

Technical description

# Athena



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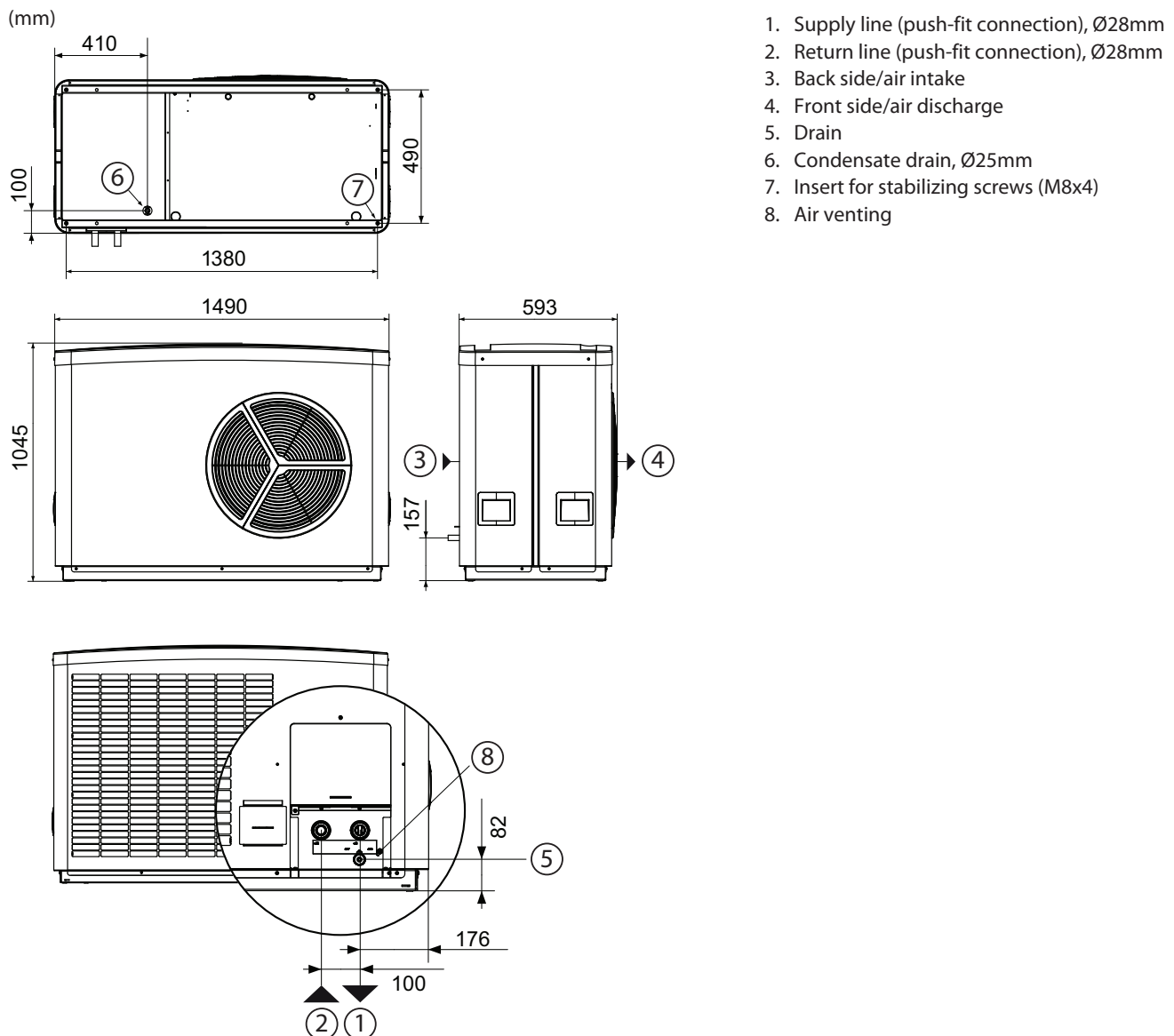
# Technical description      Athena

## 1      Heat pump dimensions and connections

### 1.1      Heat pump dimensions and connections

#### 1.1.1      Outdoor unit

#### Athena 14 & 18 H/HC

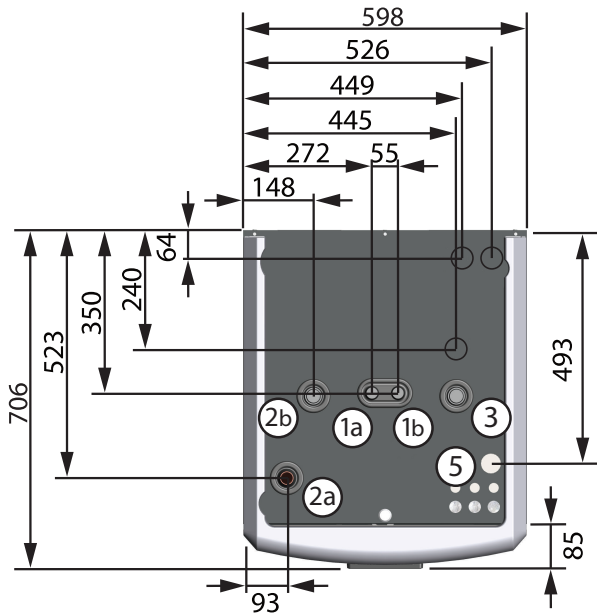


1. Supply line (push-fit connection), Ø28mm
2. Return line (push-fit connection), Ø28mm
3. Back side/air intake
4. Front side/air discharge
5. Drain
6. Condensate drain, Ø25mm
7. Insert for stabilizing screws (M8x4)
8. Air venting

