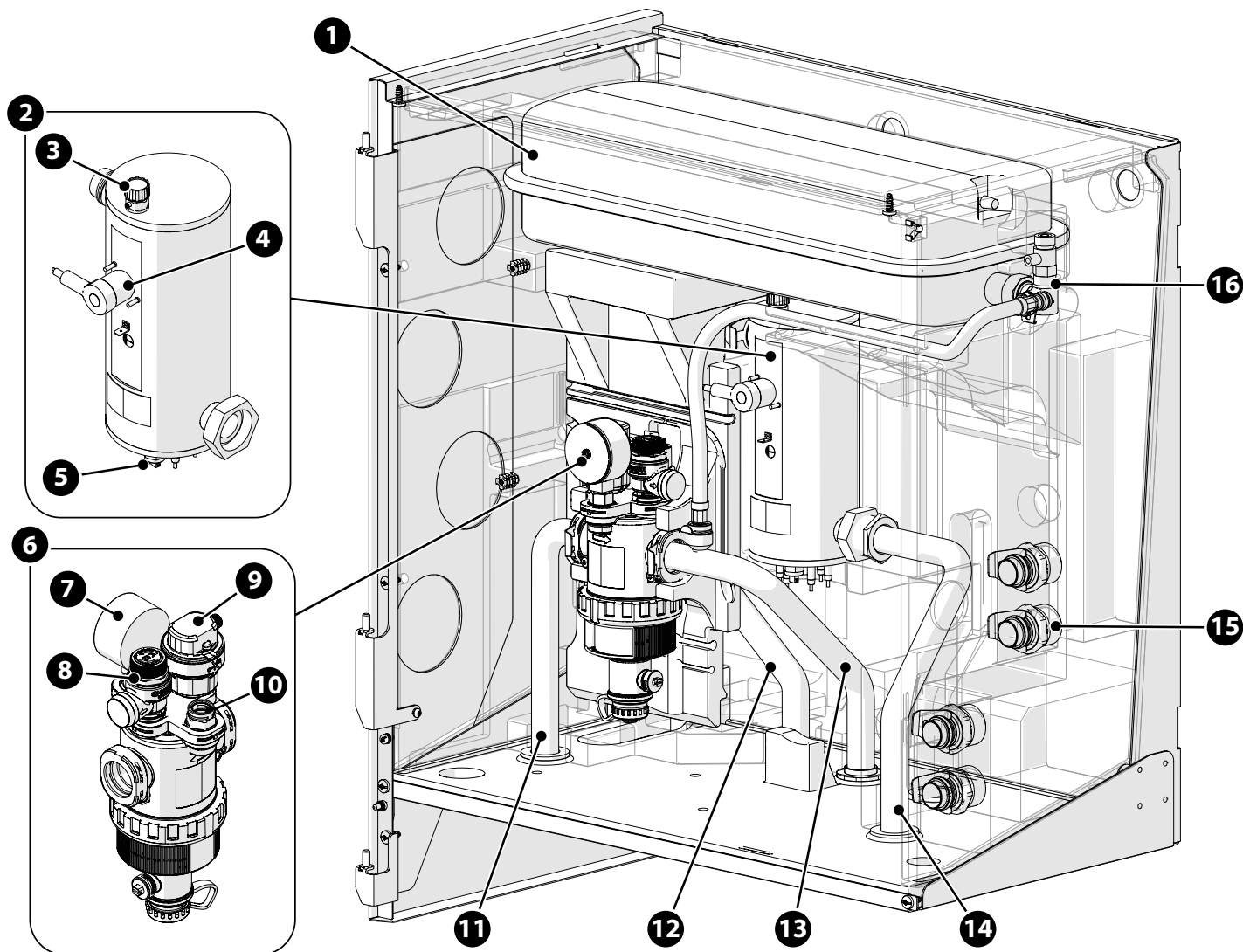
## 6. NIMBUS PLUS M NET R32

### INDOOR UNIT

The indoor unit supplied is one of the following models:

/ NIMBUS WH M R32

/ NIMBUS WH-L MR32



1 Expansion vessel

2 Heating element

3 Manual air relief valve (heating element)

4 Manual reset safety thermostat

5 Immersion temperature sensor (delivery)

6 Multifunctional magnetic filter

7 Pressure gauge

8 Safety valve

9 Automatic air relief valve (filter)

10 Pressure transducer

11 System return

12 Pump delivery

13 Pump return

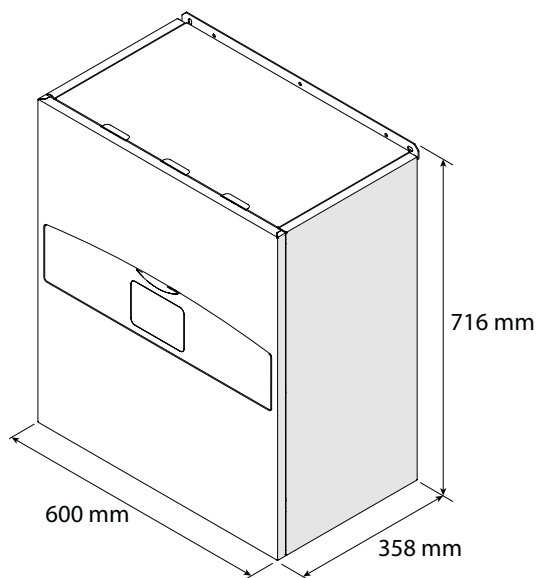
14 System delivery

15 G1" quick couplings for water pipe connections

16 Manual air relief valve

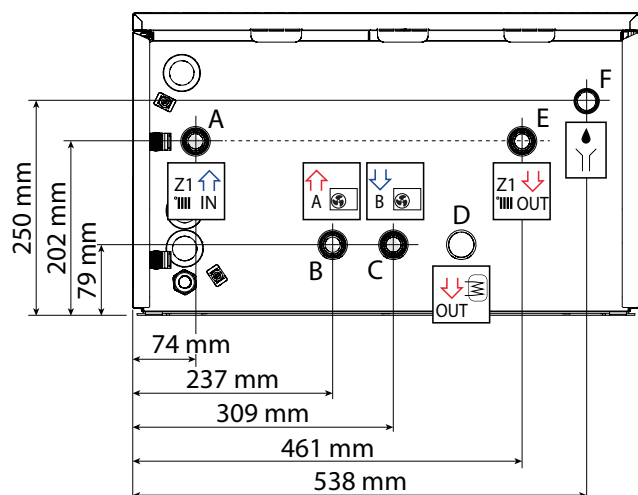
## 6. NIMBUS PLUS M NET R32

### DIMENSIONS AND WEIGHTS

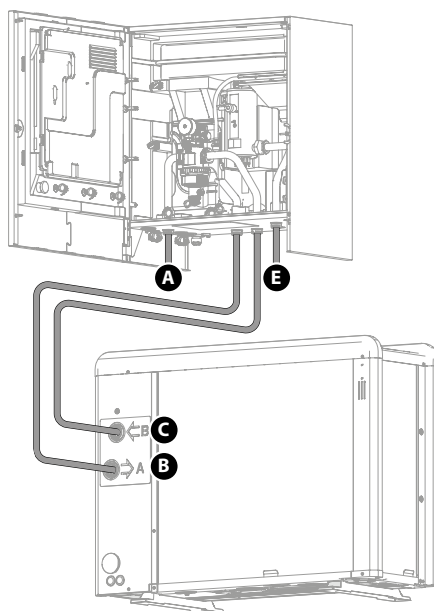


Model	Weight
NIMBUS WH M R32	31
NIMBUS WH-L M R32	39

### HYDRAULIC FITTINGS



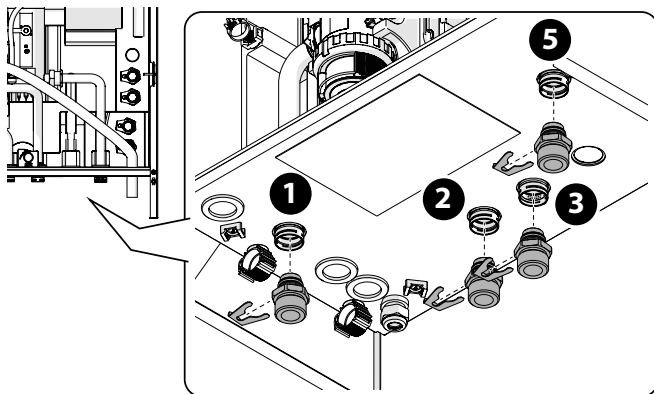
Label	Description	Ø of fittings [inches]
A	System return	1
B	Delivery from heat pump	1
C	Return to heat pump	1
D	Domestic hot water delivery (accessory)	1
E	System delivery	1
F	Safety valve drain	1



## HYDRAULIC CONNECTIONS

/ After the checks specified in the installation manual, mount the quick couplings (present inside the machine) on water pipes (1), (2), (3) and (5);

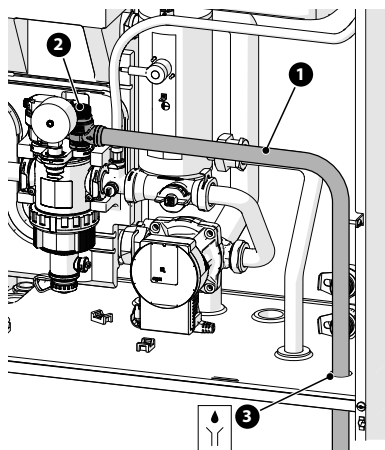
/ Connect the heating/cooling system to the indoor unit at points (1), (2), (3), (4, accessory) and (5) shown in the figure.



- 1 System return
- 2 Delivery from heat pump
- 3 Return to heat pump
- 4 DHW delivery (accessory)
- 5 System delivery
- 6 Safety valve drain

## SAFETY VALVE DRAIN

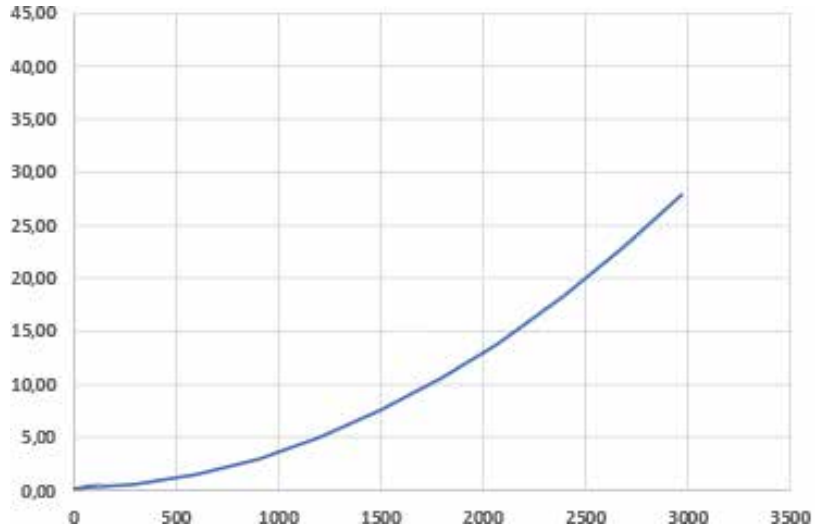
/ Make sure that the drainage pipe (1) supplied is connected to the safety valve (2) and comes out through the hole (3).



## 6. NIMBUS PLUS M NET R32

### INDOOR UNIT HEAD LOSSES

/ Head losses of the indoor unit in relation to the flow rate [kPa-l/h]



/ To calculate the residual head available for the system, it is necessary to subtract the head losses of the indoor unit from the residual head available at the outdoor unit outlet.

## INSTALLING THE INDOOR UNIT

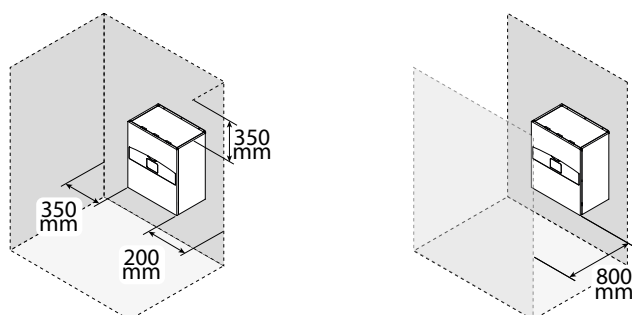
/ The indoor unit must be positioned in an occupied room to ensure optimal performance.

To avoid jeopardising the product's operation, the place of installation must be adequate in relation to the threshold operating temperatures (shown below) and protected against direct contact with atmospheric agents.

/ Minimum temperature: 5°C;

/ Maximum temperature: 30°C - R.H. 65%

### MINIMUM INSTALLATION DISTANCES



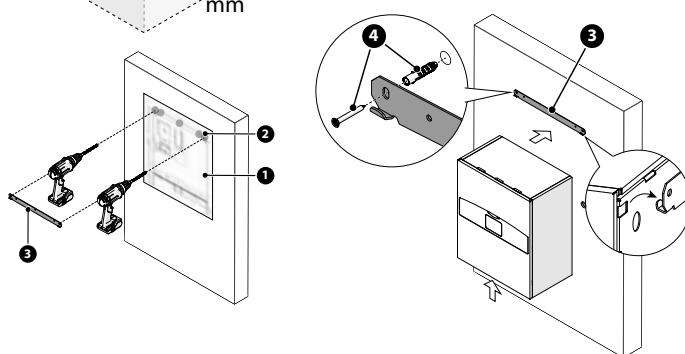
### WALL-MOUNTED INSTALLATION

/ Position the template (1) supplied on the wall;

/ Drill the holes (2) for fastening the metal bracket (3), supplied with the kit, required for hanging the unit to the wall.

/ Fasten the bracket (3) using the screws and plugs (4) with the aid of a spirit level.

/ Lift the unit and attach it to the bracket.



### POWER SUPPLY TECHNICAL DATA

INDOOR UNIT		NIMBUS WH M R32		NIMBUS WH-L M R32	
		M	T	M	T
Power supply	V - ph - Hz	230 - 1 - 50	400 - 3 - 50	230 - 1 - 50	400 - 3 - 50
Permissible voltage fields	V	196 - 253	340 - 440	196 - 253	340 - 440
Rated power input	kW	4	4	6	6
Maximum current	A	19.1	9.6	30	10
Thermal cut-out	A	C-25	C-16	C-32	C-16
Residual-current circuit breaker (RCCB) size	mA	A - 30			
Power supply wiring	Reference	H07RN-F			
	Cable min. cross-sectional size	3G4	5G2.5	3G6	5G2.5
	Maximum cable diameter [mm]	16.2	17	18	17
	Recommended cable cross-sectional size	3G4	5G4	3G6	5G4
	Maximum cable diameter [mm]	16.2	19.9	18	19.9
EDF, AFR, PV signal cabling	mm <sup>2</sup>	H05RN-F 2 x 0.75 mm <sup>2</sup> · H07RN-F 2x10 mm <sup>2</sup>			

**NOTE:** in making the connection between the communication cable from the indoor unit to the outdoor unit, use a twisted cable to prevent interference problems.

The power supplies for the indoor and outdoor units must be connected respectively to a dedicated residual-current circuit breaker (RCCB) with a minimum trip threshold of 30 mA. For the unit equipped with an inverter (outdoor unit), we suggest using type B residual current devices for 3-phase power supplies and type B or F (depending on the electrical system to which it is connected) for 1-phase supplies.

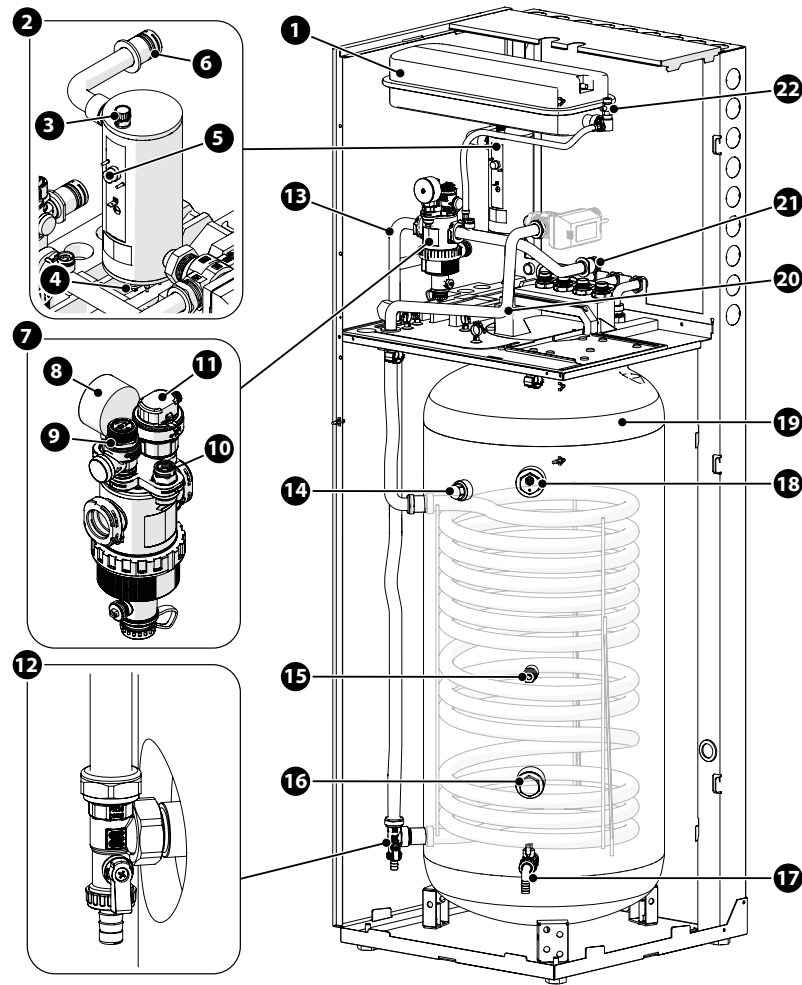
For the unit lacking an inverter (indoor unit), a type A residual current device will suffice. The type of connection must nonetheless be made in a workmanlike manner by qualified personnel in order to fulfil the applicable national regulations.

## 7. NIMBUS COMPACT M NET R32

### INDOOR UNIT

The indoor unit supplied is one of the following models:

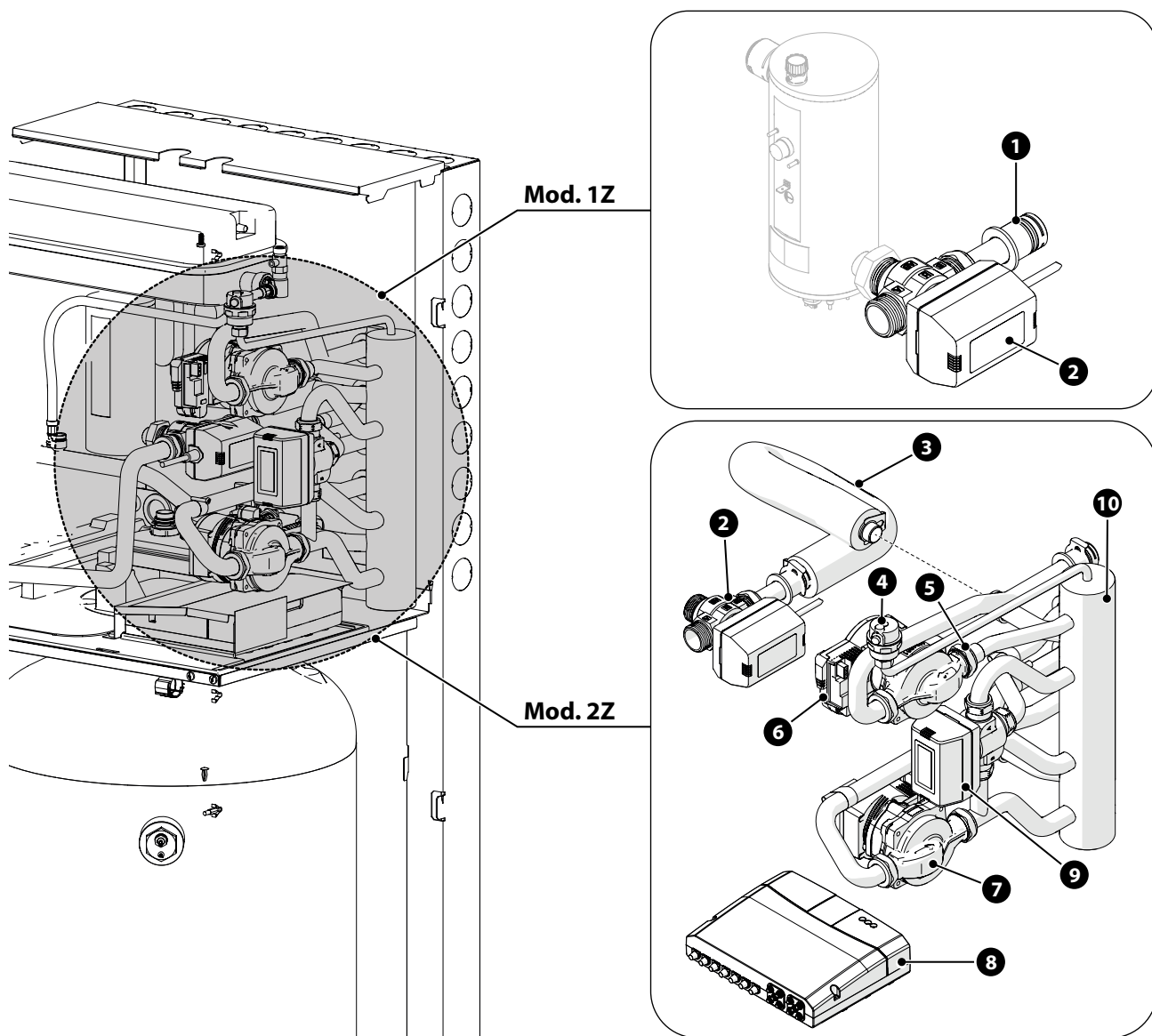
- / NIMBUS FS M R32
- / NIMBUS FS M 2Z R32
- / NIMBUS FS-L M R32
- / NIMBUS FS-L M 2Z R32



1	Expansion vessel	12	Coil discharge
2	Heating element	13	Return from system
3	Manual air relief valve (heating element)	14	Passive anode
4	Immersion temperature sensor (delivery)	15	Cylinder temperature sensor
5	Manual reset safety thermostat	16	DHW heating element configuration
6	Space heating delivery	17	Cylinder drainage valve with hose connector
7	Multifunctional magnetic filter	18	Active anode
8	Pressure gauge	19	Cylinder
9	Safety valve	20	DHW delivery
10	Pressure transducer	21	Return to outdoor unit
11	Automatic air relief valve (filter)	22	Manual air relief valve



## STRUCTURE OF THE HYDRAULIC PART



1 Space heating delivery

2 Motor-driven three-way valve

3 Separator delivery

4 Automatic deaerator

5 Check valve

6 Zone 1 circulation pump

7 Zone 2 circulation pump

8 Zone controller

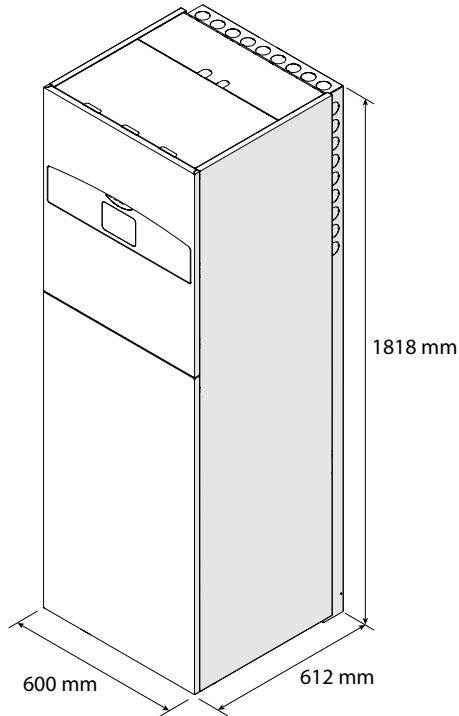
9 Motor-driven mixing valve

10 Hydraulic separator

## 7. NIMBUS COMPACT M NET R32

### INDOOR UNIT HYDRAULIC CONNECTIONS

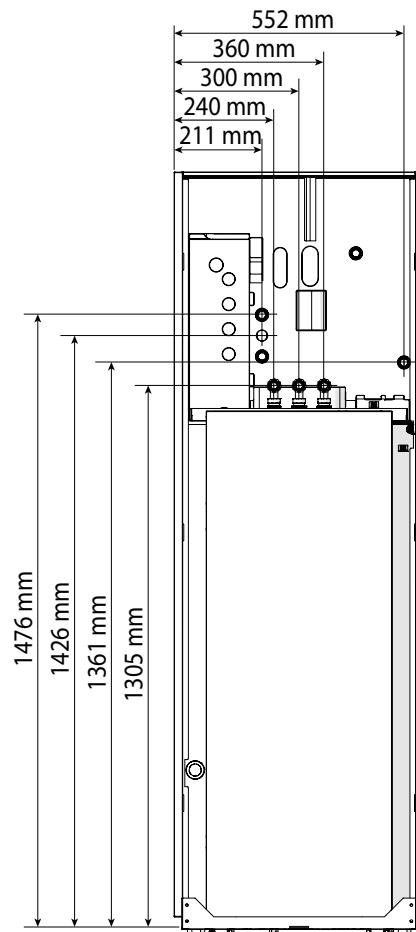
#### DIMENSIONS AND WEIGHTS

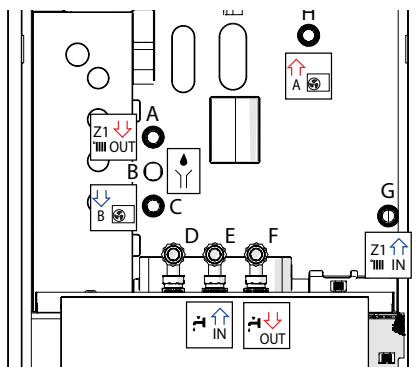
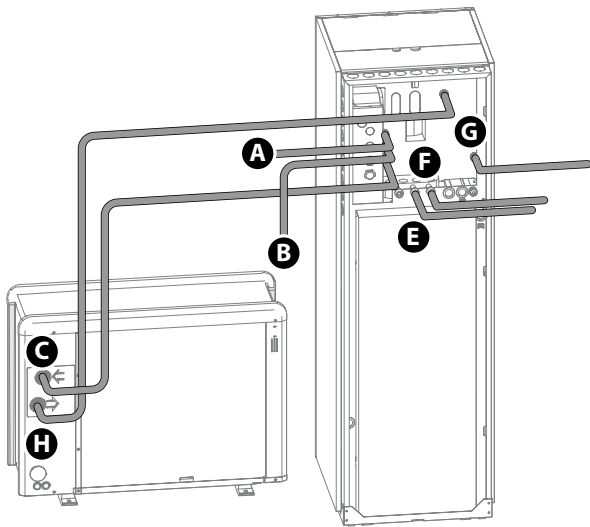


Model	Weight
NIMBUS FS M R32	127
NIMBUS FS M 2Z R32	134
NIMBUS FS-L M R32	127
NIMBUS FS-L M 2Z R32	134

#### HYDRAULIC FITTINGS

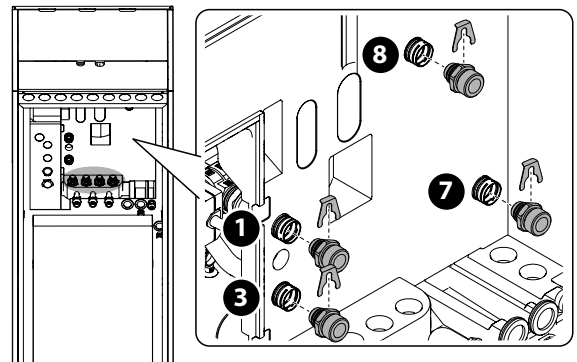
/ 1-ZONE configuration





Label	Description	ittings [inches]
A	System delivery	1
B	Safety valve drain	1
C	Return to heat pump	1
D	-- DHW recirculation	3/4
E	Domestic hot water inlet	3/4
F	Domestic hot water delivery	3/4
G	System return	1
H	Delivery from heat pump	1

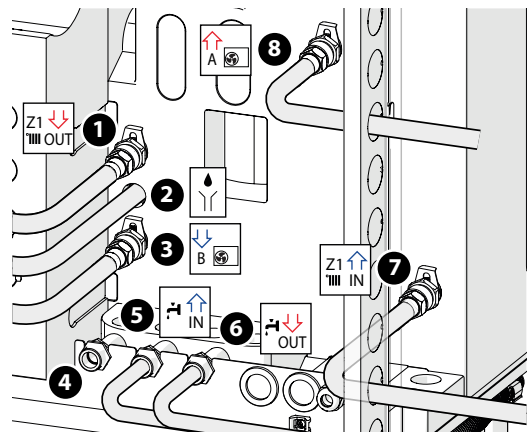
/ Mount the quick couplings (present inside the machine) on the water pipes (1), (3), (7) and (8).



Make the following hydraulic connections:

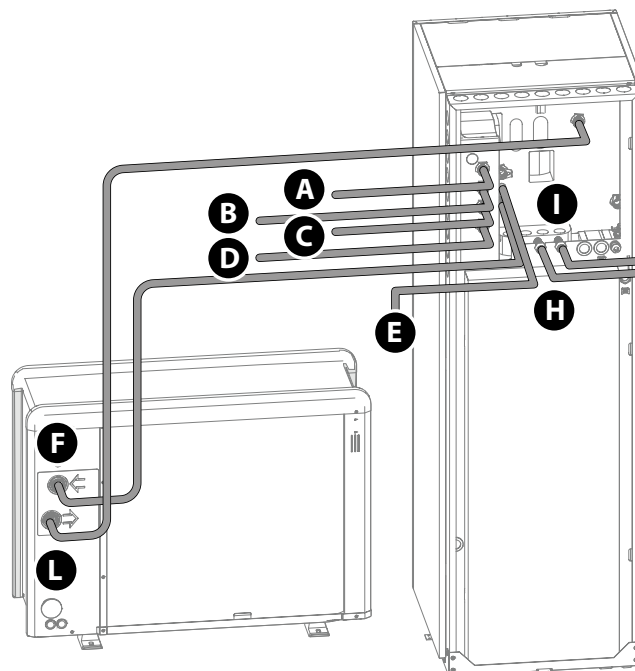
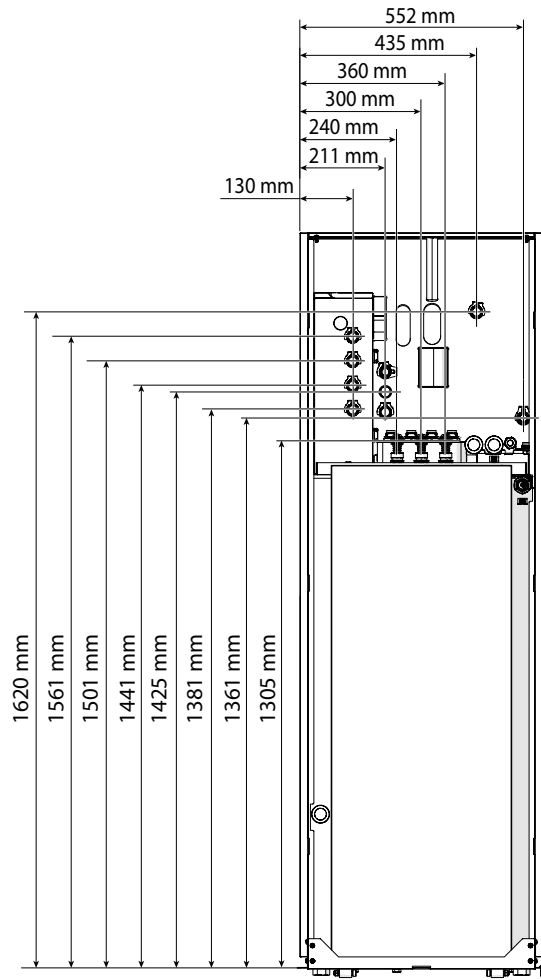
- / System delivery (1)
- / Safety valve drain (2)
- / Delivery to heat pump (3)
- / Recirculation (4) (if present) (\*)
- / Domestic hot water return (5)
- / Domestic hot water delivery (6)
- / System return (7)
- / Return from heat pump (8)

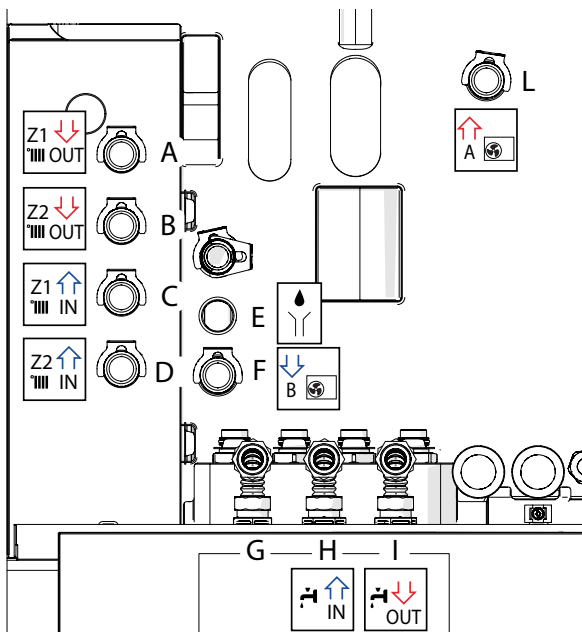
(\*) Close the outlet if recirculation is not used



## 7. NIMBUS COMPACT M NET R32

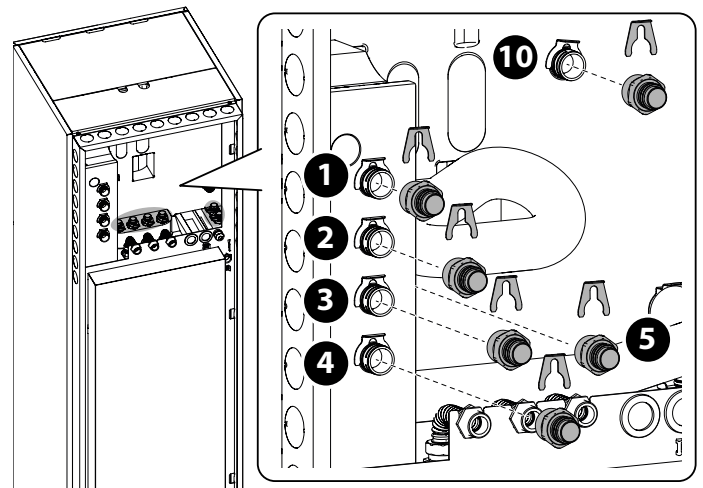
/ 2-ZONE configuration





Label	Description	fittings [inches]
A	Z1 ↓ OUT Zone 1 system delivery	1
B	Z2 ↓ OUT Zone 2 system delivery	1
C	Z1 ↑ IN Zone 1 system return	1
D	Z2 ↑ IN Zone 2 system return	1
E	⚠ Safety valve drain	1
F	⚡ Return to heat pump	1
G	-- DHW recirculation	3/4
H	⚡ IN Domestic hot water inlet	3/4
I	⚡ OUT Domestic hot water delivery	3/4
L	⚡ A Delivery from heat pump	1

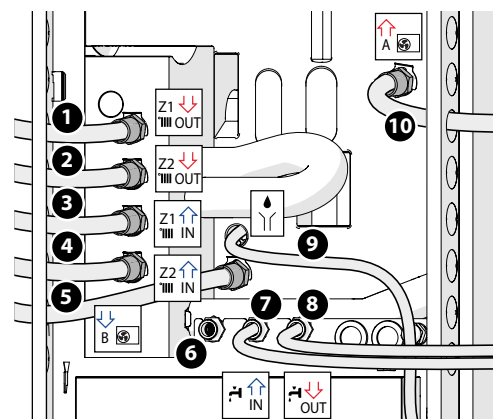
/ Mount the quick couplings (present inside the machine) on the water pipes (1), (2), (3), (4), (5) and (10).



Make the following hydraulic connections:

- / Zone 1 system delivery (1)
- / Zone 2 system delivery (2)
- / Zone 1 system return (3)
- / Zone 2 system return (4)
- / Return from heat pump (5)
- / Recirculation (6) (if present) (\*)
- / Domestic cold water inlet (7)
- / Domestic hot water delivery (8)
- / Safety valve drain (9)
- / Delivery to heat pump (10)

(\*) Close the outlet if recirculation is not used



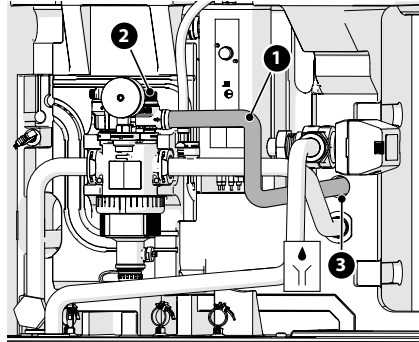
## 7. NIMBUS COMPACT M NET R32

### SAFETY VALVE DRAIN

/ Make sure that the drainage pipe (1) supplied is connected to the safety valve (2) and comes out through the hole (3).

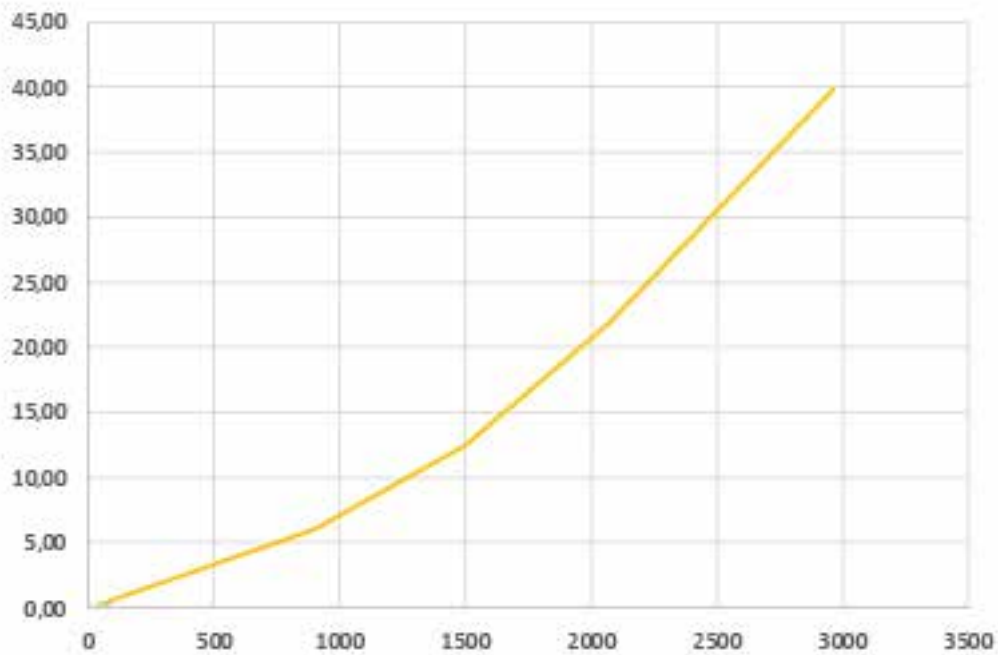


The drainage pipe must be connected to the sewerage system.



### INDOOR UNIT HEAD LOSSES

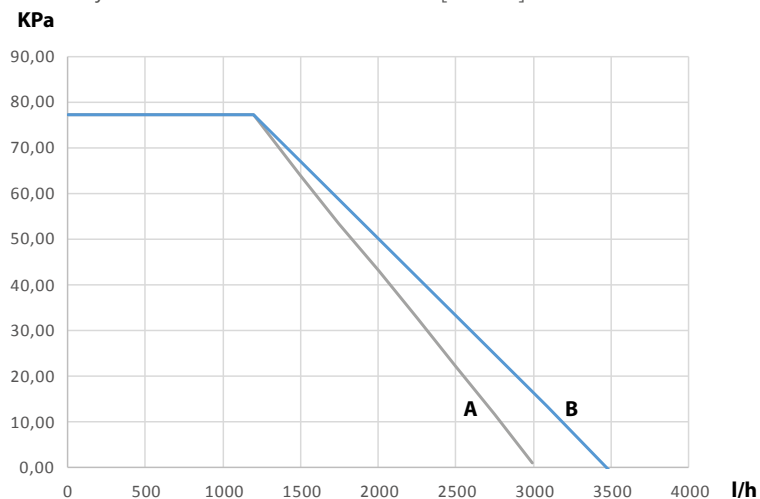
/ Head losses of the indoor unit in relation to the flow rate [kPa-l/h]



/ To calculate the residual head available for the system, it is necessary to subtract the head losses of the indoor unit from the residual head available at the outdoor unit outlet.

### VERSIONS WITH TWO INTEGRATED ZONES

/ Net residual head available for the system in relation to the flow rate [kPa-l/h]



<b>A</b>	ZONE 1
<b>B</b>	ZONE 2

## INSTALLING THE INDOOR UNIT

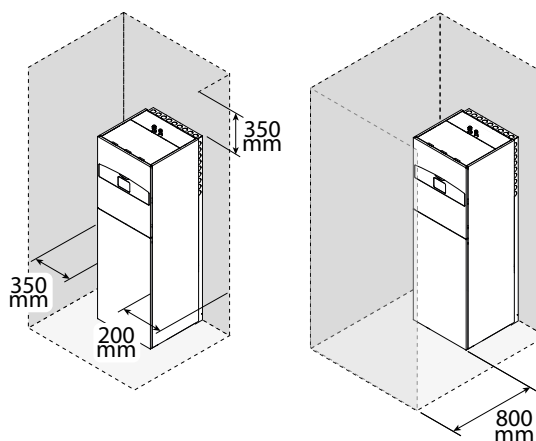
/ The indoor unit must be positioned in an occupied room to ensure optimal performance.

To avoid jeopardising the product's operation, the place of installation must be adequate in relation to the threshold operating temperatures (shown below) and protected against direct contact with atmospheric agents.

/ Minimum temperature: 5°C;

/ Maximum temperature: 30°C - R.H. 65%

## MINIMUM INSTALLATION DISTANCES



## DOMESTIC HOT WATER DATA

Minimum tipping height	[m]	2.05 with pallet; 1.95 without pallet
Storage volume	[l]	200
Maximum storage tank temperature	[°C]	90
Maximum operating pressure	[bar]	7
Anti-corrosion protection	[-]	Magnesium anode + pro tech anode
Hydraulic connections	inches	1" M - 3/4" F
Heat losses	[kWh/24h]	1.2
Insulation thickness	[mm]	75
Type of insulation	[-]	HFO polyurethane
Expansion vessel volume	[l]	8
Expansion vessel pre-charge	[bar]	1

## POWER SUPPLY TECHNICAL DATA

INDOOR UNIT		NIMBUS FS M R32		NIMBUS FS-L M R32	
		NIMBUS FS M 2Z R32		NIMBUS FS-L M 2Z R32	
Power supply	V - ph - Hz	230 - 1 - 50	400 - 3 - 50	230 - 1 - 50	400 - 3 - 50
Permissible voltage fields	V	196 – 253	340 – 440	196 – 253	340 – 440
Rated power input	kW	4	4	6	6
Maximum current	A	19.1	9.6	30	10
Thermal cut-out	A	C-25	C-16	C-32	C-16
Residual-current circuit breaker (RCCB) size	mA	A-30			
Power supply wiring	Reference	H07RN-F			
	Cable min. cross-sectional size	3G4	5G2.5	3G <sup>6</sup>	5G2.5
	Maximum cable diameter [mm]	16.2	17	18	17
	Recommended cable cross-sectional size	3G4	5G4	3G6	5G4
	Maximum cable diameter [mm]	16.2	19.9	18	19.9
EDF, AFR, PV signal cabling	mm <sup>2</sup>	H05RN-F 2 x 0.75 mm <sup>2</sup> - H07RN-F 2 x 1.0 mm <sup>2</sup>			

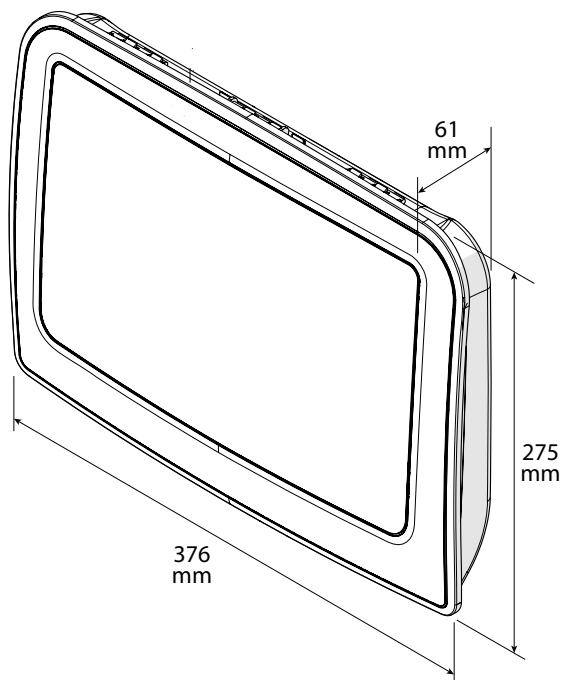
**NOTE:** in making the connection between the communication cable from the indoor unit to the outdoor unit, use a twisted cable to prevent interference problems.

The power supplies for the indoor and outdoor units must be connected respectively to a dedicated residual-current circuit breaker (RCCB) with a minimum trip threshold of 30 mA. For the unit equipped with an inverter (outdoor unit), we suggest using type B residual current devices for 3-phase power supplies and type B or F (depending on the electrical system to which it is connected) for 1-phase supplies. For the unit lacking an inverter (indoor unit), a type A residual current device will suffice. The type of connection must nonetheless be made in a workmanlike manner by qualified personnel in order to fulfil the applicable national regulations.

## 8. NIMBUS POCKET M NET R32

### INDOOR UNIT

/ The NIMBUS Light Box M R32 indoor unit comprises a module that contains the terminal boards for the electrical connections and the Energy Manager.



Model	Weight
NIMBUS LB M R32	2.5

### OPERATING LIMITS FOR THE INDOOR UNIT

/ The indoor unit can be installed in indoor environments or outdoors.

Observe the following operating limits:

/ Minimum temperature: -20°C

/ Maximum temperature: +43°C

For installation in indoor environments:

/ Maximum relative humidity: 65% - 30°C



If the device is installed outdoors, make sure that the installation is protected against direct sunlight.



## POWER SUPPLY TECHNICAL DATA

INDOOR UNIT		NIMBUS LIGHT BOX M R32
Power supply	V - ph - Hz	230 - 1 - 50
Permissible voltage fields	V	196 – 253
Rated power input	W	6
Maximum current	mA	140
Thermal cut-out	A	C -2 (4 A max.)
Residual-current circuit breaker (RCCB) size	mA	A-30
Power supply wiring	Reference	H07RN-F
	Cable cross-sectional size	3G0.75
	Max. diameter [mm]	7
Communication cabling	Reference	H07RN-F
	Cable cross-sectional size	2 x 0.75 mm <sup>2</sup>
EDF, AFR, PV signal cabling	mm <sup>2</sup>	H07RN-F 2 x 0.75 mm <sup>2</sup>
Electrical protection rating	IP	X5

**NOTE:** in making the connection between the communication cable from the indoor unit to the outdoor unit, use a twisted cable to prevent interference problems.

The power supplies for the indoor and outdoor units must be connected respectively to a dedicated residual-current circuit breaker (RCCB) with a minimum trip threshold of 30 mA. For the unit equipped with an inverter (outdoor unit), we suggest using type B residual current devices for 3-phase power supplies and type B or F (depending on the electrical system to which it is connected) for 1-phase supplies. For the unit lacking an inverter (indoor unit), a type A residual current device will suffice. The type of connection must nonetheless be made in a workmanlike manner by qualified personnel in order to fulfil the applicable national regulations.

## INSTALLING THE INDOOR UNIT

/ The indoor unit is designed for wall mounting. Make sure that all the module's components are intact after transport and handling, and that they have not been damaged by impacts.

In case of evident damages to the product, do not proceed with the installation.

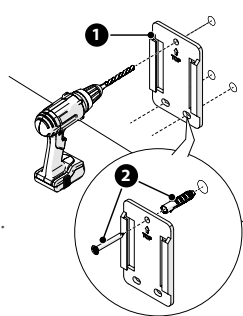


Be careful to avoid damaging existing electrical cables or piping when drilling the wall.

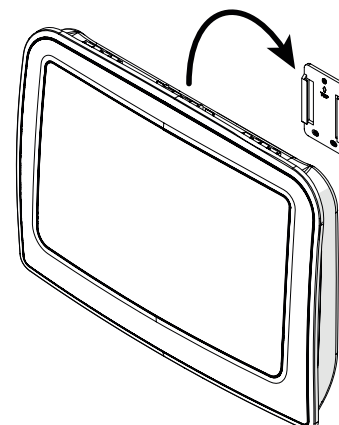
### HANGING THE INDOOR UNIT

/ Arrange the bracket (1) on the wall and make the holes.

/ Fasten the bracket (1) using the screws and plugs (2) with the aid of a spirit level.



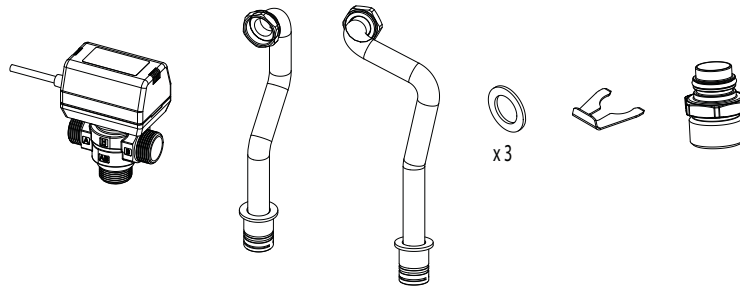
/ Hook the appliance to the bracket.



# 9. CYLINDERS AND INSTALLATION HYDRAULIC COMPONENTS

## DHW KIT

### COMPONENTS



### INSTALLATION INSIDE THE NIMBUS WH - NIMBUS WH-L UNITS

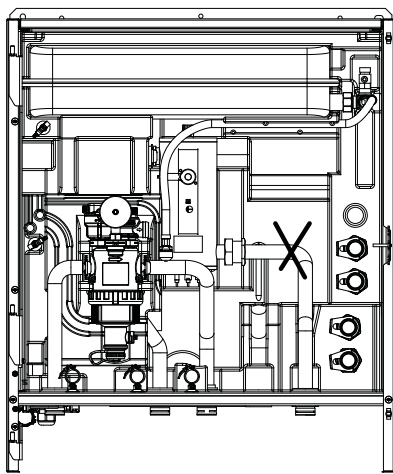


Fig. 1

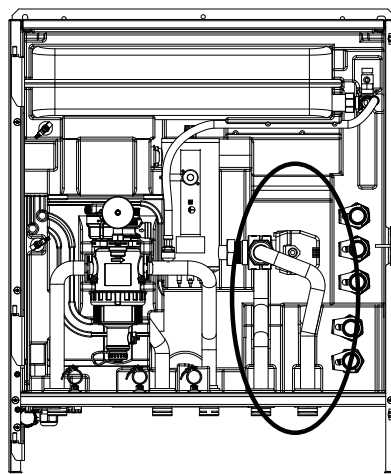


Fig. 2

- 1 Delivery to Cylinder
- 2 Delivery to system

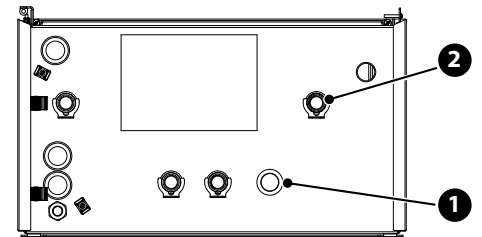
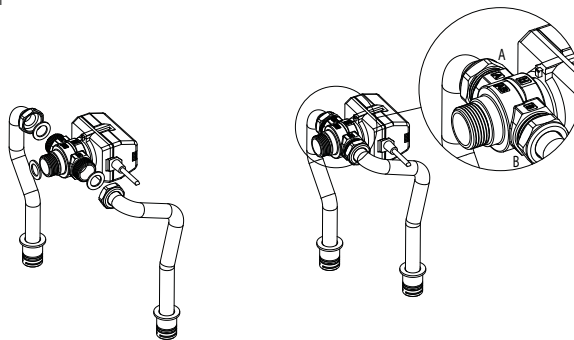
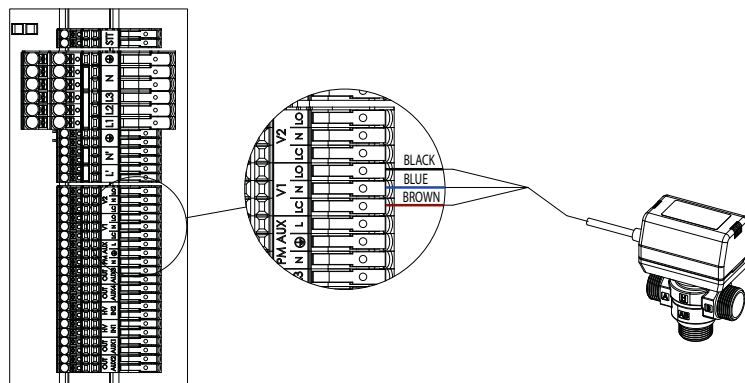


Fig. 3

### THREE-WAY VALVE HYDRAULIC CONNECTION

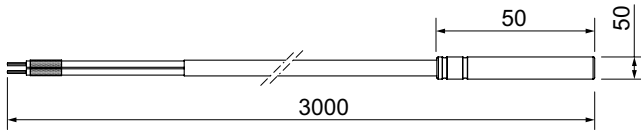


### ELECTRICAL CONNECTION



## UNIVERSAL Cylinder SENSOR

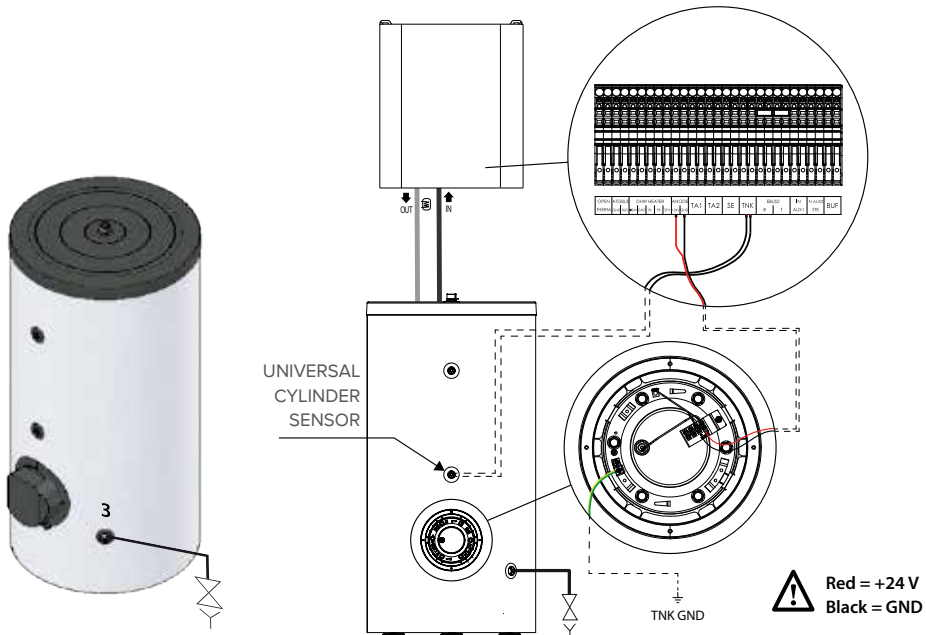
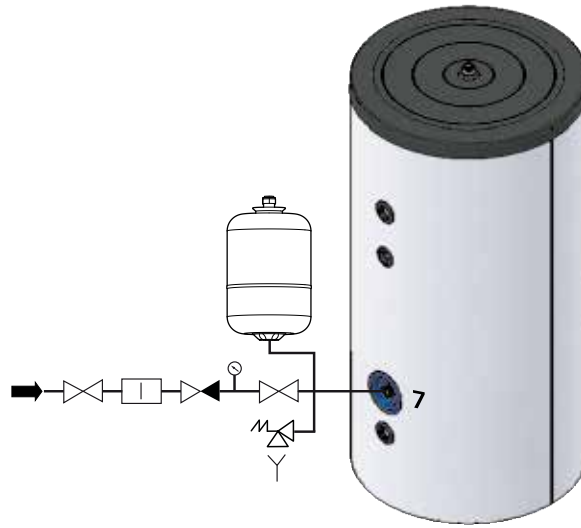
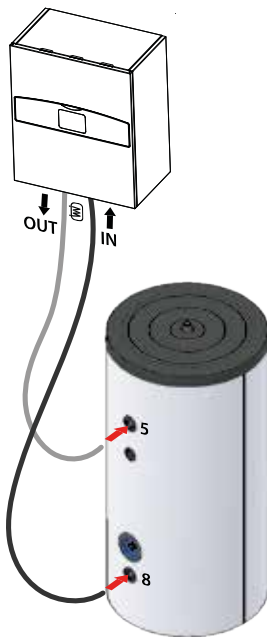
Universal Cylinder sensor for connection to a generic Cylinder.



### TECHNICAL DATA

NTC sensor		10k
Temperature range	°C	-20/95
Heating element insulation	Mohm	100
Voltage insulation	V	3750
Protection rating	IP	67

## CYLINDER HYDRAULIC AND ELECTRICAL CONNECTION



### NOTE:

The "UNIVERSAL CYLINDER SENSOR" must be purchased as an accessory

## 9. CYLINDERS AND INSTALLATION HYDRAULIC COMPONENTS

### HHP CYLINDERS

#### CD1 HHP CYLINDER

- A Thermowell Ø 10 mm

---

- B Thermowell Ø 10 mm

---

- C Side flange with thermowell Ø 10 mm

---

- D Drainage outlet Ø 3/4" G F

---

- E Hot water outlet Ø 1" G M

---

- F Coil inlet Ø 1" G F

---

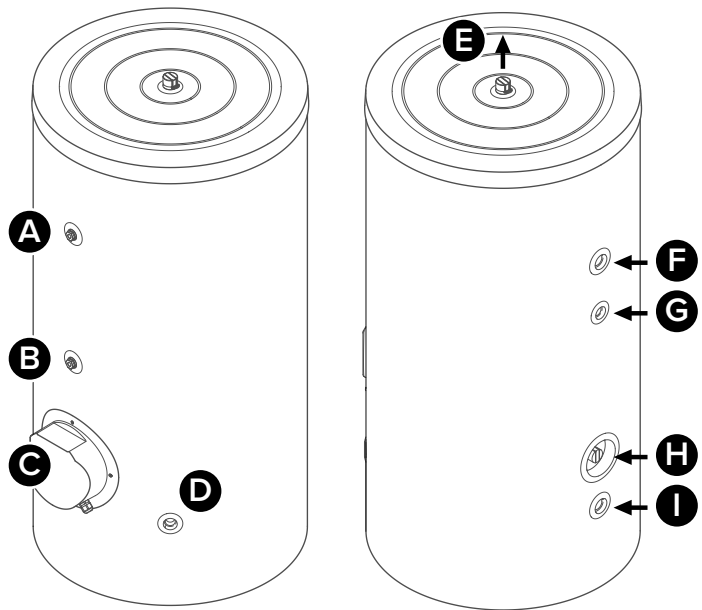
- G Recirculation Ø 3/4" G Female

---

- H Cold water inlet Ø 1" G M

---

- I Coil outlet Ø 1" G F



#### CD2 HHP CYLINDER

- A Thermowell Ø 10 mm

---

- B Thermowell Ø 10 mm

---

- C Side flange with thermowell Ø 10 mm

---

- D Drainage outlet Ø 3/4" G F

---

- E HE back-up connection Ø 1" 1/2

---

- F Hot water outlet Ø 1" G M

---

- G Heat pump heat exchanger input Ø 1" G F

---

- H Recirculation Ø 3/4" G Female

---

- I Heat pump heat exchanger outlet Ø 1" G F

---

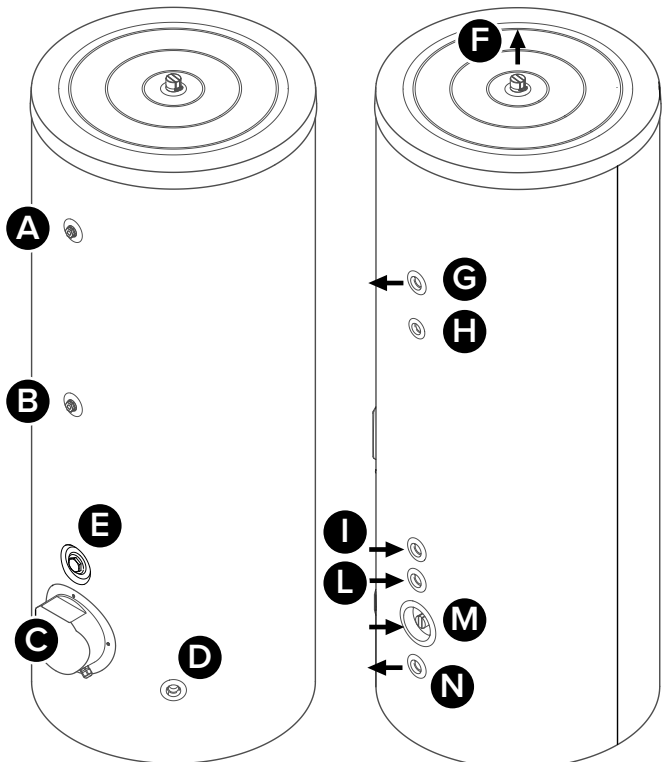
- L Solar system coil input Ø 1" G F

---

- M Cold water inlet Ø 1" G M

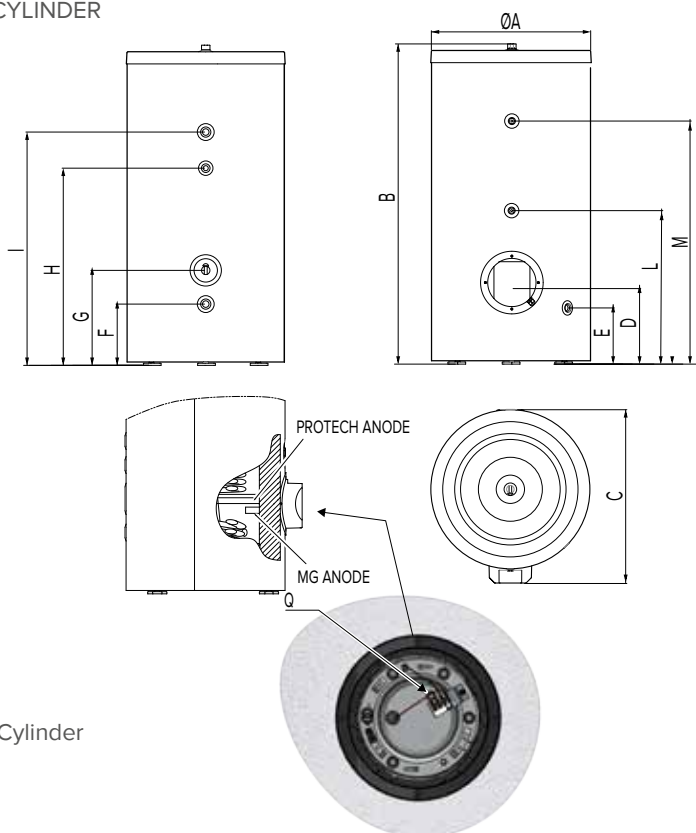
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- N Solar system coil outlet Ø 1" G F



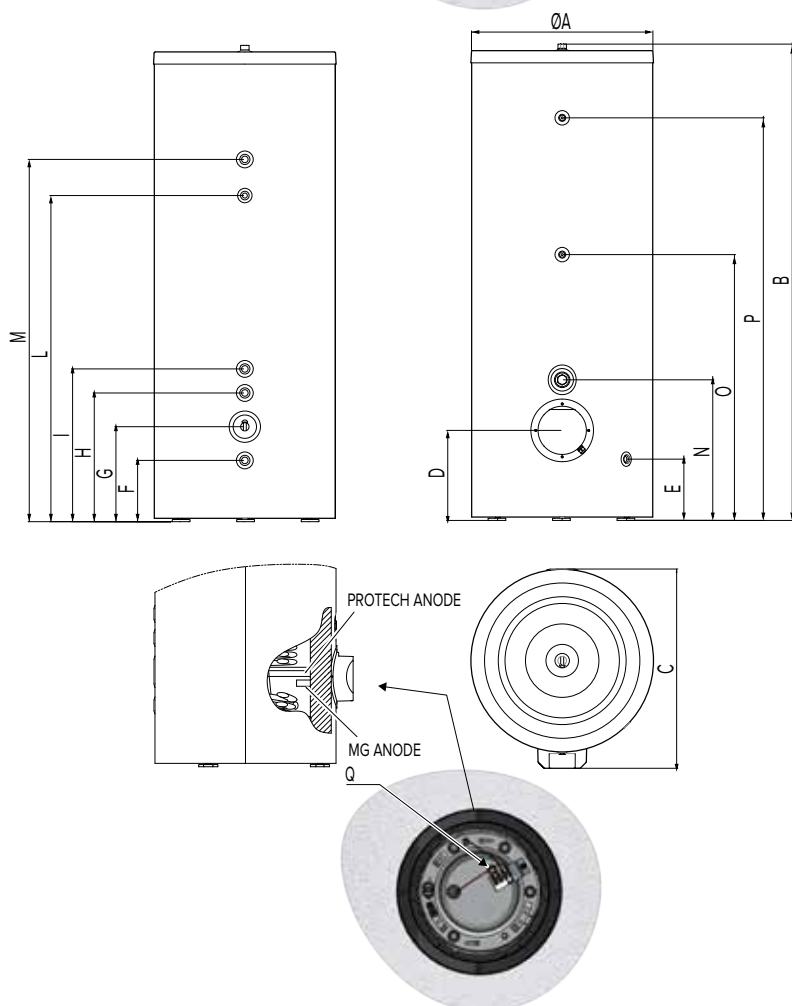
## TECHNICAL AND DIMENSIONAL CHARACTERISTICS OF THE APPLIANCE

### CD1 CYLINDER



	DESCRIPTION	200 L [l]	300 [l]	450 [l]
A	External diameter	660	660	760
B	Height	1332	1354	1378
C	Maximum depth	731	731	827
D	Side flange	374	374	374
E	Drain	254	254	254
F	Coil outlet	254	254	254
G	Cold water inlet	389	389	389
H	Recirculation	789	1239	1234
I	Coil inlet	969	1419	1415
L	Sensor inlet	659	714	834
M	Sensor inlet	1034	1856	1672
Q	Sensor inlet	-	-	-

### CD2 Cylinder



	DESCRIPTION	300 [l]	450 [l]
A	External diameter	660	760
B	Height	1853	1978
C	Maximum depth	731	827
D	Side flange	374	374
E	Drain	254	254
F	Solar coil outlet	254	254
G	Cold water inlet	389	389
H	Solar coil inlet	640	534
I	Heat pump outlet	704	634
L	Recirculation	1334	1325
M	Heat pump inlet	1514	1505
N	HE back-up	644	584
O	Sensor inlet	1174	1104
P	Sensor inlet	1556	1672
Q	Sensor inlet	-	-

## 9. CylinderS AND INSTALLATION HYDRAULIC COMPONENTS

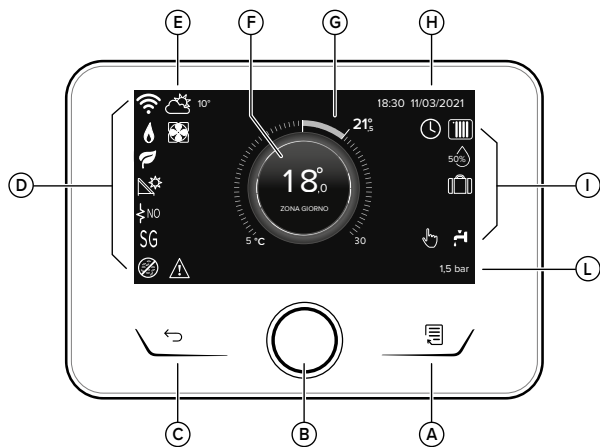
CD1 CYLINDER	UNIT OF MEASUREMENT	200 l	300 l	450 l
Tank capacity	l	190	280	435
COIL				
Coil surface area	m <sup>2</sup>	2	3.5	4.5
Coil capacity	l	13	18	30
Heat exchanger power as per EN 12897	kW	22.7	33.8	30.8
Coil resistance at 15 l/min	mbar	88	92	90
Max. operating pressure	bar	7	7	7
Heat dispersion EN 60379	kWh/day	1.28	1.64	1.9
ErP energy class		B	B	B
Net weight	kg	83	120	160

CD2 CYLINDER	UNIT OF MEASUREMENT	300 l	450 l
Tank capacity	l	279	433
UPPER COIL			
Coil surface area	m <sup>2</sup>	2.5	3.5
Coil capacity	l	13	18
Heat exchanger power as per EN 12897	kW	27.9	27.3
Coil resistance at 15 l/min	mbar	80	83
LOWER COIL			
Coil surface area	m <sup>2</sup>	1	1
Coil capacity	l	5	5
Heat exchanger power as per EN 12897	kW	12.5	16.5
Coil resistance at 15 l/min	mbar	50	50
Max. operating pressure	bar	7	7
Heat dispersion EN 60379	kWh/day	1.62	1.89
ErP energy class		B	B
Net weight	kg	122	164

**NOTE:** The energy data shown in the table and additional data appearing in the Product Sheet (Annex A to the product) are defined on the basis of Regulations (EU) 812/2013 and 814/2013.

# 10. REMOTE CONTROL AND TEMPERATURE CONTROL DEVICES

## SENSYS HD



### Key

- A. Menu button
- B. OK knob / button  
(turn to select / press to confirm)
- C. Esc button (back)
- D. Function icons
- E. Weather and outdoor temperature
- F. Room temperature
- G. Desired temperature
- H. Date and time
- I. Operation icons
- L. Hydraulic pressure

- |           |  |              |   |
|-----------|--|--------------|---|
|           | Wi-Fi module updating in progress          |              | Relative humidity index   |
| <b>AP</b> | Access Point opening in progress           |              | Off zone  |
|           | Wi-Fi off or not connected                 |              | Scheduled   |
|           | Wi-Fi connected but Internet access failed |              | Manual  |
|           | Wi-Fi active                               |              | TEMPERATURE REGULATION function active                                |
|           | Outdoor temperature                        | <b>BMS</b>   | Building Management System active                                     |
|           | Flame present                              |              | HOLIDAY function active   |
|           | Optimum boiler efficiency                  | <b>BOOST</b> | Domestic hot water BOOST function active                              |
|           | Solar heating module connected             | <b>HP HC</b> | Hot water comfort enabled in electricity full band rate               |
| <b>PV</b> | Photovoltaic contact enabled               |              | Hot water comfort enabled in electricity reduced band rate            |
|           | Photovoltaic contact active                | <b>HC 40</b> | Hot water comfort enabled with set-point at 40°C in full band rate    |
| <b>SG</b> | Smart Grid system enabled                  |              | Hot water comfort enabled with set-point at 40°C in reduced band rate |
|           | Smart Grid system active                   |              | TEST mode active  |
|           | Supplementary heating elements not enabled |              | Thermal SANITISATION function active                                  |
|           | Number of heating element stages active    |              | ANTI-FREEZE function active   |
|           | Heat pump active                           |              | DEHUMIDIFICATION function active                                      |
|           | Room set-point extension active            |              | Quiet mode active (heat pumps only)                                   |
|           | Space heating                              |              | Error in progress   |
|           | Space heating active                       |              | Generic load active (only available for HHP Cascade Manager)          |
|           | Domestic hot water                         |              | Back-up electric heater for DHW active                                |
|           | Domestic hot water active                  |              | Electric supply (only available for HHP)                              |
|           | Cooling service enabled                    |              |   |
|           | Cooling service active                     |              |   |

## 10. REMOTE CONTROL AND TEMPERATURE CONTROL DEVICES

### SENSYS HD TECHNICAL DATA

Dimensions (W x H x D)	134 mm x 95.5 mm x 21 mm
Power supply	BridgeNet® bus 8–24 V max.
Current draw	≤ 35 mA
Operating temperature	0°C to 50°C
Storage temperature	-10°C to 45°C
Operating humidity	20% RH ÷ 80% RH
Temperature reading precision	+/- 0.5°C
Buffer memory duration	minimum 2h
Bus cable length and cross-sectional area	max. 50 m ø min. 0.5 mm <sup>2</sup>

NOTE: IN ORDER TO AVOID INTERFERENCE PROBLEMS, USE A SHIELDED CABLE OR A TWISTED PAIR CABLE

### PRODUCT TECHNICAL SHEET

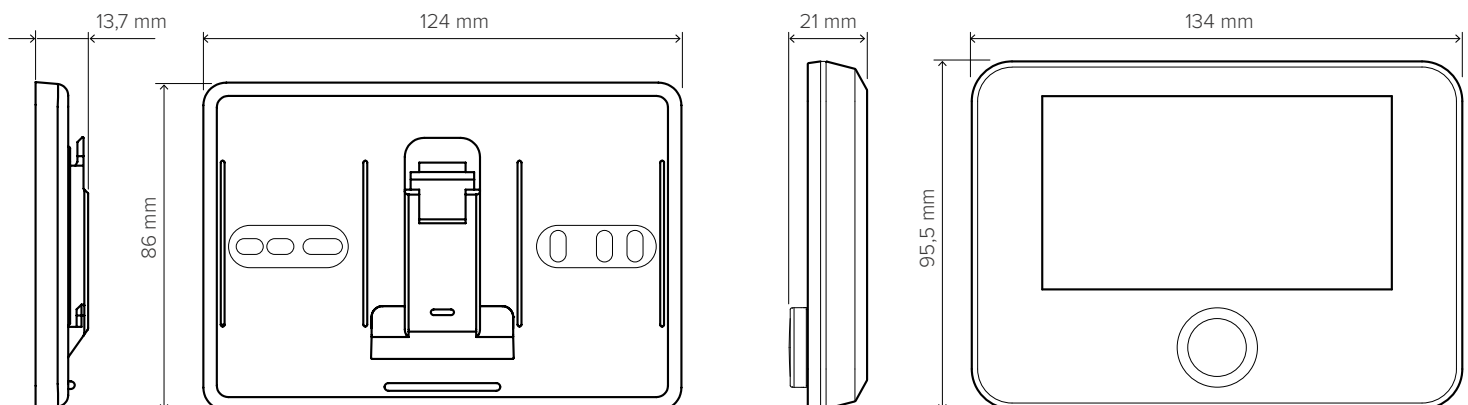
Supplier name	ARISTON
Supplier name	SENSYS HD
Temperature control class	V
Energy efficiency contribution (%) for space heating	+ 3%

With the addition of an Ariston external sensor / Internet Weather (Sensys NET HD)

Temperature control class	VI
Energy efficiency contribution (%) for space heating	+ 4%

In a system with 3 zones with 2 Ariston room sensors

Temperature control class	VIII
Energy efficiency contribution (%) for space heating	+ 5%

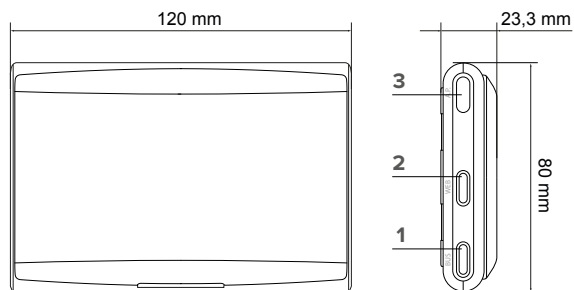




## LIGHT GATEWAY

A device for connecting the new generation ARISTON heat pump and the home Wi-Fi network.

- / Compatible with Wi-Fi ADSL router with WEP and WPA/WPA2 Personal encryption;
- / Power supply and connection con ARISTON heat pump via bus (ARISTON BUS BridgeNet proprietary protocol);
- / Configuration for housing and powering the Sensys modulating system manager;
- / IP20 electrical protection rating;
- / Operating temperatures -10°C / +60°C.

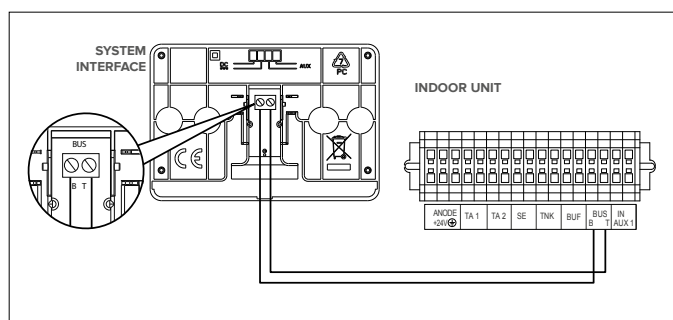


- |   |                            |
|---|----------------------------|
| 1 | BridgeNet Bus LED          |
| 2 | Internet connection LED    |
| 3 | Wi-Fi configuration button |

The LEDs on the side of the Gateway provide instant feedback on the product's operating status:

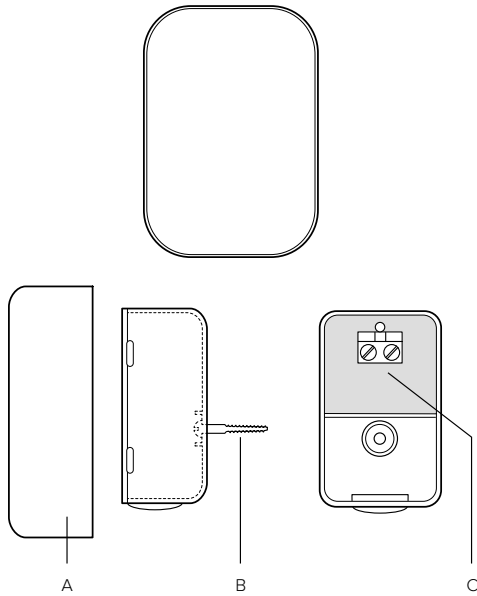
### GATEWAY OPERATING STATUS - LED CODING

1 BridgeNet Bus LED	
Off	Gateway off
Steady green	BridgeNet Bus connection working
Stable Red	BridgeNet Bus error or Bus cable not connected
2 BridgeNet Bus LED	
Off	Gateway not powered or off
Steady green	Gateway correctly configured and connected to the Internet
Flashing green (slow)	Gateway waiting to be configured
Flashing green (fast)	Gateway connecting to the cloud
Steady red	No connection to the service or gateway is not configured
ALL LEDs	
Off	Gateway off
Sequential flashing red	Gateway start-up
Flashing green (every 5 sec.)	Gateway in operation (it is enabled 2 minutes after configuration and disabled if there are errors, if the button is pressed or the parameters are changed)



# 10. REMOTE CONTROL AND TEMPERATURE CONTROL DEVICES

## OUTDOOR SENSOR



Position the outdoor sensor on the north wall of the building at least 2.5 m above the ground, avoiding direct exposure to sunlight. Remove the cover (Fig. A) and install the sensor using the wall plug and screw provided (Fig. B). Make the connection using a 2x0.5 mm<sup>2</sup> wire with a maximum connection length of 50 m. Connect the wire to the terminal by introducing (Fig. C) it from the lower part after creating a suitable passage. Place the sensor cover back in the correct position.

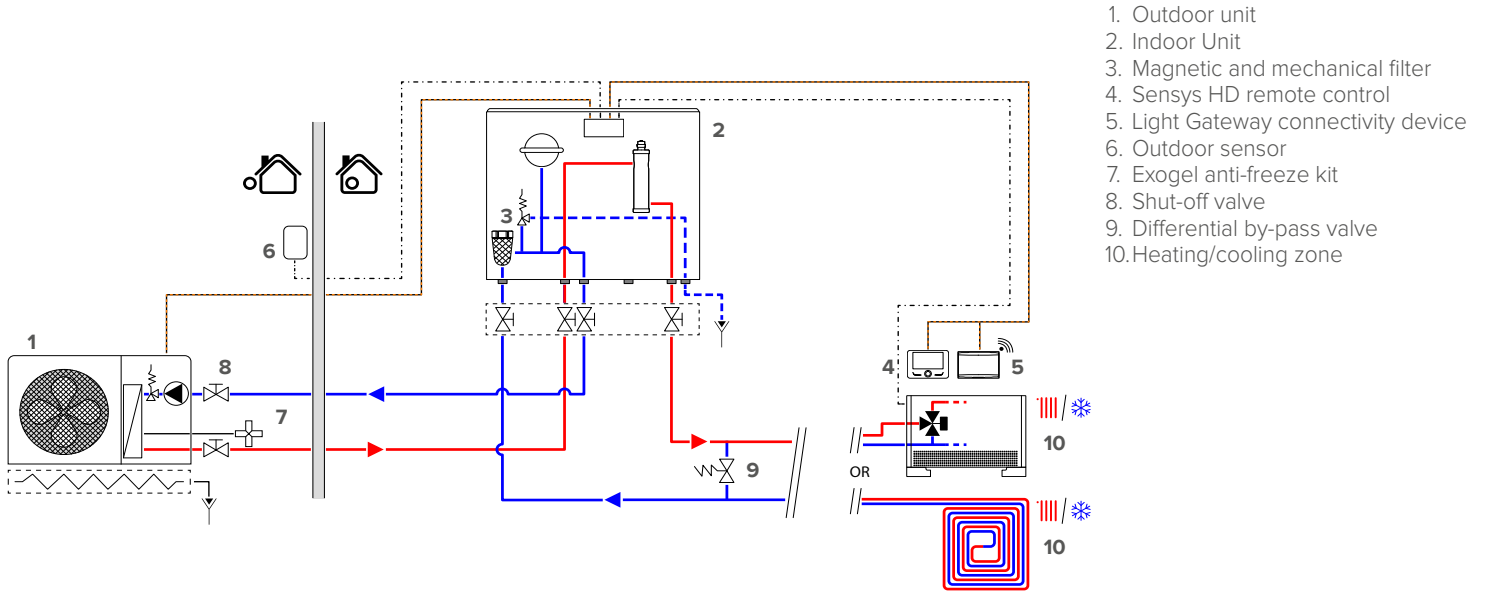
### PRODUCT DATA SHEET (valid with effect from 26 September 2015)

	Sensys HD	ARISTON
Supplier name		ARISTON
Supplier identification model	Sensys HD	Outdoor sensor
Temperature control class	V	II
Energy efficiency contribution (%) for space heating	3%	2%
<b>IN A SYSTEM WITH 2 ZONES AND 1 ARISTON ROOM SENSOR:</b>		
Temperature control class	VI	--
Energy efficiency contribution (%) for space heating	4%	--
<b>IN A SYSTEM WITH 3 ZONES AND 2 ARISTON ROOM SENSORS:</b>		
Temperature control class	VIII	--
Energy efficiency contribution (%) for space heating +5% --	5%	--

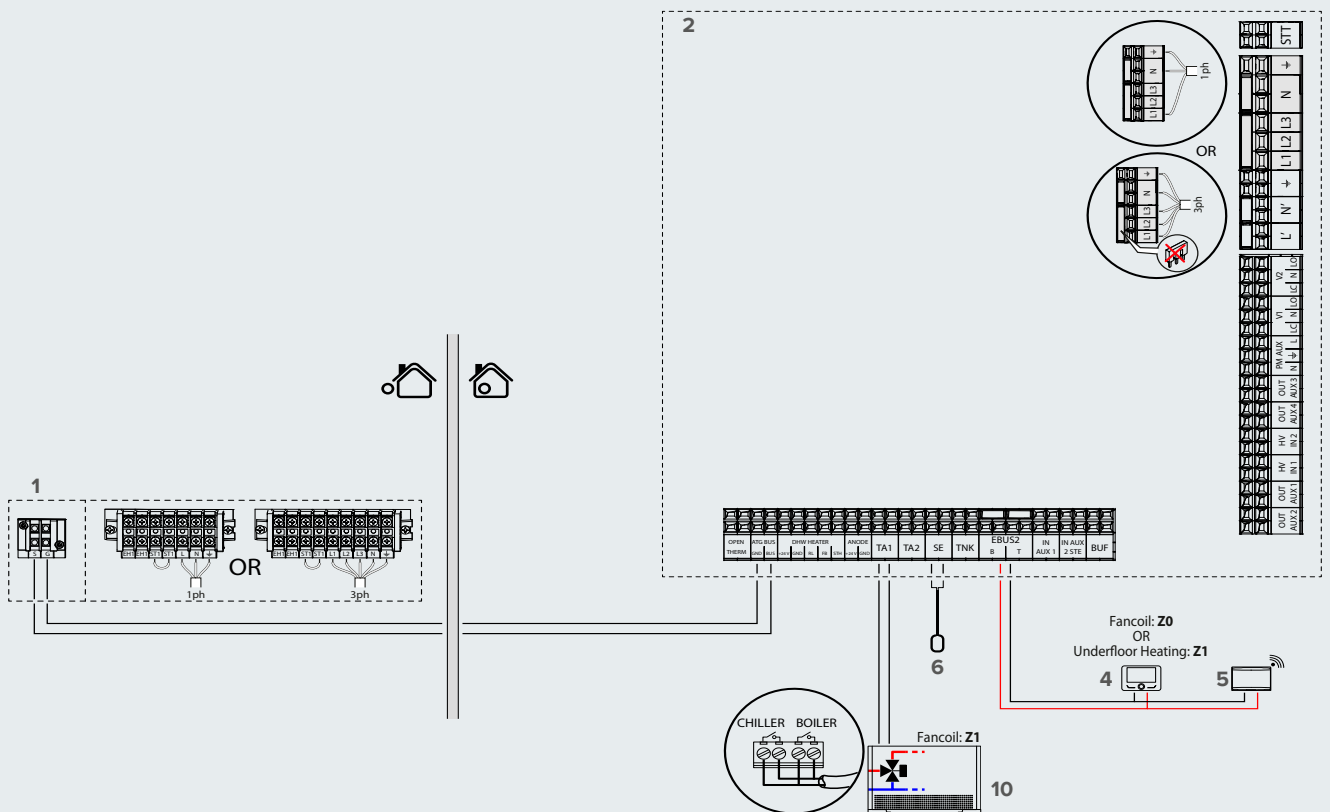
# 11. SYSTEM SOLUTIONS

## SOLUTION 1 – NIMBUS PLUS M NET R32 FOR SPACE HEATING-COOLING

Hydraulic diagram



Electrical diagram

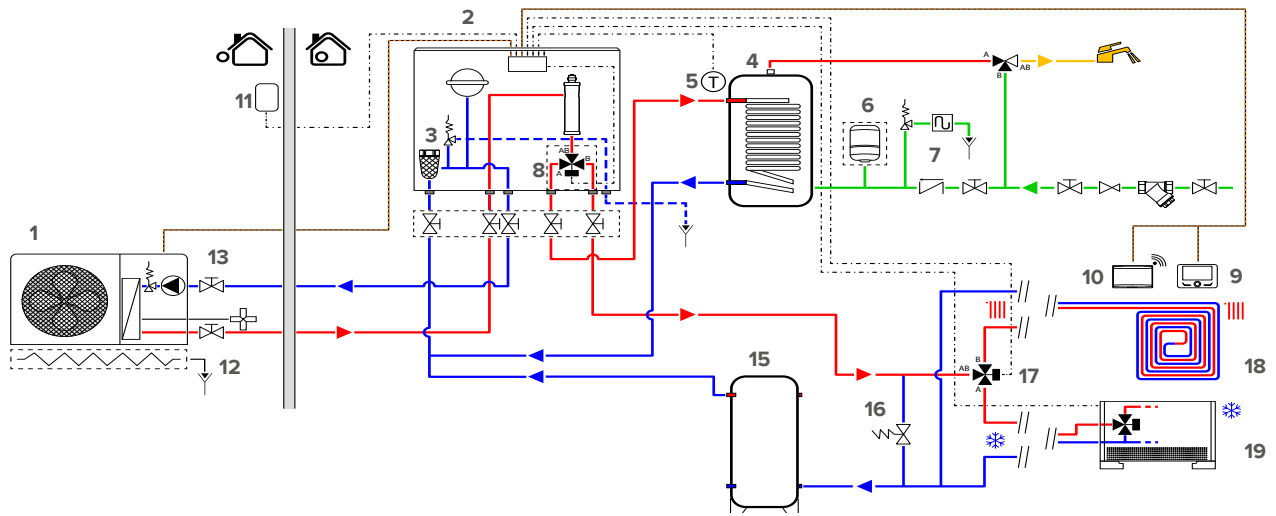




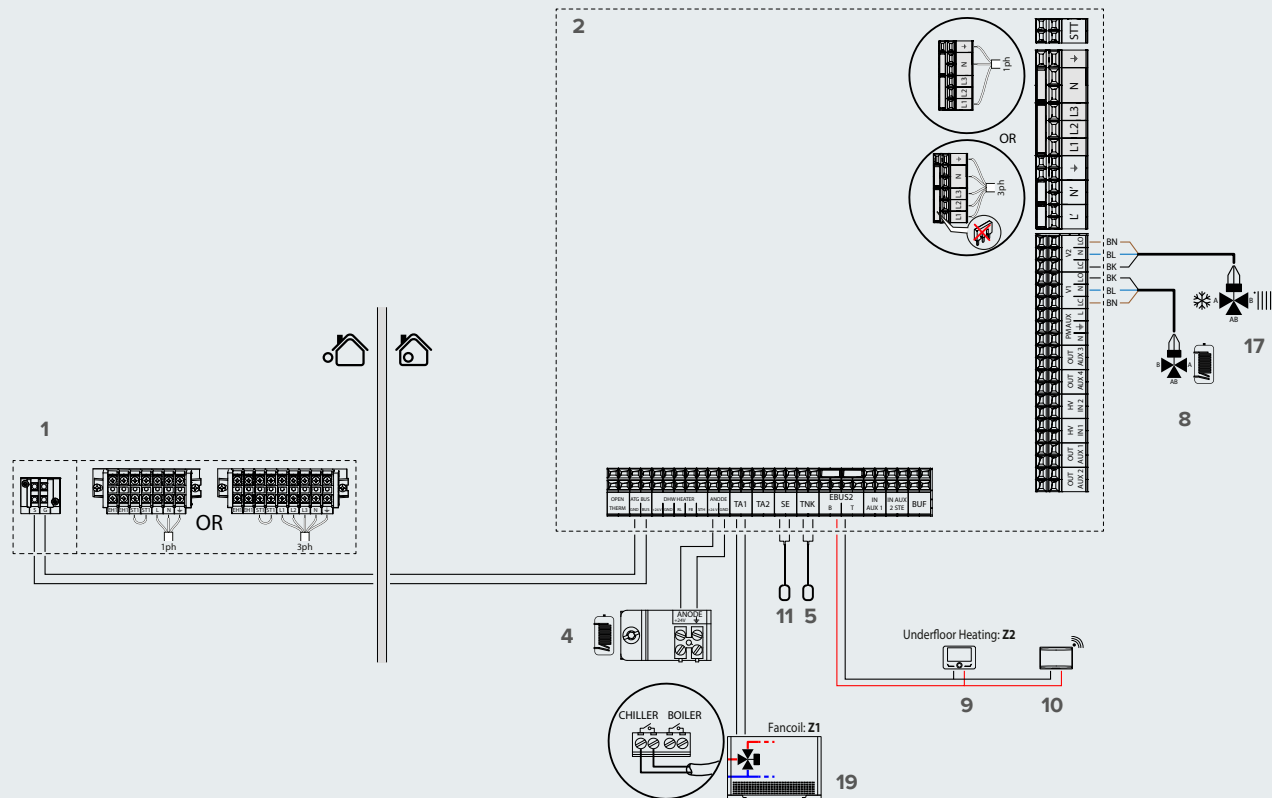
### SOLUTION 3 – NIMBUS FLEX M NET R32 FOR SPACE HEATING-COOLING AND DHW + BUFFER + 3WV FOR DIFFERENT TERMINALS

Hydraulic diagram

- |                                    |                                   |
|------------------------------------|-----------------------------------|
| 1. Outdoor unit                    | 11. Outdoor sensor                |
| 2. Indoor unit                     | 12. Exogel anti-freeze kit        |
| 3. Magnetic and mechanical filter  | 13. Shut-off valve                |
| 4. Cylinder                        | 15. Buffer tank                   |
| 5. Cylinder sensor                 | 16. By-pass valve                 |
| 6. DHW expansion vessel            | 17. Summer/Winter deviating valve |
| 7. DHW safety assembly             | 18. Heating zone                  |
| 8. Diverter valve for DHW          | 19. Cooling zone                  |
| 9. Sensys HD remote control        |                                   |
| 10. Light Gateway connectivity de- |                                   |



Electrical diagram

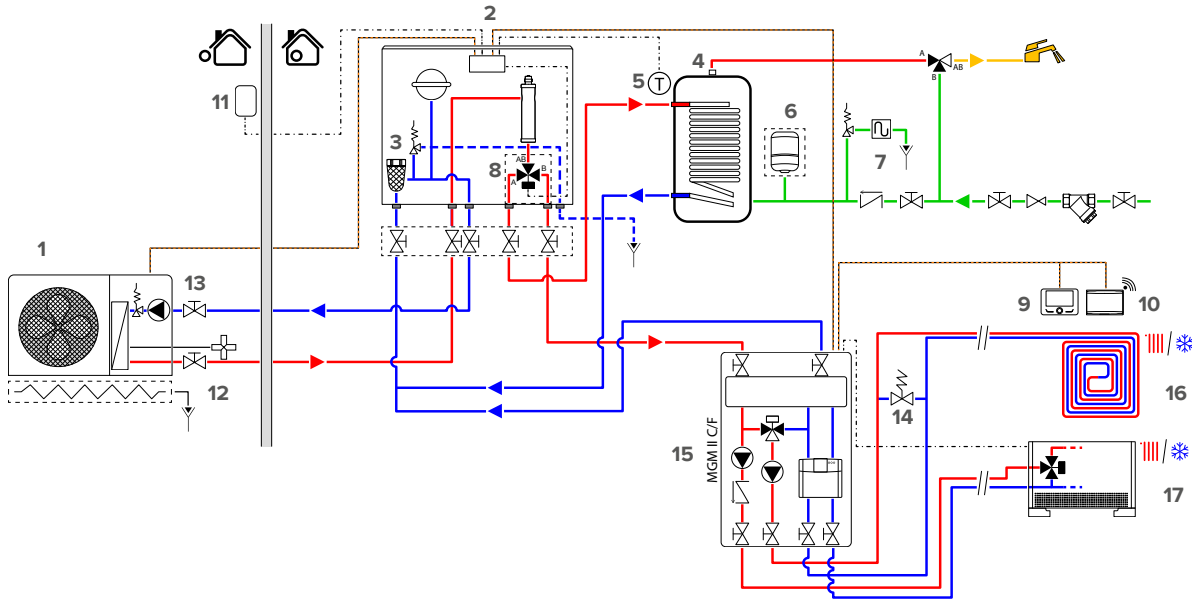


# 11. SYSTEM SOLUTIONS

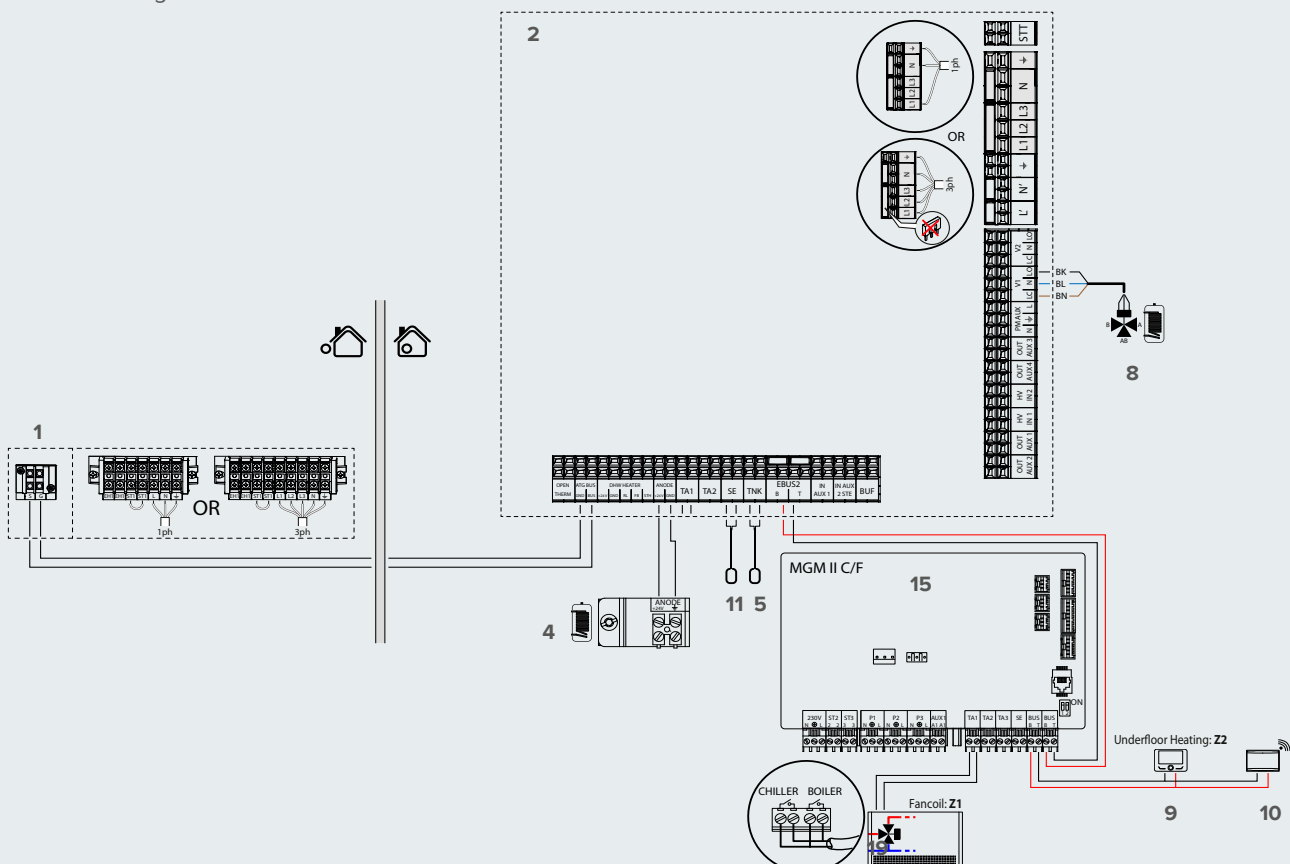
## SOLUTION 4 – NIMBUS FLEX M NET R32 FOR SPACE HEATING-COOLING AND DHW + 2 ZONES HEA/COOL KIT

Hydraulic diagram

- |                                   |                                       |
|-----------------------------------|---------------------------------------|
| 1. Outdoor unit                   | 10. Light Gateway connectivity device |
| 2. Indoor unit                    | 11. Outdoor sensor                    |
| 3. Magnetic and mechanical filter | 12. Exogel anti-freeze kit            |
| 4. Cylinder                       | 13. Shut-off valve                    |
| 5. Cylinder sensor                | 14. Differential by-pass valve        |
| 6. DHW expansion vessel           | 15. MGM II ZONES H/C                  |
| 7. DHW safety assembly            | 16. Heating/Cooling zone 1            |
| 8. Diverter valve for DHW         | 17. Heating/Cooling zone 2            |
| 9. Sensys HD remote control       |                                       |



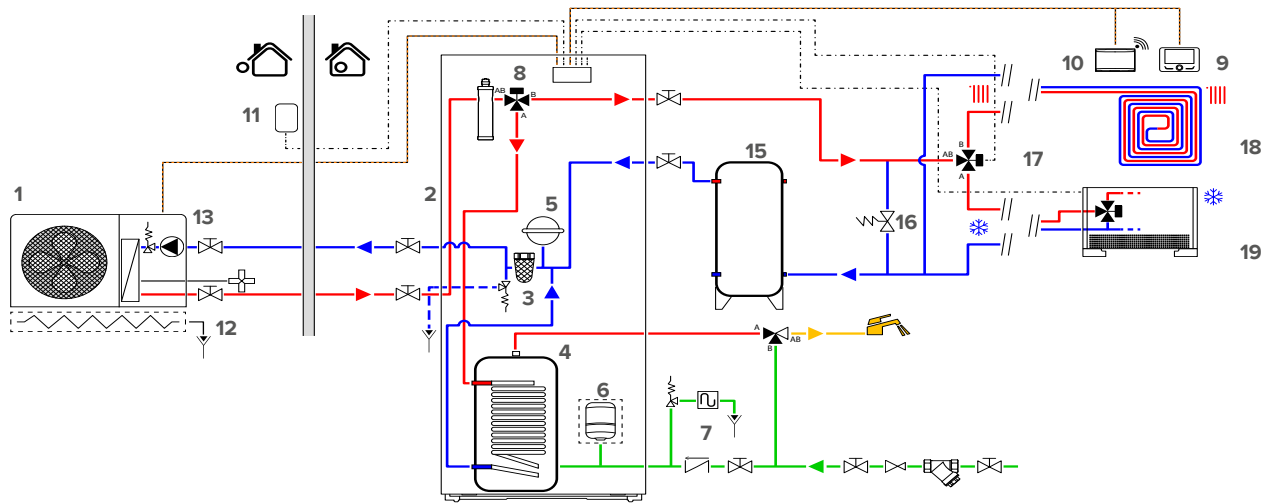
Electrical diagram



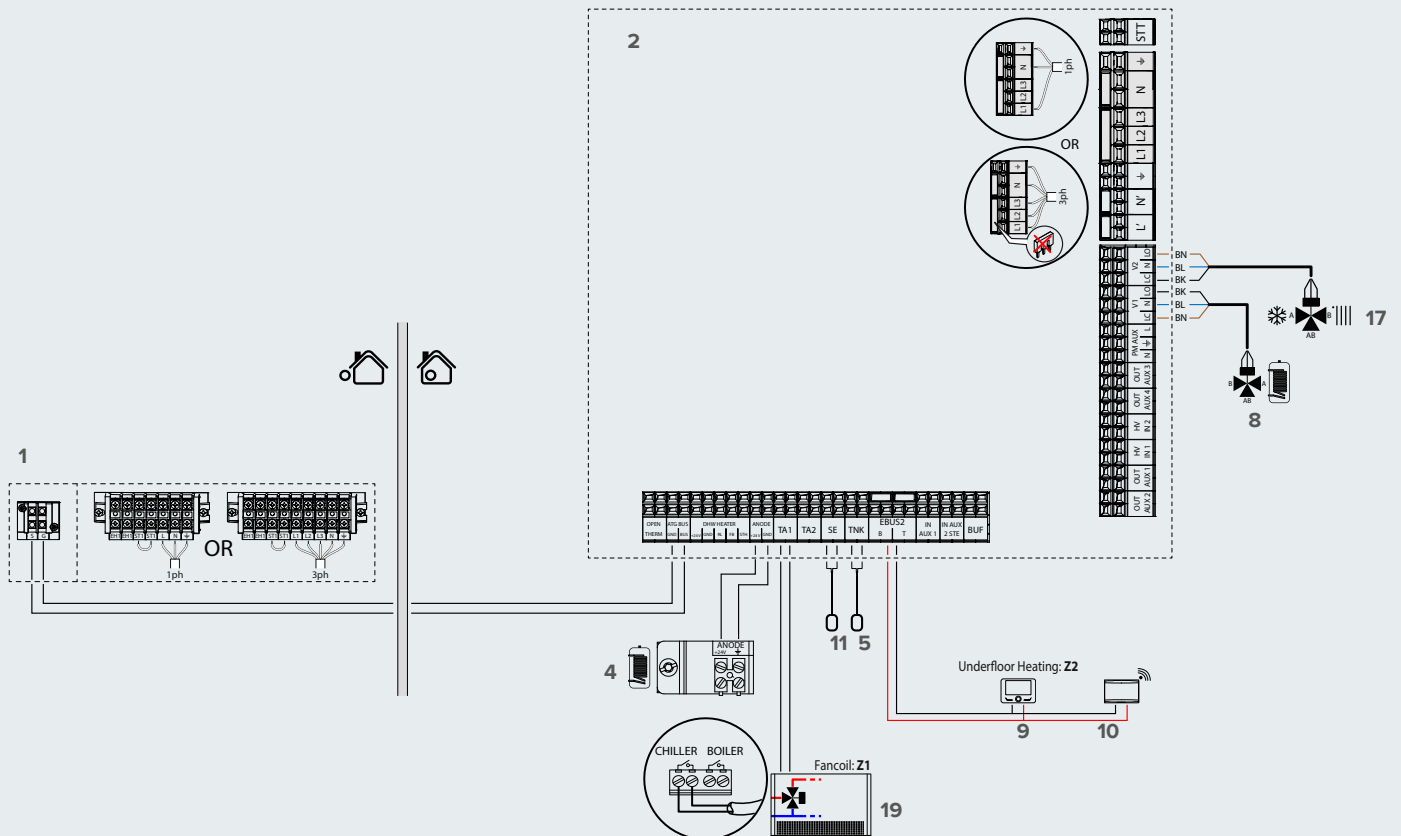
**SOLUTION 5 – NIMBUS COMPACT M NET R32 FOR SPACE HEATING-COOLING AND DHW WITH INTEGRATED CYLINDER + BUFFER TANK + 3WV FOR DIFFERENT TERMINALS**

Hydraulic diagram

- |                                       |                                   |
|---------------------------------------|-----------------------------------|
| 1. Outdoor unit                       | 11. Outdoor sensor                |
| 2. Indoor unit                        | 12. Exogel anti-freeze kit        |
| 3. Magnetic and mechanical filter     | 13. Shut-off valve                |
| 4. Cylinder                           | 15. Buffer tank                   |
| 5. Circuit heating expansion vessel   | 16. By-pass valve                 |
| 6. DHW expansion vessel (optional)    | 17. Summer/Winter deviating valve |
| 7. DHW safety assembly                | 18. Heating zone                  |
| 8. Diverter valve for DHW             | 19. Cooling zone                  |
| 9. Sensys HD remote control           |                                   |
| 10. Light Gateway connectivity device |                                   |



Electrical diagram



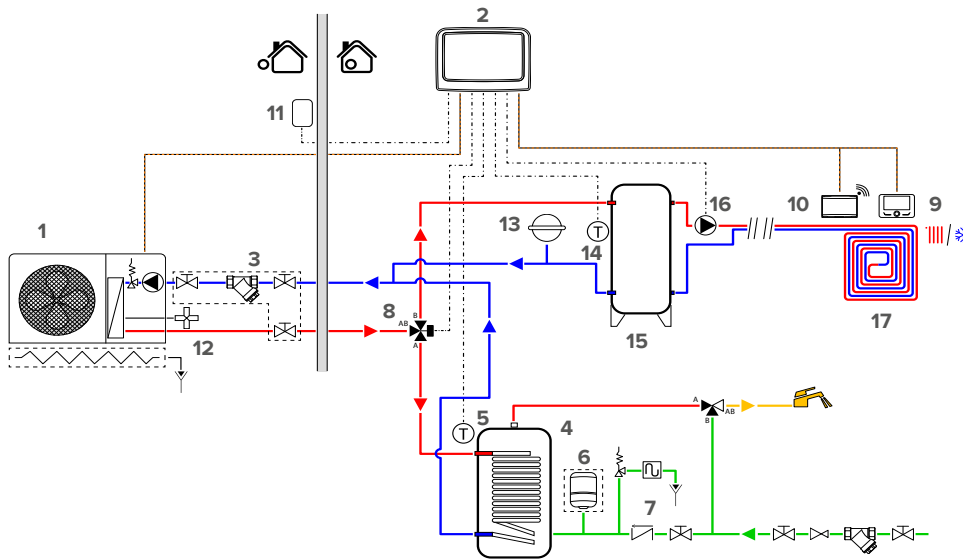




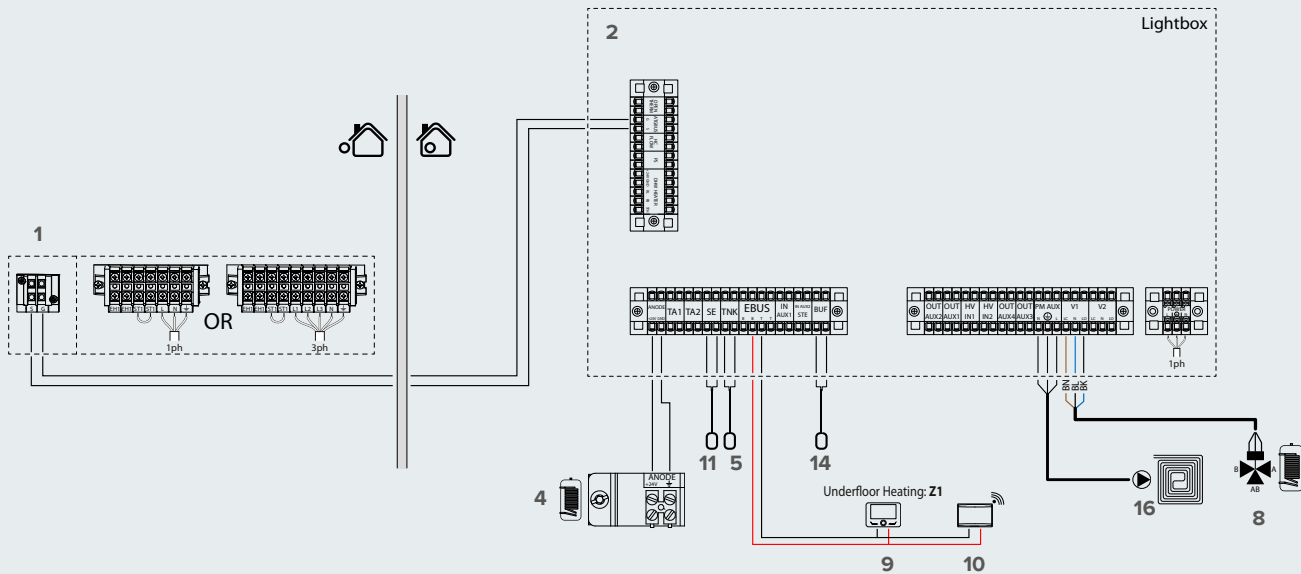
## SOLUTION 7 – NIMBUS POCKET M NET R32 FOR SPACE HEATING-COOLING AND DHW WITH CYLINDER + BUFFER TANK

Hydraulic diagram

- |                             |                                       |
|-----------------------------|---------------------------------------|
| 1. Outdoor unit             | 10. Light Gateway connectivity device |
| 2. Indoor unit              | 11. Outdoor sensor                    |
| 3. Valves and filter kit    | 12. Exogel anti-freeze kit            |
| 4. Cylinder                 | 13. Circuit heating expansion vessel  |
| 5. Cylinder sensor          | 14. Buffer tank sensor                |
| 6. DHW expansion vessel     | 15. Buffer tank                       |
| 7. DHW safety assembly      | 16. Auxiliary pump                    |
| 8. Diverter valve for DHW   | 17. Heating/cooling zone              |
| 9. Sensys HD remote control |                                       |



Electrical diagram

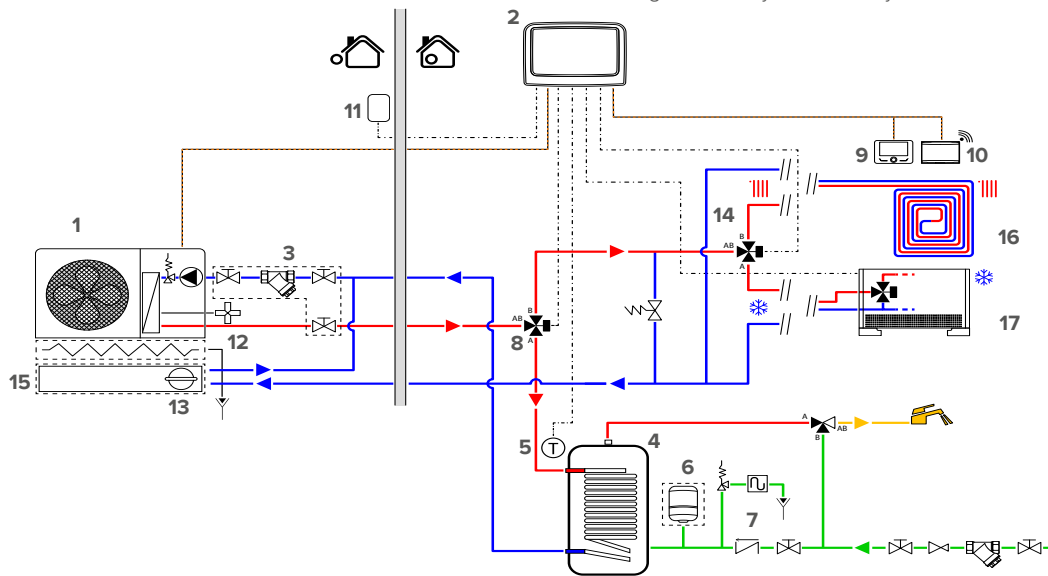


# 11. SYSTEM SOLUTIONS

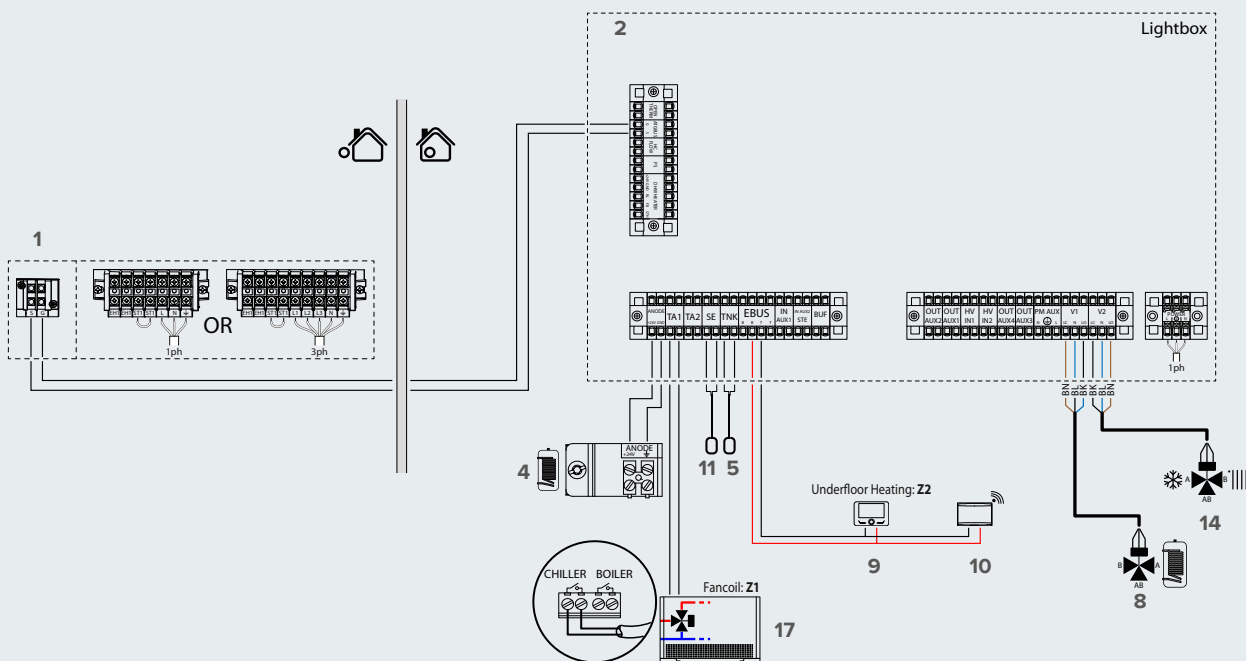
## SOLUTION 8 – NIMBUS POCKET M NET R32 FOR SPACE HEATING-COOLING AND DHW WITH CYLINDER + BUFFER TANK + 3WV FOR DIFFERENT TERMINALS

Hydraulic diagram

- |                                |                                      |
|--------------------------------|--------------------------------------|
| 1. Outdoor unit                | device                               |
| 2. Indoor unit                 | 11. Outdoor sensor                   |
| 3. Valves and filter kit       | 12. Exogel anti-freeze kit           |
| 4. Cylinder                    | 13. Circuit heating expansion vessel |
| 5. Cylinder sensor             | 14. Summer/Winter deviating valve    |
| 6. DHW expansion vessel        | 15. Buffer tank                      |
| 7. DHW safety assembly         | 16. Heating zone                     |
| 8. Diverter valve for DHW      | 17. Cooling zone                     |
| 9. Sensys HD remote control    |                                      |
| 10. Light Gateway connectivity |                                      |

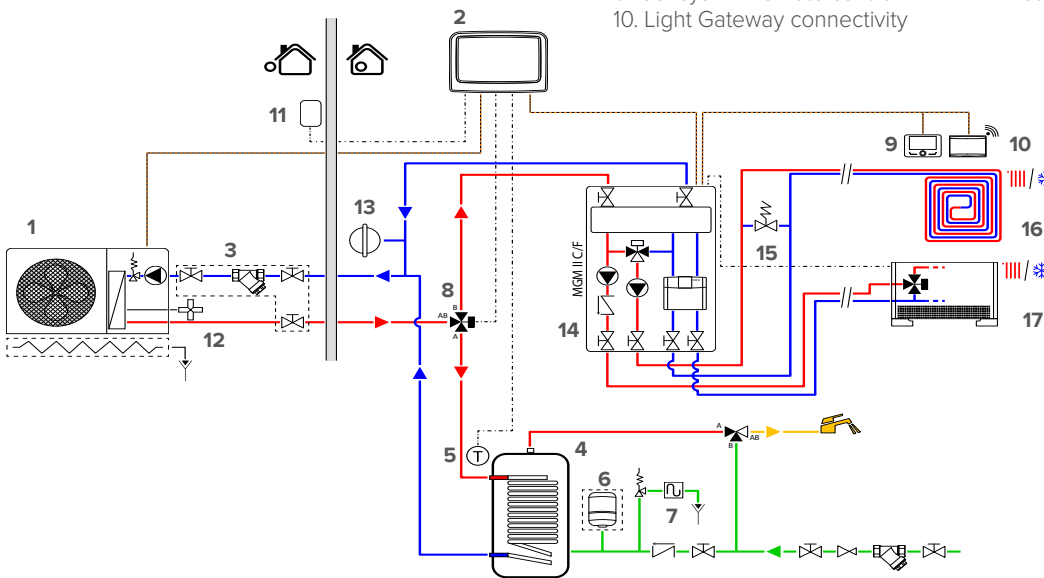


Electrical diagram

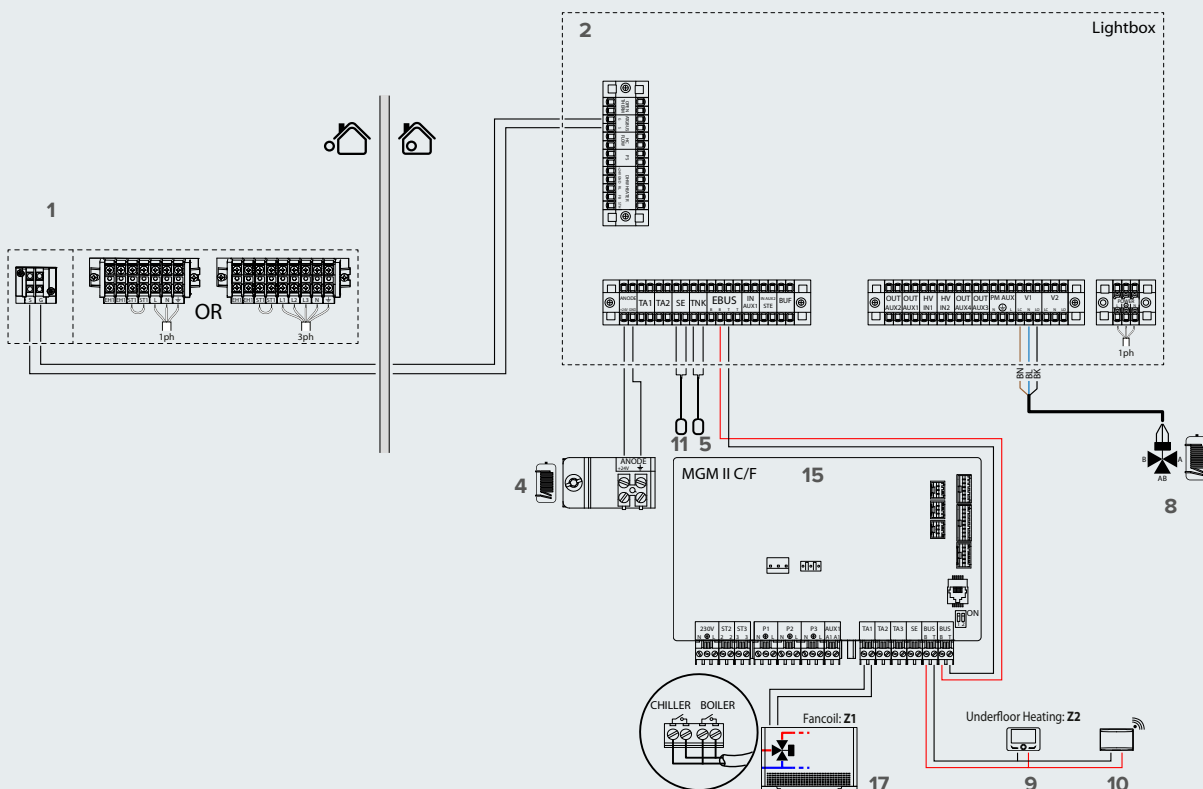


**SOLUTION 9 – NIMBUS POCKET M NET R32 FOR SPACE HEATING-COOLING AND DHW WITH CYLINDER + 2 ZONES HEA/COOL KIT**

- |                                |                                      |
|--------------------------------|--------------------------------------|
| 1. Outdoor unit                | 11. Outdoor sensor                   |
| 2. Indoor unit                 | 12. Exogel anti-freeze kit           |
| 3. Valves and filter kit       | 13. Circuit heating expansion vessel |
| 4. Cylinder                    | 14. MGM II ZONES H/C                 |
| 5. Cylinder sensor             | 15. By-pass valve                    |
| 6. DHW expansion vessel        | 16. Heating/Cooling zone 1           |
| 7. DHW safety assembly         | 17. Heating/Cooling zone 2           |
| 8. Diverter valve for DHW      |                                      |
| 9. Sensys HD remote control    |                                      |
| 10. Light Gateway connectivity |                                      |



**Electrical diagram**



## 12. TECHNICAL DATA

### THERMODYNAMIC PERFORMANCES OF THE OUTDOOR UNIT IN HEATING MODE (EN 14511)

			35 M	50 M	80 M / 80 M-T	120 M / 120 M-T	150 M / 120 M-T
Power range min. - max.	A7/W55	[kW]	1.52–5.73	1.52–6.83	2.48–10.50	3.75–13.21	3.69–15.98
Nominal heating power		[kW]	2.95	3.8	5.80	7.67	9.50
Nominal electricity consumption		[kW]	1.09	1.36	1.97	2.39	3.02
CoP			2.7	2.8	2.95	3.21	3.15
Power range min. - max.	A7/W45	[kW]	1.6–6.04	1.6–7.19	2.61–11.5	4.02–13.65	3.88–16.77
Nominal heating power		[kW]	3	4.05	6.00	8.20	9.90
Nominal electricity consumption		[kW]	0.80	1.11	1.62	2.00	2.48
COP			3.74	3.65	3.70	4.10	4.00
Power range min. - max.	A7/W35	[kW]	1.68–6.35	1.68–7.57	2.74–11.74	4.23–14.37	4.08–17.65
Nominal heating power		[kW]	3.50	5.00	8.00	12.00	15.00
Nominal electricity consumption		[kW]	0.69	1.00	1.67	2.45	3.19
CoP			5.10	5.00	4.80	4.90	4.70
Power range min. - max.	A2/W55	[kW]	1.25–5.40	1.27–6.01	2.21–9.85	3.17–12.7	3.26–15.52
Nominal heating power		[kW]	2.35	2.9	4.30	6.10	7.40
Nominal electricity consumption		[kW]	1.04	1.26	1.72	2.35	2.78
CoP			2.26	2.30	2.50	2.60	2.66
Power range min. - max.	A2/W45	[kW]	1.31–5.68	1.33–6.33	2.3–10.21	3.37–13.01	3.43–15.99
Nominal heating power		[kW]	2.55	3	4.60	6.35	7.50
Nominal electricity consumption		[kW]	0.84	1.00	1.46	1.90	2.31
COP			3.05	3.00	3.15	3.35	3.25
Power range min. - max.	A2/W35	[kW]	1.38–5.98	1.38–6.66	2.4–10.75	3.55–13.86	3.61–17.2
Nominal heating power		[kW]	2.8	3.4	4.91	6.80	8.00
Nominal electricity consumption		[kW]	0.68	0.91	1.21	1.58	1.90
COP			4.10	3.75	4.05	4.30	4.21
Power range min. - max.	A-7/W55	[kW]	0.94–4.08	0.94–4.69	1.62–7.63	2.50–10.44	2.70–12.44
Nominal heating power		[kW]	3.35	4.65	6.60	8.35	10.30
Nominal electricity consumption		[kW]	1.68	2.27	3.14	3.69	4.58
COP			2.00	2.05	2.10	2.26	2.25
Power range min. - max.	A-7/W45	[kW]	0.99–4.29	0.99–4.94	1.70–8.03	2.59–10.90	2.84–13.10
Nominal heating power		[kW]	3.42	4.8	6.80	8.60	10.45
Nominal electricity consumption		[kW]	1.32	1.92	2.78	3.17	3.94
COP			2.60	2.50	2.45	2.71	2.65
Power range min. - max.	A-7/W35	[kW]	1.04–4.52	1.04–5.20	1.79–8.45	2.73–11.47	2.99–13.79
Nominal heating power		[kW]	3.51	5	7.41	9.51	11.00
Nominal electricity consumption		[kW]	1.13	1.72	2.47	2.97	3.55
COP			3.10	2.90	3.00	3.20	3.10

### THERMODYNAMIC PERFORMANCES OF THE OUTDOOR UNIT IN COOLING MODE (EN 14511)

			35 M	50 M	80 M / 80 M-T	120 M / 120 M-T	150 M / 120 M-T
Power range min - max	A35/W18	[kW]	2,16-6,50	2,16-7,86	3,31-11,73	4,90-15,51	4,90-17,98
Cooling capacity Qc nominal		[kW]	4,08	4,63	7,00	10,74	12,50
Power consumption Pel nominal		[kW]	0,77	1,02	1,49	2,11	2,66
EER			5,29	4,56	4,70	5,08	4,70
Power range min - max	A35/W7	[kW]	1,16-4,04	1,16-5,33	2,45-8,54	3,30-10,45	3,30-13,30
Cooling capacity Qc nominal		[kW]	3,50	5,00	7,00	9,05	11,00
Power consumption Pel nominal		[kW]	1,03	1,75	2,26	2,87	3,75
EER			3,40	2,85	3,10	3,15	2,93

**HEAT PUMP PERFORMANCE IN HEATING MODE: WITH FULL LOAD AND WITH MINIMUM LOAD**

MODEL [kW]	DELIVERY TEMPERATURE [°C]	FREQUENCY	HEAT OUTPUT DELIVERED [kW]													
			DRY BULB OUTDOOR TEMPERATURE [°C]													
			-20	-15	-10	-7	-3	0	2	7	10	12	15	20	25	30
35 M	35	Min.	0.69	0.84	0.98	1.04	1.20	1.29	1.38	1.68	1.72	1.74	1.81	1.84	1.88	1.93
		Max.	2.92	3.53	4.07	4.52	5.21	5.75	5.98	6.35	6.42	6.48	6.54	6.67	6.80	6.80
50 M		Min.	0.69	0.84	0.98	1.04	1.20	1.29	1.38	1.68	1.72	1.74	1.81	1.84	1.88	1.93
		Max.	3.24	4.35	4.87	5.20	5.96	6.44	6.66	7.57	7.65	7.73	8.02	8.17	8.32	8.55
80 M		Min.	1.16	1.39	1.62	1.79	2.02	2.19	2.40	2.74	2.80	3.03	3.15	3.21	3.27	3.36
		Max.	5.80	6.94	7.58	8.45	9.75	10.58	10.75	11.74	11.83	11.93	12.05	12.29	12.53	12.53
80 M-T		Min.	1.16	1.39	1.62	1.79	2.02	2.19	2.40	2.74	2.80	3.03	3.15	3.21	3.27	3.36
		Max.	5.80	6.94	7.58	8.45	9.75	10.58	10.75	11.74	11.83	11.93	12.05	12.29	12.53	12.53
120 M		Min.	1.85	2.19	2.54	2.99	3.07	3.34	3.61	4.08	4.17	4.59	4.77	4.87	4.96	5.09
		Max.	6.65	8.14	10.51	11.47	12.36	12.96	13.86	14.37	14.51	14.73	14.87	15.17	15.46	15.46
120 M-T		Min.	1.85	2.19	2.54	2.99	3.07	3.34	3.61	4.08	4.17	4.59	4.77	4.87	4.96	5.09
		Max.	6.65	8.14	10.51	11.47	12.36	12.96	13.86	14.37	14.51	14.73	14.87	15.17	15.46	15.46
150 M		Min.	1.85	2.19	2.54	2.99	3.07	3.34	3.61	4.08	4.17	4.59	4.77	4.87	4.96	5.09
		Max.	9.22	10.19	12.58	13.79	15.20	16.10	17.20	17.65	17.83	18.08	18.26	18.62	18.99	18.99
150 M-T	Min.	1.85	2.19	2.54	2.99	3.07	3.34	3.61	4.08	4.17	4.59	4.77	4.87	4.96	5.09	
	Max.	9.22	10.19	12.58	13.79	15.20	16.10	17.20	17.65	17.83	18.08	18.26	18.62	18.99	18.99	
35 M	45	Min.	0.66	0.80	0.93	0.99	1.14	1.23	1.31	1.60	1.63	1.65	1.72	1.75	1.79	1.83
		Max.	2.72	3.28	3.79	4.29	4.95	5.47	5.68	6.04	6.10	6.16	6.22	6.34	6.46	6.46
50 M		Min.	0.66	0.80	0.93	0.99	1.14	1.23	1.33	1.60	1.63	1.65	1.72	1.75	1.79	1.83
		Max.	3.01	4.05	4.53	4.94	5.66	6.12	6.33	7.19	7.27	7.34	7.61	7.76	7.91	8.13
80 M		Min.	1.10	1.32	1.54	1.70	1.92	2.08	2.30	2.61	2.66	2.88	2.99	3.05	3.11	3.20
		Max.	5.39	6.45	7.05	8.03	9.27	10.07	10.21	11.15	11.26	11.09	11.20	11.42	11.64	11.64
80 M-T		Min.	1.10	1.32	1.54	1.70	1.92	2.08	2.30	2.61	2.66	2.88	2.99	3.05	3.11	3.20
		Max.	5.39	6.45	7.05	8.03	9.27	10.07	10.21	11.15	11.26	11.09	11.20	11.42	11.64	11.64
120 M		Min.	1.52	1.86	2.09	2.59	2.93	3.21	3.37	4.02	4.10	4.18	4.35	4.43	4.51	4.64
		Max.	5.98	7.32	9.46	10.90	11.74	12.31	13.01	13.65	13.79	13.99	14.13	14.41	14.69	14.69
120 M-T		Min.	1.52	1.86	2.09	2.59	2.93	3.21	3.37	4.02	4.10	4.18	4.35	4.43	4.51	4.64
		Max.	5.98	7.32	9.46	10.90	11.74	12.31	13.01	13.65	13.79	13.99	14.13	14.41	14.69	14.69
150 M		Min.	1.76	2.08	2.41	2.84	2.91	3.17	3.43	3.88	3.96	4.36	4.53	4.62	4.71	4.84
		Max.	8.76	9.68	11.95	13.10	14.44	15.30	15.99	16.77	16.94	17.18	17.35	17.69	18.04	18.04
150 M-T	Min.	1.76	2.08	2.41	2.84	2.91	3.17	3.43	3.88	3.96	4.36	4.53	4.62	4.71	4.84	
	Max.	8.30	9.17	11.32	13.10	14.44	15.30	15.99	16.77	16.94	17.18	17.35	17.69	18.04	18.04	
35 M	55	Min.	0.76	0.88	0.94	1.08	1.17	1.25	1.52	1.55	1.57	1.63	1.66	1.70	1.74	
		Max.	3.12	3.60	4.08	4.70	5.19	5.40	5.73	5.79	5.85	5.91	6.02	6.14	6.14	
50 M		Min.	0.76	0.88	0.94	1.08	1.17	1.27	1.52	1.55	1.57	1.63	1.66	1.70	1.74	
		Max.	3.84	4.30	4.69	5.38	5.81	6.01	6.83	6.90	6.98	7.23	7.37	7.51	7.72	
80 M		Min.	1.25	1.46	1.62	1.82	1.98	2.21	2.48	2.53	2.73	2.84	2.90	2.95	3.04	
		Max.	6.13	6.70	7.63	8.80	9.31	9.85	10.50	10.68	10.77	10.87	11.09	11.31	11.31	
80 M-T		Min.	1.25	1.46	1.62	1.82	1.98	2.21	2.48	2.53	2.73	2.84	2.90	2.95	3.04	
		Max.	6.13	6.70	7.63	8.80	9.55	9.85	10.59	10.70	10.53	10.64	10.85	11.06	11.06	
120 M		Min.	1.76	1.99	2.50	2.79	3.10	3.17	3.75	3.83	4.20	4.36	4.45	4.53	4.66	
		Max.	6.59	8.80	10.44	11.15	12.39	12.70	13.21	13.35	13.46	13.58	13.78	14.04	14.04	
120 M-T		Min.	1.76	1.99	2.50	2.79	3.10	3.17	3.75	3.83	4.20	4.36	4.45	4.53	4.66	
		Max.	6.59	8.80	10.44	11.15	12.39	12.70	13.21	13.35	13.46	13.58	13.78	14.04	14.04	
150 M		Min.	1.98	2.29	2.70	2.77	3.01	3.26	3.69	3.76	4.14	4.31	4.39	4.47	4.60	
		Max.	8.71	11.11	12.44	13.72	14.53	15.52	15.98	16.09	16.32	16.48	16.81	17.13	17.13	
150 M-T	Min.	1.98	2.29	2.70	2.77	3.01	3.26	3.69	3.76	4.14	4.31	4.39	4.47	4.60		
	Max.	8.71	11.11	12.44	13.72	14.53	15.52	15.98	16.09	16.32	16.48	16.81	17.13	17.13		
35 M	60	Min.	0.84	0.89	1.03	1.11	1.18	1.44	1.47	1.49	1.55	1.58	1.61	1.66		
		Max.	3.42	3.88	4.47	4.93	5.13	5.45	5.50	5.56	5.61	5.72	5.83	5.83		
50 M		Min.	0.84	0.89	1.03	1.11	1.22	1.44	1.47	1.49	1.55	1.58	1.61	1.66		
		Max.	4.09	4.46	5.11	5.52	5.71	6.49	6.56	6.63	6.87	7.00	7.14	7.33		
80 M		Min.	1.39	1.53	1.73	1.88	2.12	2.35	2.40	2.60	2.70	2.75	2.81	2.88		
		Max.	6.23	7.24	8.36	8.84	9.16	9.98	10.14	10.23	10.33	10.54	10.74	10.74		
80 M-T		Min.	1.39	1.53	1.73	1.88	2.12	2.35	2.40	2.60	2.70	2.75	2.81	2.88		
		Max.	6.23	7.24	8.36	8.84	9.16	9.98	10.14	10.23	10.33	10.54	10.74	10.74		
120 M		Min.	1.89	2.38	2.65	2.94	3.02	3.56	3.64	3.99	4.15	4.23	4.31	4.43		
		Max.	7.92	9.92	10.60	11.77	12.06	12.67	12.71	12.83	12.97	13.09	13.34	13.34		
120 M-T		Min.	1.89	2.38	2.65	2.94	3.02	3.56	3.64	3.99	4.15	4.23	4.31	4.43		
		Max.	7.92	9.92	10.60	11.77	12.06	12.67	12.71	12.83	12.97	13.09	13.34	13.34		
150 M		Min.	2.18	2.56	2.63	2.86	3.10	3.50	3.57	3.94	4.09	4.17	4.25	4.37		
		Max.	9.56	11.82	13.03	13.80	14.75	15.13	15.28	15.50	15.66	15.97	16.28	16.28		
150 M-T	Min.	2.18	0.59	2.63	2.86	3.10	3.50	3.57	3.94	4.09	4.17	4.25	4.37			
	Max.	9.05	11.20	13.03	13.80	14.75	15.13	15.28	15.50	15.66	15.97	16.28	16.28			

# 12. TECHNICAL DATA

## HEAT PUMP PERFORMANCE IN HEATING MODE: WITH FULL LOAD AND WITH MINIMUM LOAD

MODEL [kW]	DELIVERY TEMPERATURE [°C]	FREQUENCY	COP															
			DRY BULB OUTDOOR TEMPERATURE [°C]															
			-20	-15	-10	-7	-3	0	2	7	10	12	15	20	25	30		
35 M	35	Min.	2.17	2.44	2.73	3.00	3.33	3.66	3.83	4.74	5.11	5.41	5.80	6.59	7.23	7.51		
		Max.	1.94	2.31	2.62	2.93	3.27	3.56	3.65	4.20	4.58	4.67	4.81	5.12	5.46	5.56		
		50 M	Min.	2.17	2.44	2.73	3.00	3.33	3.66	3.83	4.74	5.11	5.41	5.80	6.59	7.23	7.51	
			Max.	1.89	2.16	2.55	2.72	3.21	3.54	3.60	4.05	4.35	4.51	4.76	5.23	5.78	6.02	
		80 M	Min.	2.10	2.38	2.64	2.99	3.45	3.81	4.09	4.82	4.99	5.45	5.77	6.40	7.14	7.45	
			Max.	1.87	2.22	2.56	2.73	3.15	3.46	3.57	4.02	4.27	4.45	4.71	5.20	5.79	6.03	
		80 M-T	Min.	2.10	2.38	2.64	2.99	3.45	3.81	4.09	4.82	4.99	5.45	5.77	6.40	7.14	7.45	
			Max.	1.87	2.22	2.56	2.73	3.15	3.46	3.57	4.02	4.27	4.45	4.71	5.20	5.79	6.03	
		120 M	Min.	1.98	2.26	2.66	2.98	3.37	3.66	4.01	4.73	5.32	5.98	6.41	7.24	7.54	7.86	
			Max.	1.84	2.18	2.53	2.90	3.33	3.58	3.84	4.48	4.63	4.87	5.23	5.60	5.70	6.03	
		120 M-T	Min.	1.98	2.26	2.66	2.98	3.37	3.66	4.01	4.73	5.32	5.98	6.41	7.24	7.54	7.86	
			Max.	1.84	2.18	2.53	2.90	3.33	3.58	3.84	4.48	4.65	4.87	5.23	5.60	5.70	6.03	
		150 M	Min.	1.98	2.26	2.66	2.98	3.37	3.66	4.01	4.73	5.32	5.98	6.41	7.24	7.54	7.86	
			Max.	1.96	2.16	2.53	2.85	3.20	3.48	3.70	4.43	4.63	4.85	4.99	5.22	5.71	5.95	
		150 M-T	Min.	1.98	2.26	2.66	2.98	3.37	3.66	4.01	4.73	5.32	5.98	6.41	7.24	7.54	7.86	
			Max.	1.96	2.16	2.53	2.85	3.20	3.48	3.70	4.43	4.63	4.85	4.99	5.22	5.71	5.95	
		45 M	45	Min.	2.09	2.39	2.66	2.96	3.29	3.54	3.93	4.51	4.81	4.94	5.30	5.84	6.41	6.56
				Max.	1.75	2.08	2.40	2.66	3.05	3.28	3.54	3.79	3.94	4.02	4.19	4.43	4.70	4.78
50 M	Min.			1.98	2.22	2.77	2.85	3.03	3.33	3.53	4.31	4.65	4.92	5.28	5.99	6.58	6.83	
	Max.			1.70	1.95	2.53	2.65	2.83	3.11	3.16	3.48	3.74	3.88	4.09	4.50	4.97	5.18	
80 M	Min.			1.91	2.17	2.40	2.72	3.14	3.47	3.72	4.39	4.58	4.96	5.25	5.82	6.50	6.78	
	Max.			1.68	2.00	2.25	2.40	2.77	3.05	3.14	3.46	3.67	3.83	4.05	4.47	4.98	5.19	
80 M-T	Min.			1.91	2.17	2.40	2.72	3.14	3.47	3.72	4.39	4.58	4.96	5.25	5.82	6.50	6.78	
	Max.			1.68	2.00	2.25	2.40	2.77	3.05	3.14	3.46	3.67	3.83	4.05	4.47	4.98	5.19	
120 M	Min.			1.87	2.14	2.43	2.87	3.22	3.41	3.61	4.47	5.22	5.49	5.65	5.82	5.98	6.15	
	Max.			1.65	1.96	2.23	2.55	2.93	3.15	3.38	3.64	3.89	4.27	4.50	4.81	4.90	5.18	
120 M-T	Min.			1.87	2.14	2.43	2.87	3.22	3.41	3.61	4.47	5.22	5.49	5.65	5.82	5.98	6.15	
	Max.			1.65	1.96	2.23	2.55	2.93	3.15	3.38	3.64	3.89	4.27	4.50	4.81	4.90	5.18	
150 M	Min.			1.80	2.06	2.42	2.87	3.07	3.33	3.65	4.26	4.84	5.44	5.84	6.59	6.86	7.15	
	Max.			1.76	1.95	2.23	2.45	2.82	3.07	3.25	3.61	3.81	3.94	4.13	4.49	4.91	5.12	
150 M-T	Min.			1.80	2.06	2.42	2.87	3.07	3.33	3.65	4.26	4.84	5.44	5.84	6.59	6.86	7.15	
	Max.			1.76	1.95	2.23	2.45	2.82	3.07	3.25	3.61	3.81	3.94	4.13	4.49	4.91	5.12	
55 M	55			Min.		2.15	2.39	2.66	2.96	3.08	3.42	3.93	4.18	4.30	4.61	5.08	5.57	5.71
				Max.		1.77	1.99	2.21	2.53	2.72	2.94	3.14	3.27	3.33	3.48	3.68	3.90	3.97
		50 M	Min.		2.00	2.49	2.56	2.73	2.89	3.07	3.75	4.05	4.28	4.59	5.21	5.72	5.95	
			Max.		1.65	1.95	2.05	2.19	2.29	2.34	2.89	3.11	3.22	3.40	3.73	4.12	4.30	
		80 M	Min.		1.95	2.16	2.45	2.83	3.01	3.24	3.82	3.91	4.31	4.57	5.07	5.65	5.90	
			Max.		1.70	1.87	1.99	2.04	2.34	2.45	2.87	3.05	3.18	3.36	3.71	4.14	4.30	
		80 M-T	Min.		1.95	2.16	2.45	2.83	3.01	3.24	3.82	3.98	4.31	4.57	5.07	5.65	5.90	
			Max.		1.70	1.87	1.99	2.30	2.53	2.45	2.87	3.05	3.18	3.36	3.71	4.14	4.30	
		120 M	Min.		1.93	2.19	2.58	2.90	2.97	3.14	3.89	4.54	4.77	4.92	5.06	5.20	5.35	
			Max.		1.67	1.85	2.12	2.43	2.61	2.80	3.02	3.23	3.55	3.73	3.99	4.07	4.30	
		120 M-T	Min.		1.93	2.19	2.58	2.90	2.97	3.14	3.89	4.54	4.77	4.92	5.06	5.20	5.35	
			Max.		1.67	1.85	2.12	2.43	2.61	2.80	3.02	3.23	3.55	3.73	3.99	4.07	4.30	
		150 M	Min.		1.85	2.18	2.58	2.76	2.89	3.17	3.74	4.21	4.73	5.08	5.73	5.97	6.22	
			Max.		1.67	1.85	2.08	2.34	2.55	2.70	3.00	3.16	3.27	3.43	3.73	4.07	4.25	
		150 M-T	Min.		1.85	2.18	2.58	2.76	2.89	3.17	3.74	4.21	4.73	5.08	5.73	5.97	6.22	
			Max.		1.67	1.85	2.08	2.34	2.55	2.70	3.00	3.16	3.27	3.43	3.73	4.07	4.25	
		60 M	60	Min.		2.39	2.66	2.96	3.10	3.42	3.93	4.18	4.30	4.61	5.08	5.57	5.71	
				Max.		1.93	2.14	2.45	2.69	2.84	3.05	3.17	3.23	3.37	3.57	3.78	3.85	
50 M	Min.				2.49	2.56	2.73	2.89	3.07	3.75	4.05	4.28	4.59	5.21	5.72	5.95		
	Max.				1.89	1.99	2.12	2.22	2.27	2.80	3.01	3.13	3.29	3.62	4.00	4.17		
80 M	Min.				1.94	2.20	2.55	2.62	2.82	3.32	3.47	3.75	3.97	4.41	4.92	5.13		
	Max.				1.55	1.65	1.91	2.10	2.03	2.38	2.53	2.64	2.79	3.08	3.43	3.57		
80 M-T	Min.				1.94	2.20	2.55	2.62	2.82	3.32	3.47	3.75	3.97	4.41	4.92	5.13		
	Max.				1.55	1.65	1.91	2.10	2.03	2.38	2.53	2.64	2.79	3.08	3.43	3.57		
120 M	Min.				1.97	2.32	2.49	2.61	2.73	3.38	3.95	4.15	4.28	4.40	4.53	4.65		
	Max.				1.53	1.76	2.02	2.17	2.12	2.51	2.68	2.94	3.10	3.31	3.38	3.57		
120 M-T	Min.				1.97	2.32	2.49	2.61	2.73	3.38	3.95	4.15	4.28	4.40	4.53	4.65		
	Max.				1.53	1.76	2.02	2.17	2.12	2.51	2.68	2.94	3.10	3.31	3.38	3.57		
150 M	Min.				1.96	2.32	2.49	2.61	2.76	3.22	3.66	4.12	4.42	4.99	5.19	5.41		
	Max.				1.53	1.69	1.94	2.11	2.24	2.49	2.63	2.72	2.85	3.09	3.38	3.52		
150 M-T	Min.				1.96	2.32	2.49	2.61	2.76	3.22	3.66	4.12	4.42	4.99	5.19	5.41		
	Max.				1.53	1.69	1.94	2.11	2.24	2.49	2.63	2.72	2.85	3.09	3.38	3.52		

**HEAT PUMP PERFORMANCE IN HEATING MODE: WITH FULL LOAD AND WITH MINIMUM LOAD**

MODEL [kW]	DELIVERY TEMPERATURE [°C]	FREQUENCY	POWER INPUT [kW]														
			DRY BULB OUTDOOR TEMPERATURE [°C]														
			-20	-15	-10	-7	-3	0	2	7	10	12	15	20	25	30	
35 M	35	Min.	0.32	0.34	0.36	0.35	0.36	0.35	0.36	0.35	0.34	0.32	0.31	0.28	0.26	0.26	
		Max.	1.51	1.53	1.55	1.54	1.59	1.62	1.64	1.51	1.40	1.39	1.36	1.30	1.25	1.22	
50 M		Min.	0.32	0.34	0.36	0.35	0.36	0.35	0.36	0.35	0.34	0.32	0.31	0.28	0.26	0.26	
		Max.	1.71	2.01	1.91	1.91	1.85	1.82	1.85	1.87	1.76	1.71	1.68	1.56	1.44	1.42	
80 M		Min.	0.55	0.58	0.61	0.60	0.58	0.58	0.59	0.57	0.56	0.56	0.55	0.50	0.46	0.45	
		Max.	3.10	3.12	2.97	3.10	3.10	3.05	3.01	2.92	2.77	2.68	2.56	2.36	2.16	2.08	
80 M-T		Min.	0.55	0.58	0.61	0.60	0.58	0.58	0.59	0.57	0.56	0.56	0.55	0.50	0.46	0.45	
		Max.	3.10	3.12	2.97	3.10	3.10	3.05	3.01	2.92	2.77	2.68	2.56	2.36	2.16	2.08	
120 M		Min.	0.93	0.97	0.96	1.00	0.91	0.91	0.90	0.86	0.78	0.77	0.74	0.67	0.66	0.65	
		Max.	3.62	3.73	4.15	3.95	3.71	3.62	3.61	3.21	3.13	3.02	2.84	2.71	2.71	2.57	
120 M-T		Min.	0.93	0.97	0.96	1.00	0.91	0.91	0.90	0.86	0.78	0.77	0.74	0.67	0.66	0.65	
		Max.	3.62	3.73	4.15	3.95	3.71	3.62	3.61	3.21	3.13	3.02	2.84	2.71	2.71	2.57	
150 M		Min.	0.93	0.97	0.96	1.00	0.91	0.91	0.90	0.86	0.78	0.77	0.74	0.67	0.66	0.65	
		Max.	4.71	4.71	4.97	4.84	4.75	4.62	4.65	3.98	3.85	3.73	3.66	3.57	3.33	3.19	
150 M-T		Min.	0.93	0.97	0.96	1.00	0.91	0.91	0.90	0.86	0.78	0.77	0.74	0.67	0.66	0.65	
		Max.	4.71	4.71	4.97	4.84	4.75	4.62	4.65	3.98	3.85	3.73	3.66	3.57	3.33	3.19	
35 M		45	Min.	0.32	0.33	0.35	0.33	0.35	0.35	0.33	0.35	0.34	0.33	0.32	0.30	0.28	0.28
			Max.	1.56	1.58	1.58	1.61	1.62	1.67	1.61	1.59	1.55	1.53	1.48	1.43	1.38	1.35
50 M	Min.		0.33	0.36	0.34	0.35	0.37	0.37	0.38	0.37	0.35	0.34	0.33	0.29	0.27	0.27	
	Max.		1.77	2.08	1.79	1.86	2.00	1.97	2.00	2.06	1.94	1.89	1.86	1.72	1.59	1.57	
80 M	Min.		0.57	0.61	0.64	0.63	0.61	0.60	0.62	0.59	0.58	0.58	0.57	0.52	0.48	0.47	
	Max.		3.21	3.23	3.13	3.35	3.34	3.30	3.25	3.23	3.07	2.90	2.77	2.55	2.34	2.24	
80 M-T	Min.		0.57	0.61	0.64	0.63	0.61	0.60	0.62	0.59	0.58	0.58	0.57	0.52	0.48	0.47	
	Max.		3.21	3.23	3.13	3.35	3.34	3.30	3.25	3.23	3.07	2.90	2.77	2.55	2.34	2.24	
120 M	Min.		0.81	0.87	0.86	0.90	0.91	0.94	0.93	0.90	0.78	0.76	0.77	0.76	0.75	0.75	
	Max.		3.62	3.73	4.25	4.26	4.00	3.91	3.85	3.75	3.55	3.27	3.14	2.99	2.99	2.83	
120 M-T	Min.		0.81	0.87	0.86	0.90	0.91	0.94	0.93	0.90	0.78	0.76	0.77	0.76	0.75	0.75	
	Max.		3.62	3.73	4.25	4.26	4.00	3.91	3.85	3.75	3.55	3.27	3.14	2.99	2.99	2.83	
150 M	Min.		0.97	1.01	1.00	0.99	0.95	0.95	0.94	0.91	0.82	0.80	0.78	0.70	0.69	0.68	
	Max.		4.98	4.97	5.37	5.34	5.13	4.99	4.92	4.64	4.44	4.36	4.20	3.94	3.68	3.53	
150 M-T	Min.		0.97	1.01	1.00	0.99	0.95	0.95	0.94	0.91	0.82	0.80	0.78	0.70	0.69	0.68	
	Max.		4.71	4.71	5.08	5.34	5.13	4.99	4.92	4.64	4.44	4.36	4.20	3.94	3.68	3.53	
35 M	55		Min.		0.35	0.37	0.35	0.36	0.38	0.36	0.39	0.37	0.37	0.35	0.33	0.30	0.31
			Max.		1.76	1.81	1.85	1.86	1.91	1.84	1.82	1.77	1.75	1.70	1.64	1.58	1.55
50 M		Min.		0.38	0.35	0.37	0.40	0.40	0.41	0.40	0.38	0.37	0.36	0.32	0.30	0.29	
		Max.		2.32	2.21	2.29	2.45	2.54	2.57	2.36	2.22	2.16	2.13	1.97	1.82	1.80	
80 M		Min.		0.64	0.68	0.66	0.64	0.66	0.68	0.65	0.65	0.63	0.62	0.57	0.52	0.51	
		Max.		3.61	3.59	3.83	4.32	3.98	4.02	3.66	3.51	3.39	3.24	2.99	2.73	2.63	
80 M-T		Min.		0.64	0.68	0.66	0.64	0.66	0.68	0.65	0.63	0.63	0.62	0.57	0.52	0.51	
		Max.		3.61	3.59	3.83	4.32	3.98	4.02	3.66	3.51	3.32	3.17	2.92	2.67	2.57	
120 M		Min.		0.91	0.91	0.97	0.96	1.04	1.01	0.97	0.84	0.88	0.89	0.88	0.87	0.87	
		Max.		3.95	4.76	4.92	4.58	4.74	4.53	4.38	4.14	3.79	3.64	3.45	3.45	3.27	
120 M-T		Min.		0.91	0.91	0.97	0.96	1.04	1.01	0.97	0.84	0.88	0.89	0.88	0.87	0.87	
		Max.		3.95	4.76	4.92	4.58	4.74	4.53	4.38	4.14	3.79	3.64	3.45	3.45	3.27	
150 M		Min.		1.07	1.05	1.05	1.00	1.04	1.03	0.98	0.89	0.87	0.85	0.77	0.75	0.74	
		Max.		5.21	6.01	5.98	5.87	5.71	5.75	5.33	5.08	4.99	4.80	4.51	4.21	4.04	
150 M-T		Min.		1.07	1.05	1.05	1.00	1.04	1.03	0.98	0.89	0.87	0.85	0.77	0.75	0.74	
		Max.		5.21	6.01	5.98	5.87	5.71	5.75	5.33	5.08	4.99	4.80	4.51	4.21	4.04	
35 M		60	Min.		0.35	0.33	0.35	0.36	0.35	0.37	0.35	0.35	0.34	0.31	0.29	0.29	
			Max.		1.77	1.81	1.82	1.83	1.81	1.79	1.73	1.72	1.66	1.60	1.54	1.52	
50 M	Min.			0.34	0.35	0.38	0.38	0.40	0.38	0.36	0.35	0.34	0.30	0.28	0.28		
	Max.			2.16	2.24	2.40	2.49	2.52	2.31	2.18	2.12	2.09	1.93	1.78	1.76		
80 M	Min.			0.71	0.70	0.68	0.72	0.75	0.71	0.69	0.69	0.68	0.62	0.57	0.56		
	Max.			4.02	4.38	4.38	4.21	4.50	4.19	4.01	3.88	3.70	3.42	3.13	3.01		
80 M-T	Min.			0.71	0.70	0.68	0.72	0.75	0.71	0.69	0.69	0.68	0.62	0.57	0.56		
	Max.			4.02	4.38	4.38	4.21	4.50	4.19	4.01	3.88	3.70	3.42	3.13	3.01		
120 M	Min.			0.96	1.02	1.06	1.13	1.10	1.05	0.92	0.96	0.97	0.96	0.95	0.95		
	Max.			5.16	5.63	5.24	5.43	5.68	5.06	4.75	4.36	4.19	3.95	3.95	3.74		
120 M-T	Min.			0.96	1.02	1.06	1.13	1.10	1.05	0.92	0.96	0.97	0.96	0.95	0.95		
	Max.			5.16	5.63	5.24	5.43	5.68	5.06	4.75	4.36	4.19	3.95	3.95	3.74		
150 M	Min.			1.11	1.10	1.06	1.10	1.12	1.09	0.97	0.96	0.93	0.84	0.82	0.81		
	Max.			6.23	6.99	6.71	6.53	6.58	6.08	5.82	5.71	5.50	5.16	4.81	4.62		
150 M-T	Min.			1.11	1.10	1.06	1.10	1.12	1.09	0.97	0.96	0.93	0.84	0.82	0.81		
	Max.			5.90	6.63	6.71	6.53	6.58	6.08	5.82	5.71	5.50	5.16	4.81	4.62		

# 12. TECHNICAL DATA

## HEAT PUMP PERFORMANCE IN COOLING MODE: WITH FULL LOAD AND WITH MINIMUM LOAD

MODEL [kW]	DELIVERY TEMPERATURE [°C]	FREQUENCY	DRY BULB OUTDOOR TEMPERATURE [°C]											
			15	25	35	45	15	25	35	45	15	25	35	45
			Heat output delivered [kW]				Power input [kW]				EER			
35 M	5	MIN	164	162	151	130	0.30	0.33	0.42	0.50	5.45	4.83	3.62	2.61
		MAX	4.77	4.34	3.60	2.56	0.89	1.06	1.44	1.82	5.36	4.08	2.50	1.41
50 M		MIN	164	162	154	135	0.30	0.37	0.44	0.51	5.47	4.43	3.52	2.65
		MAX	6.19	5.88	5.22	4.17	1.20	1.52	2.02	2.52	5.16	3.86	2.59	1.66
80 M		MIN	2.66	2.64	2.56	2.31	0.48	0.59	0.74	0.90	5.54	4.47	3.44	2.56
		MAX	8.80	8.79	8.36	7.36	1.65	2.08	2.78	3.49	5.33	4.22	3.01	2.11
80 M-T		MIN	2.66	2.64	2.56	2.31	0.48	0.59	0.74	0.90	5.54	4.47	3.44	2.56
		MAX	8.80	8.79	8.36	7.36	1.65	2.08	2.78	3.49	5.33	4.22	3.01	2.11
120 M		MIN	3.82	3.80	3.62	3.22	0.69	0.73	0.94	1.16	5.54	5.19	3.85	2.78
		MAX	9.70	10.16	10.21	9.61	1.86	2.41	3.26	4.11	5.22	4.22	3.13	2.34
120 M-T		MIN	3.82	3.80	3.62	3.22	0.69	0.73	0.94	1.16	5.54	5.19	3.85	2.78
		MAX	9.70	10.16	10.21	9.61	1.86	2.41	3.26	4.11	5.22	4.22	3.13	2.34
150 M		MIN	3.82	3.80	3.62	3.22	0.69	0.73	0.97	1.22	5.54	5.19	3.73	2.64
		MAX	11.00	11.59	11.71	11.10	2.18	3.05	4.11	5.18	5.05	3.80	2.85	2.14
150 M-T	MIN	3.82	3.80	3.62	3.22	0.69	0.73	0.97	1.22	5.54	5.19	3.73	2.64	
	MAX	11.00	11.59	11.71	11.10	2.18	3.05	4.11	5.18	5.05	3.80	2.85	2.14	
35 M	7	MIN	1.75	1.74	1.65	1.45	0.25	0.30	0.38	0.46	6.87	5.73	4.34	3.18
		MAX	4.90	4.49	3.80	2.82	0.77	1.09	1.48	1.87	6.32	4.11	2.57	1.51
50 M		MIN	1.75	1.74	1.67	1.49	0.25	0.30	0.38	0.46	6.89	5.73	4.39	3.26
		MAX	6.29	6.02	5.40	4.40	1.14	1.55	2.06	2.57	5.52	3.89	2.62	1.71
80 M		MIN	2.75	2.73	2.65	2.40	0.44	0.53	0.70	0.87	6.25	5.11	3.79	2.77
		MAX	8.93	8.93	8.50	7.50	1.67	2.08	2.80	3.52	5.34	4.29	3.04	2.13
80 M-T		MIN	2.75	2.73	2.65	2.40	0.44	0.53	0.70	0.87	6.25	5.11	3.79	2.77
		MAX	8.93	8.93	8.50	7.50	1.67	2.08	2.80	3.52	5.34	4.29	3.04	2.13
120 M		MIN	3.91	3.90	3.70	3.25	0.64	0.69	0.92	1.15	6.08	5.63	4.02	2.83
		MAX	10.31	10.29	10.30	9.65	1.71	2.40	3.25	4.10	6.05	4.29	3.17	2.35
120 M-T		MIN	3.91	3.90	3.70	3.25	0.64	0.69	0.92	1.15	6.08	5.63	4.02	2.83
		MAX	10.31	10.29	10.30	9.65	1.71	2.40	3.25	4.10	6.05	4.29	3.17	2.35
150 M		MIN	3.91	3.90	3.70	3.25	0.64	0.69	0.95	1.21	6.08	5.63	3.89	2.69
		MAX	11.76	11.75	11.88	11.26	2.18	3.06	4.14	5.21	5.39	3.84	2.87	2.16
150 M-T	MIN	3.91	3.90	3.70	3.25	0.64	0.69	0.95	1.21	6.08	5.63	3.89	2.69	
	MAX	11.76	11.75	11.88	11.26	2.18	3.06	4.14	5.21	5.39	3.84	2.87	2.16	
35 M	10	MIN	1.90	1.91	1.84	1.64	0.23	0.26	0.40	0.54	8.26	7.36	4.60	3.04
		MAX	5.27	5.14	4.74	4.02	0.71	1.10	1.55	2.00	7.44	4.69	3.06	2.01
50 M		MIN	1.90	1.92	1.84	1.64	0.23	0.26	0.41	0.56	8.28	7.52	4.54	2.95
		MAX	6.61	6.58	6.22	5.44	1.10	1.57	2.14	2.71	6.01	4.19	2.91	2.01
80 M		MIN	3.04	3.01	2.90	2.60	0.43	0.49	0.70	0.92	7.07	6.20	4.14	2.84
		MAX	9.95	10.06	9.70	8.70	1.50	2.11	2.86	3.61	6.65	4.77	3.39	2.41
80 M-T		MIN	3.04	3.01	2.90	2.60	0.43	0.49	0.70	0.92	7.07	6.20	4.14	2.84
		MAX	9.95	10.06	9.70	8.70	1.50	2.11	2.86	3.61	6.65	4.77	3.39	2.41
120 M		MIN	4.13	4.12	4.10	3.90	0.54	0.67	0.92	1.17	7.65	6.15	4.46	3.34
		MAX	10.54	11.00	11.00	10.30	1.56	2.35	3.28	4.21	6.75	4.68	3.35	2.45
120 M-T		MIN	4.13	4.12	4.10	3.90	0.54	0.67	0.92	1.17	7.65	6.15	4.46	3.34
		MAX	10.54	11.00	11.00	10.30	1.56	2.35	3.28	4.21	6.75	4.68	3.35	2.45
150 M		MIN	4.13	4.12	4.10	3.90	0.54	0.67	0.92	1.17	7.65	6.15	4.46	3.34
		MAX	13.07	13.06	12.40	10.91	2.22	3.09	4.15	5.22	5.88	4.23	2.99	2.09
150 M-T	MIN	4.13	4.12	4.10	3.90	0.54	0.67	0.92	1.17	7.65	6.15	4.46	3.34	
	MAX	13.07	13.06	12.40	10.91	2.22	3.09	4.15	5.22	5.88	4.23	2.99	2.09	
35 M	15	MIN	2.28	2.26	2.18	1.96	0.23	0.25	0.38	0.51	10.08	9.19	5.76	3.83
		MAX	6.34	6.28	5.90	5.12	0.71	1.14	1.64	2.14	8.98	5.49	3.59	2.39
50 M		MIN	2.28	2.26	2.18	1.95	0.23	0.25	0.37	0.52	9.91	9.03	5.84	3.76
		MAX	7.95	7.90	7.68	6.96	1.09	1.63	2.28	2.92	7.32	4.84	3.37	2.38
80 M		MIN	3.32	3.36	3.24	2.91	0.39	0.44	0.65	0.87	8.51	7.67	4.97	3.35
		MAX	12.05	12.00	11.54	10.33	1.45	2.10	2.95	3.79	8.31	5.70	3.92	2.72
80 M-T		MIN	3.32	3.36	3.24	2.91	0.39	0.44	0.65	0.87	8.51	7.67	4.97	3.35
		MAX	12.05	12.00	11.54	10.33	1.45	2.10	2.95	3.79	8.31	5.70	3.92	2.72
120 M		MIN	4.63	4.69	4.53	4.06	0.54	0.63	0.89	1.15	8.58	7.44	5.08	3.53
		MAX	13.25	13.17	12.44	10.86	1.68	2.32	3.24	4.16	7.89	5.68	3.84	2.61
120 M-T		MIN	4.63	4.69	4.53	4.06	0.54	0.63	0.89	1.15	8.58	7.44	5.08	3.53
		MAX	13.25	13.17	12.44	10.86	1.68	2.32	3.24	4.16	7.89	5.68	3.84	2.61
150 M		MIN	4.63	4.69	4.53	4.06	0.54	0.63	0.89	1.15	8.58	7.44	5.08	3.53
		MAX	16.14	16.12	15.40	13.65	2.20	3.15	4.31	5.46	7.35	5.11	3.58	2.50
150 M-T	MIN	4.63	4.69	4.53	4.06	0.54	0.63	0.89	1.15	8.58	7.44	5.08	3.53	
	MAX	16.14	16.12	15.40	13.65	2.20	3.15	4.31	5.46	7.35	5.11	3.58	2.50	
35 M	18	MIN	2.44	2.47	2.39	2.15	0.22	0.24	0.37	0.49	11.19	10.39	6.53	4.35
		MAX	6.98	6.96	6.59	5.78	0.70	1.17	1.70	2.23	9.91	5.95	3.88	2.59
50 M		MIN	2.43	2.46	2.38	2.14	0.22	0.24	0.35	0.50	11.05	10.26	6.72	4.30
		MAX	8.76	8.70	8.56	7.87	1.08	1.67	2.36	3.05	8.13	5.21	3.63	2.58
80 M		MIN	3.53	3.57	3.45	3.10	0.39	0.41	0.63	0.84	9.04	8.71	5.52	3.69
		MAX	13.20	13.16	12.65	11.30	1.56	2.10	3.00	3.90	8.46	6.27	4.22	2.90
80 M-T		MIN	3.53	3.57	3.45	3.10	0.39	0.41	0.63	0.84	9.04	8.71	5.52	3.69
		MAX	13.20	13.16	12.65	11.30	1.56	2.10	3.00	3.90	8.46	6.27	4.22	2.90
120 M		MIN	5.12	5.08	4.78	4.16	0.59	0.61	0.87	1.14	8.73	8.38	5.48	3.65
		MAX	14.88	14.48	13.30	11.20	1.90	2.30	3.22	4.13	7.83	6.29	4.13	2.71
120 M-T		MIN	5.12	5.08	4.78	4.16	0.59	0.61	0.87	1.14	8.73	8.38	5.48	3.65
		MAX	14.88	14.48	13.30	11.20	1.90	2.30	3.22	4.13	7.83	6.29	4.13	2.71
150 M		MIN	5.12	5.08	4.78	4.16	0.59	0.61	0.87	1.14	8.73	8.38	5.48	3.65
		MAX	17.97	17.95	17.20	15.30	2.18	3.19	4.40	5.61	8.23	5.62	3.91	2.73
150 M-T	MIN	5.12	5.08	4.78	4.16	0.59	0.61	0.87	1.14	8.73	8.38	5.48	3.65	
	MAX	17.97	17.95	17.20	15.30	2.18	3.19	4.40	5.61	8.23	5.62	3.91	2.73	



## PERFORMANCES OF THE OUTDOOR UNIT IN HEATING MODE FOR ENERGY CERTIFICATION

### FULL-LOAD PERFORMANCES

In order to calculate the building's energy performance, the full-load energy performance values of the heat pumps are provided in terms of heat output delivered and CoP in the characteristic thermal conditions defined in the UNI EN 14825 standard.

#### NIMBUS 35 M

FULL-LOAD PERFORMANCES									
T of water produced [°C]	35			45			55		
Outdoor temperature [°C]	HEAT OUTPUT [kW]	CoP	POWER INPUT [KW]	HEAT OUTPUT [kW]	COP	POWER INPUT [KW]	HEAT OUTPUT [kW]	COP	POWER INPUT [KW]
-7	4.52	2.93	1.54	4.29	2.66	1.61	4.08	2.21	1.85
2	5.98	3.65	1.64	5.68	3.54	1.61	5.40	2.94	1.84
7	6.35	4.20	1.51	6.04	3.79	1.59	5.73	3.14	1.82
12	6.48	4.67	1.39	6.16	4.02	1.53	5.85	3.33	1.75

#### NIMBUS 50 M

FULL-LOAD PERFORMANCES									
T of water produced [°C]	35			45			55		
Outdoor temperature [°C]	HEAT OUTPUT [kW]	COP	POWER INPUT [KW]	HEAT OUTPUT [kW]	COP	POWER INPUT [KW]	HEAT OUTPUT [kW]	COP	POWER INPUT [KW]
-7	5.20	2.72	1.91	4.94	2.65	1.86	4.69	2.05	2.29
2	6.66	3.60	1.85	6.33	3.16	2.00	6.01	2.34	2.57
7	7.57	4.05	1.87	7.19	3.48	2.06	6.83	2.89	2.36
12	7.73	4.51	1.71	7.34	3.88	1.89	6.98	3.22	2.16

#### NIMBUS 80 M / 80 M-T

FULL-LOAD PERFORMANCES									
T of water produced [°C]	35			45			55		
Outdoor temperature [°C]	HEAT OUTPUT [kW]	COP	POWER INPUT [KW]	HEAT OUTPUT [kW]	COP	POWER INPUT [KW]	HEAT OUTPUT [kW]	COP	POWER INPUT [KW]
-7	8.45	2.73	3.10	8.03	2.40	3.35	7.63	1.99	3.83
2	10.75	3.57	3.01	10.21	3.14	3.25	9.85	2.45	4.02
7	11.74	4.02	2.92	11.15	3.46	3.23	10.50	2.87	3.66
12	11.93	4.45	2.68	11.09	3.83	2.90	10.77	3.18	3.39

#### NIMBUS 120 M / 120 M-T

FULL-LOAD PERFORMANCES									
T of water produced [°C]	35			45			55		
Outdoor temperature [°C]	HEAT OUTPUT [kW]	COP	POWER INPUT [KW]	HEAT OUTPUT [kW]	COP	POWER INPUT [KW]	HEAT OUTPUT [kW]	COP	POWER INPUT [KW]
-7	11.47	2.90	3.95	10.90	2.55	4.26	10.44	2.12	4.92
2	13.86	3.84	3.61	13.01	3.38	3.85	12.70	2.80	4.53
7	14.37	4.48	3.21	13.65	3.64	3.75	13.21	3.02	4.38
12	14.73	4.87	3.02	13.99	4.27	3.27	13.46	3.55	3.79

#### NIMBUS 150 M / 150 M-T

FULL-LOAD PERFORMANCES									
T of water produced [°C]	35			45			55		
Outdoor temperature [°C]	HEAT OUTPUT [kW]	COP	POWER INPUT [KW]	HEAT OUTPUT [kW]	COP	POWER INPUT [KW]	HEAT OUTPUT [kW]	COP	POWER INPUT [KW]
-7	13.79	2.85	4.84	13.10	2.45	5.34	12.44	2.08	5.98
2	17.20	3.70	4.65	15.99	3.25	4.92	15.52	2.70	5.75
7	17.65	4.43	3.98	16.77	3.61	4.64	15.98	3.00	5.33
12	18.08	4.85	3.73	17.18	3.94	4.36	16.32	3.27	4.99

## 12. TECHNICAL DATA

### PERFORMANCES WITH PARTIAL LOADS IN HEATING MODE

For air-to-water heat pumps used for space heating purposes or integrated operation with an auxiliary generator, the manufacturer must provide the data required for calculating the load factor (CR) and the corrective factor (f<sub>cop</sub>), assuming that the machine operates in a reference climate A ("average") as defined in the UNI EN 14825 standard.

For this climate the 11300-4 standard defines as the design temperature (T<sub>des</sub>) -10°C and four operating conditions A, B, C, D associated respectively with the temperatures -7°C, 2°C, 7°C and 12°C. Condition A is defined as the bivalent temperature, namely the temperature of the cold source below which the heat pump can work together with a supplementary boiler or be disabled and replaced by an auxiliary heat generator.

The corrective factor (f<sub>cop</sub>) is determined in relation to the load factor (CR). The latter defines the machine's degree of partialisation in fulfilling the thermal load requested by the system and is defined, for each of the four outdoor temperatures, as the ratio between the power requested by the heating system and the maximum thermal power deliverable by the machine. The data to be provided by the manufacturer and necessary for calculating the load factor and the corrective factor at the four outdoor air conditions A, B, C and D and at the produced water temperatures 35°C or 45°C are: the heat output, the CoP with full load and the CoP with partial loads.

Ariston Group provides the values introduced above for air-to-water heat pumps, using the calculation procedure conforming to paragraph 9.11.2 of the 11300-4 standard.

For each machine, the calculation data is shown in the table as per diagram 31 of the 11300-4 standard and as illustrated in the key below. Moreover, for each unit Ariston Group supplies the useful heat output in full-load conditions and the corresponding COP<sub>DC</sub>, at the produced water temperatures of 35°C, 45°C and 55°C, and with outdoor temperatures of -7°C, 2°C, 7°C and 12°C.

Data is provided in heating mode.

DATA FOR CALCULATING THE CORRECTIVE FACTOR		A T <sub>biv</sub> <sup>(1)</sup>	B	C	D
Reference temperatures	-10°C	-7°C	2°C	7°C	12°C
PLR (T <sub>des</sub> = -10°)	100%	88%	54%	35%	15%
Full-load DC power		DC <sub>A</sub> = DC <sub>bival</sub>	DC <sub>B</sub>	DC <sub>C</sub>	DC <sub>D</sub>
COP with partial load		COP <sub>A</sub>	COP <sub>B</sub>	COP <sub>C</sub>	COP <sub>D</sub>
COP with full load		COP <sub>A</sub> <sup>I</sup>	COP <sub>B</sub> <sup>I</sup>	COP <sub>C</sub> <sup>I</sup>	COP <sub>D</sub> <sup>I</sup>
CR	> 1	1	$\frac{0.54 \times P_{design}}{DC_B}$	$\frac{0.35 \times P_{design}}{DC_C}$	$\frac{0.15 \times P_{design}}{DC_D}$
Corrective factor Fp	1	1	CAP <sub>B</sub> /COP <sub>B</sub> <sup>I</sup>	CAP <sub>C</sub> /COP <sub>C</sub> <sup>I</sup>	CAP <sub>D</sub> /COP <sub>D</sub> <sup>I</sup>

#### KEY

PLR = Part Load Ratio, namely the climate load factor

CR = Load factor of the heat pump

DC = Full-load power at the temperatures indicated

DC<sub>bival</sub> = Full-load power s -7/35°C

P<sub>design</sub> = full-load power with climate A

COP = COP with CR load at the same temperature conditions as COP<sup>I</sup>

COP<sup>I</sup> = full-load COP at the same temperature conditions as COP

The COP correction factor determined in relation to the load factor CR with the method described above does not depend on the cancellation temperature of the load, which is here assumed to be -15°C, as it depends solely on the load factor CR, and can thus be applied in all operating conditions of the calculation according to the UNI/TS 11300 standard.

## PERFORMANCES WITH PARTIAL LOADS IN HEATING MODE

	NIMBUS 35					NIMBUS 50				NIMBUS 80				NIMBUS 120				NIMBUS 150			
	A T <sub>biv</sub>	B	C	D		A T <sub>biv</sub>	B	C	D	A T <sub>biv</sub>	B	C	D	A T <sub>biv</sub>	B	C	D	A T <sub>biv</sub>	B	C	D
Reference temperature	-10	-7	2	7	12	-7	2	7	12	-7	2	7	12	-7	2	7	12	-7	2	7	12
PLR	100%	88%	54%	35%	15%	88%	54%	35%	15%	88%	54%	35%	15%	88%	54%	35%	15%	88%	54%	35%	15%
Full-load DC power		4.52	5.98	6.35	6.48	5.20	6.66	7.57	7.73	8.45	10.7	11.74	11.93	11.47	13.86	14.37	14.73	13.79	17.20	17.65	18.08
COP partial load		2.93	4.10	4.87	4.45	2.72	4.01	4.83	4.51	2.73	4.05	4.70	4.40	2.90	4.06	4.68	4.35	2.85	4.21	4.76	4.15
COP full load		2.93	3.65	4.20	4.67	2.72	3.60	4.05	4.51	2.73	3.57	4.02	4.45	2.90	3.84	4.48	4.87	2.85	3.70	4.43	4.85
CR	>1	1.00	0.47	0.28	0.12	1.00	0.46	0.26	0.11	1.00	0.42	0.25	0.11	1.00	0.42	0.26	0.11	1.00	0.39	0.24	0.11
Corrective factor F <sub>p</sub>	1	1.00	1.12	1.16	0.95	1.00	1.12	1.19	1.00	1.00	1.13	1.17	0.99	1.00	1.06	1.04	0.89	1.00	1.14	1.07	0.86

## PERFORMANCES WITH PARTIAL LOADS IN COOLING MODE

Cooling machine performances depend not only on the operating thermal levels (condensation and evaporation) and on the chosen configuration system, but also on the building's level of requirements. To account for changes in the power input in relation to changes in the climate and/or surrounding conditions and the machine's degree of partialisation, reference is made to the prEN 14825:2008 standard, which obliges manufacturers to provide the performance coefficients (Energy Efficiency Ratio - EER) of the machines in the reference conditions. The reference conditions, shown in diagram 10 of the UNITS 11300-3 standard, refer to the operating temperatures and the load factors F, which indicate the ratio between the quality of thermal energy delivered in the period considered and the maximum value of the energy deliverable by the cooling machine in the same period.

### REFERENCE CONDITIONS FOR DETERMINING THE EER INDEX IN VARIOUS PARTIAL LOAD CONDITIONS OF THE COOLING MACHINES

Type		Air-to-air		Water-to-air		Air-to-water		Water-to-water	
Test	Load factor (F)	Dry bulb outdoor air T (°C)	Dry bulb / wet bulb indoor air T (°C)	Cooling tower input / output condensation water T (°C)	Dry bulb / wet bulb indoor air T (°C)	Dry bulb outdoor air T (°C)	Fan coil unit input / output refrigerated water T (°C)	Cooling tower input / output condensation water T (°C)	Fan coil unit input / output refrigerated water T (°C)
1	100%	35	27 / 19	30 / 35	27 / 19	35	12 / 7	30 / 35	12 / 7
2	75%	30	27 / 19	26 / *	27 / 19	30	* / 7	26 / *	* / 7
3	50%	25	27 / 19	22 / *	27 / 19	25	* / 7	22 / *	* / 7
4	25%	20	27 / 19	18 / *	27 / 19	20	* / 7	18 / *	* / 7

\* temperature determined by the full-load water flow rate

	EER4	EER3	EER2	EER1
	25%	50%	75%	100%
35 M	6.63	5.54	3.94	2.57
50 M	6.91	5.08	3.93	2.62
80 M - 80 M-T	5.48	4.51	3.45	3.04
120 M - 120 M-T	6.58	5.67	4.09	3.17
150 M - 150 M-T	6.78	5.44	4.02	2.87

## 12. TECHNICAL DATA

### COMPACT MODEL DOMESTIC HOT WATER PERFORMANCES

	NIMBUS COMPACT 35	NIMBUS COMPACT 50	NIMBUS COMPACT 80	NIMBUS COMPACT 120	NIMBUS COMPACT 150
Withdrawal profile according to EN16147	L	L	L	L	L
Programmed domestic hot water temperature (°C)	53	53	52	51	51
Heat pump operation type	Alternative				
Storage volume (litres)	180				
DHW performance certification with or without heating element	without heating elements				
Time to operating temperature (th)	01:55	01:31	01:03	0:55	0:50
Reserve power (Pes) (W)	38	38	38	38	38
Coefficient of performance (COP <sub>DHW</sub> )	3.1	3.1	3.1	3.1	3.1
Hot water reference temperature ( $\theta_{WH}$ ) (°C)	52.5	52.5	52.5	52.5	52.5
Maximum hot water volume available (V <sub>MAX</sub> ) (litres)	233	233	233	233	233

	NIMBUS COMPACT 35	NIMBUS COMPACT 50	NIMBUS COMPACT 80	NIMBUS COMPACT 120	NIMBUS COMPACT 150
Withdrawal profile according to EN16147	XL	XL	XL	XL	XL
Programmed domestic hot water temperature (°C)	57	57	56	53	53
Heat pump operation type	Alternative				
Storage volume (litres)	180				
DHW performance certification with or without heating element	without heating elements				
Time to operating temperature (th)	02:17	01:48	01:13	0:56	0:47
Reserve power (Pes) (W)	50	50	58	57	57
Coefficient of performance (COP <sub>DHW</sub> )	3.15	3.15	3.01	3	3
Hot water reference temperature ( $\theta_{WH}$ ) (°C)	52	52	51.7	50.8	50.8
Maximum hot water volume available (V <sub>MAX</sub> ) (litres)	221	221	220	216	216

## PLUS MODEL + CYLINDERR DOMESTIC HOT WATER PERFORMANCES

CD1 200 HHP CYLINDERR	NIMBUS PLUS 35	NIMBUS PLUS 50	NIMBUS PLUS 80	NIMBUS PLUS 120	NIMBUS PLUS 150
Withdrawal profile according to EN16147	L	L	L	L	L
Programmed domestic hot water temperature (°C)	53	53	53	53	53
Heat pump operation type	Alternative				
Storage volume (litres)	190				
DHW performance certification with or without heating element	without heating elements				
Time to operating temperature (th)	02:20	01:52	01:15	01:01	00:51
Reserve power (Pes) (W)	32	32	36	37	37
Coefficient of performance (COP <sub>DHW</sub> )	3.3	3.3	3.3	3.2	3.2
DHW - Energy efficiency class	A+	A+	A+	A+	A+
Hot water reference temperature ( $\theta_{WH}$ ) (°C)	53	53	53	53	53
Maximum hot water volume available (V <sub>MAX</sub> ) (litres)	244	244	256	256	256
	NIMBUS PLUS 35	NIMBUS PLUS 50	NIMBUS PLUS 80	NIMBUS PLUS 120	NIMBUS PLUS 150
Withdrawal profile according to EN16147	XL	XL	XL	XL	XL
Programmed domestic hot water temperature (°C)	55	55	55	55	55
Heat pump operation type	Alternative				
Storage volume (litres)	190				
DHW performance certification with or without heating element	without heating elements				
Time to operating temperature (th)	02:37	02:05	01:15	01:04	00:53
Reserve power (Pes) (W)	35	35	38	40	40
Coefficient of performance (COP <sub>DHW</sub> )	3.33	3.33	3.18	3.33	3.33
DHW - Energy efficiency class	A+	A+	A+	A+	A+
Hot water reference temperature ( $\theta_{WH}$ ) (°C)	53	53	52	51	51
Maximum hot water volume available (V <sub>MAX</sub> ) (litres)	250	250	250	240	240

CD1 300 HHP CYLINDERR	NIMBUS PLUS 80	NIMBUS PLUS 120	NIMBUS PLUS 150
Withdrawal profile according to EN16147	XL	XL	XL
Storage volume (litres)	300		
Time to operating temperature (th)	01:45	01:25	01:11
Reserve power (Pes) (W)	40	37	37
Coefficient of performance (COP <sub>DHW</sub> )	3.1	3.0	3.0
DHW - Energy efficiency class	A+	A+	A+
Hot water reference temperature ( $\theta_{WH}$ ) (°C)	51.2	51.5	51.5
Maximum hot water volume available (V <sub>MAX</sub> ) (litres)	350	365	365

CD1 450 HHP CYLINDERR	NIMBUS PLUS 120	NIMBUS PLUS 150
Withdrawal profile according to EN16147	XL	XL
Storage volume (litres)	450	
Time to operating temperature (th)	01:55	01:36
Reserve power (Pes) (W)	39	39
Coefficient of performance (COP <sub>DHW</sub> )	2.8	2.8
DHW - Energy efficiency class	A+	A+
Hot water reference temperature ( $\theta_{WH}$ ) (°C)	52.5	52.5
Maximum hot water volume available (V <sub>MAX</sub> ) (litres)	575	575

## 13. ErP TECHNICAL DATA

### ACOUSTIC DATA

MODEL		INDOOR UNIT	OUTDOOR UNIT
NIMBUS PLUS 35 M NET R32		35	53
NIMBUS PLUS 50 M NET R32		35	55
NIMBUS PLUS 80 M NET R32		35	57
NIMBUS PLUS 80 M-T NET R32		35	57
NIMBUS PLUS 120 M NET R32		35	58
NIMBUS PLUS 120 M-T NET R32		35	58
NIMBUS PLUS 150 M NET R32		35	58
NIMBUS PLUS 150 S-T NET R32		35	58
NIMBUS COMPACT 35 M NET R32		35	53
NIMBUS COMPACT 35 M 2Z NET R32		42	53
NIMBUS COMPACT 50 M NET R32		35	55
NIMBUS COMPACT 50 M 2Z NET R32		42	55
NIMBUS COMPACT 80 M NET R32		35	57
NIMBUS COMPACT 80 M 2Z NET R32		42	57
NIMBUS COMPACT 80 M-T NET R32		35	57
NIMBUS COMPACT 80 M-T 2Z NET R32		42	57
NIMBUS COMPACT 120 M-T NET R32		35	58
NIMBUS COMPACT 120 M-T 2Z NET R32		42	58
NIMBUS COMPACT 120 M-T NET R32		35	58
NIMBUS COMPACT 120 M-T 2Z NET R32		42	58
NIMBUS COMPACT 150 M-T NET R32		35	58
NIMBUS COMPACT 150 M-T 2Z NET R32		42	58
NIMBUS COMPACT 150 M-T NET R32		35	58
NIMBUS COMPACT 150 M-T 2Z NET R32		42	58
NIMBUS POCKET 35 M NET R32		15	53
NIMBUS POCKET 50 M NET R32		15	55
NIMBUS POCKET 80 M NET R32		15	57
NIMBUS POCKET 80 M-T NET R32		15	57
NIMBUS POCKET 120 M NET R32		15	58
NIMBUS POCKET 120 M-T NET R32		15	58
NIMBUS POCKET 150 M NET R32		15	58
NIMBUS POCKET 150 M-T NET R32		15	58

dB(A)

		35 M	50 M	80 M 80 M-T	120 M / 120 M-T	150 M / 150 M-T
Air-to-water heat pump		YES				
With supplementary heating appliance		YES				
Rated heat output	[kW]	3.5	5	8	12	15
Annual energy consumption	[kWh]	2790	3360	4405	5335	6217
Energy efficiency in space heating mode	[%]	134	136	140	143	151
External sound power level	[dB]	53	55	57	58	58
DECLARED HEATING CAPACITY AND COEFFICIENT OF PERFORMANCE WITH PARTIAL LOAD WITH 20°C INDOOR TEMPERATURE AND Tj OUTDOOR TEMPERATURE, LWT 35°C						
Climate conditions		AVERAGE				
$\eta_s$		193	184	195	204	202
Reference power	[kW]	5.2	5.65	8.37	10.84	12.48
SCOP		4.89	4.67	4.95	5.16	5.12
Bivalent temperature	[°C]	-7				
Tj = threshold operating temperature	[°C]	-20				
Threshold operating temperature for water heating	[°C]	60				
Capacity Tj = -7°C	[kW]	4.6	5	7.4	9.59	11.04
COPd Tj = -7°C		3.21	3.1	3.1	3.42	3.29
Capacity Tj = 2°C	[kW]	2.88	3.11	4.54	5.74	6.98
COPd Tj = 2°C		4.66	4.32	4.8	5.1	4.92
Capacity Tj = 7°C	[kW]	1.85	1.96	2.94	4.16	4.39
COPd Tj = 7°C		6.56	6.48	6.61	6.88	6.76
Capacity Tj = 12°C	[kW]	1.92	1.86	3.16	4.71	4.71
COPd Tj = 12°C		8.49	8.41	8.15	8.66	8.55
Capacity Tj = biv	[kW]	4.6	5	7.4	9.59	11.04
COPd Tj = biv		3.21	3.1	3.1	3.42	3.29
Capacity Tj = threshold operating temperature	[kW]	3.03	3.69	5.51	7.41	8.74
COPd Tj = threshold operating temperature		2.25	2.3	2.22	2.26	2.17
Climate conditions		COLDER				
$\eta_s$		151	151	154	159	156
Reference power	[kW]	7.34	7.83	11.16	14.53	17.22
SCOP		3.85	3.85	3.92	4.06	3.99
Bivalent temperature	[°C]	-7				
Tj = threshold operating temperature	[°C]	-20				
Threshold operating temperature for water heating	[°C]	60				
Capacity Tj = -7°C	[kW]	4.69	5	7.13	9.28	11
COPd Tj = -7°C		3.54	3.5	3.47	3.74	3.57
Capacity Tj = 2°C	[kW]	2.95	3	4.51	5.68	6.88
COPd Tj = 2°C		5.16	5.15	5.32	5.38	5.36
Capacity Tj = 7°C	[kW]	1.89	1.99	3.06	4.2	4.43
COPd Tj = 7°C		7.19	7.2	7.24	7.39	7.25
Capacity Tj = 12°C	[kW]	1.92	1.87	3.18	4.7	4.71
COPd Tj = 12°C		8.55	8.7	8.02	8.75	8.53
Capacity Tj = biv	[kW]	4.69	5	7.13	9.28	11
COPd Tj = biv		3.54	3.5	3.47	3.74	3.57
Capacity Tj = threshold operating temperature	[kW]	3.03	3.69	5.51	7.41	8.74
COPd Tj = threshold operating temperature		2.25	2.3	2.22	2.26	2.17
Climate conditions		WARMER				
$\eta_s$		240	245	242	262	258
Prated	[kW]	2.84	3.44	4.93	6.83	8.01
SCOP		6.06	6.19	6.14	6.62	6.53

## 13. ErP TECHNICAL DATA

Bivalent temperature	[°C]	2				
Tj = threshold operating temperature	[°C]	-20				
Threshold operating temperature for water heating	[°C]	60				
Capacity Tj = 2°C	[kW]	2.84	3.44	4.93	6.83	8.01
COPd Tj = 2°C		4	3.88	4.05	4.37	4.27
Capacity Tj = 7°C	[kW]	1.88	2.22	3.1	4.48	5.33
COPd Tj = 7°C		5.57	5.66	5.7	5.96	5.81
Capacity Tj = 12°C	[kW]	1.91	1.86	3.28	4.72	4.72
COPd Tj = 12°C		7.94	8.01	7.86	8.22	8.1
Capacity Tj = bivμ	[kW]	2.84	3.44	4.93	6.83	8.01
COPd Tj = biv		4.02	3.88	4.05	4.37	4.27
DECLARED HEATING CAPACITY AND COEFFICIENT OF PERFORMANCE WITH PARTIAL LOAD WITH 20°C INDOOR TEMPERATURE AND Tj OUTDOOR TEMPERATURE, LWT 55°C						
Climate conditions		AVERAGE				
ηs		134	136	140	143	151
Reference power	[kW]	4.63	5.65	7.62	9.42	11.59
SCOP		3.43	3.48	3.58	3.65	3.85
Bivalent temperature	[°C]	-7				
Tj = threshold operating temperature	[°C]	-20				
Threshold operating temperature for water heating	[°C]	60				
Capacity Tj = -7°C	[kW]	4.1	5	6.74	8.33	10.25
COPd Tj = -7°C		2.28	2.28	2.29	2.43	2.5
Capacity Tj = 2°C	[kW]	2.63	3.11	4.22	5.47	6.5
COPd Tj = 2°C		3.35	3.3	3.51	3.33	3.67
Capacity Tj = 7°C	[kW]	1.76	2.19	2.74	3.98	3.96
COPd Tj = 7°C		4.22	4.58	4.36	5.04	5.04
Capacity Tj = 12°C	[kW]	1.88	1.84	3.28	4.75	4.69
COPd Tj = 12°C		6.3	6.33	6.5	6.86	6.97
Capacity Tj = biv	[kW]	4.1	5	6.74	8.33	10.25
COPd Tj = biv		2.28	2.28	2.29	2.43	2.5
Capacity Tj = threshold operating temperature	[kW]	2.46	3.18	4.9	6.12	7.48
COPd Tj = threshold operating temperature		1.52	1.54	1.51	1.61	1.59
Climate conditions		COLDER				
ηs		120	118	120	129	128
Reference power	[kW]	7.04	7.83	10.93	13.43	16.4
SCOP		3.07	3.02	3.08	3.29	3.27
Bivalent temperature	[°C]	-7				
Tj = threshold operating temperature	[°C]	-20				
Threshold operating temperature for water heating	[°C]	60				
Capacity Tj = -7°C	[kW]	4.5	5	6.98	8.58	10.48
COPd Tj = -7°C		2.76	2.71	2.73	2.94	2.91
Capacity Tj = 2°C	[kW]	2.94	3.11	4.2	5.42	6.45
COPd Tj = 2°C		3.99	3.81	4.07	4.26	4.22
Capacity Tj = 7°C	[kW]	1.92	2.28	2.84	4.09	4.27
COPd Tj = 7°C		5.35	5.29	5.15	5.83	5.79
Capacity Tj = 12°C	[kW]	1.93	1.87	3.24	4.72	4.6
COPd Tj = 12°C		6.96	6.88	6.47	7.21	7.2
Capacity Tj = biv	[kW]	4.5	5	6.98	8.58	10.48
COPd Tj = biv		2.76	2.71	2.7	2.94	2.91
Capacity Tj = threshold operating temperature	[kW]	2.46	3.18	4.9	6.75	8.08
COPd Tj = threshold operating temperature		1.52	1.54	1.51	1.49	1.48



Climate		WARMER				
$\eta_s$		137	151	151	177	181
Prated	[kW]	2.35	2.97	4.48	6.46	7.5
SCOP		3.49	3.84	3.85	4.51	4.61
Bivalent temperature	[°C]	2				
Tj = threshold operating temperature	[°C]	-20				
Threshold operating temperature for water heating	[°C]	60				
Capacity Tj = 2°C	[kW]	2.35	2.97	4.48	6.46	7.5
COPd Tj = 2°C		2.19	2.33	2.53	2.72	2.77
Capacity Tj = 7°C	[kW]	1.6	2.02	2.81	4.39	4.85
COPd Tj = 7°C		2.8	3.16	3.08	3.77	3.84
Capacity Tj = 12°C	[kW]	1.81	1.76	3.16	4.65	4.61
COPd Tj = 12°C		5.1	5.4	5.45	6.02	6.12
Capacity Tj = biv	[kW]	2.35	2.97	4.48	6.46	7.5
COPd Tj = biv		2.19	2.33	2.53	2.72	2.77

#### DEGRADATION COEFFICIENT

Tj = -7°C		0.99	0.99	0.995	0.996	0.997
Tj = 2°C		0.98	0.99	0.99	0.99	0.99
Tj = 7°C		0.97	0.97	0.98	0.98	0.98
Tj = 12°C		0.96	0.95	0.97	0.98	0.98

#### ENERGY CONSUMPTION IN MODES OTHER THAN THE ACTIVE MODE

Off mode	[W]	13	14	14	14	14
Thermostat off mode	[W]	13	14	14	14	14
Stand-by	[W]	13	14	14	14	14
Casing heating mode	[W]	13	14	14	14	14

#### SUPPLEMENTARY HEATING APPLIANCE

Climate conditions		AVERAGE				
Indoor temperature equal to 20°C and outdoor temperature Tj		35°C / 55°C	35°C / 55°C	35°C / 55°C	35°C / 55°C	35°C / 55°C
Rated heat output	[kW]	0.9 / 0.8	1.0 / 1.1	0.8 / 0.4	1.7 / 0.7	1.3 / 1.1
Climate conditions		COLDER				
Indoor temperature equal to 20°C and outdoor temperature Tj		35°C / 55°C	35°C / 55°C	35°C / 55°C	35°C / 55°C	35°C / 55°C
Rated heat output	[kW]	4.0 / 4.0	4.0 / 4.0	4.0 / 4.0	6.0 / 6.0	6.0 / 6.0
Climate conditions		WARMER				
Indoor temperature equal to 20°C and outdoor temperature Tj		35°C / 55°C	35°C / 55°C	35°C / 55°C	35°C / 55°C	35°C / 55°C
Rated heat output	[kW]	0.0 / 0.0	0.0 / 0.0	0.0 / 0.0	0.0 / 0.0	0.0 / 0.0
Power		Electrical				



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