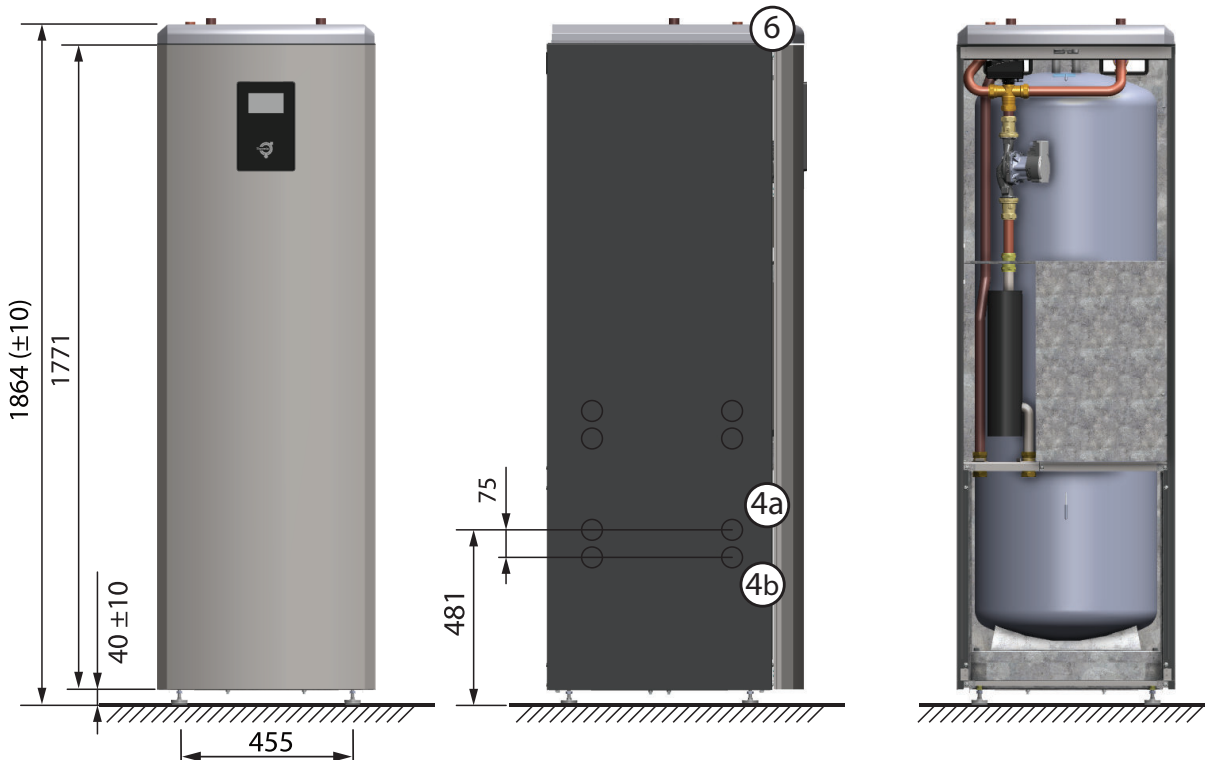
# Technical description      Athena

## 1.1.2 Indoor unit

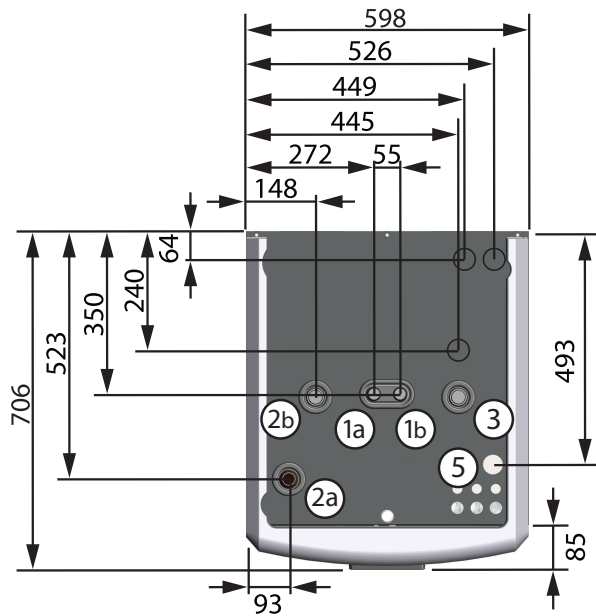
### Indoor unit Athena Total 300L



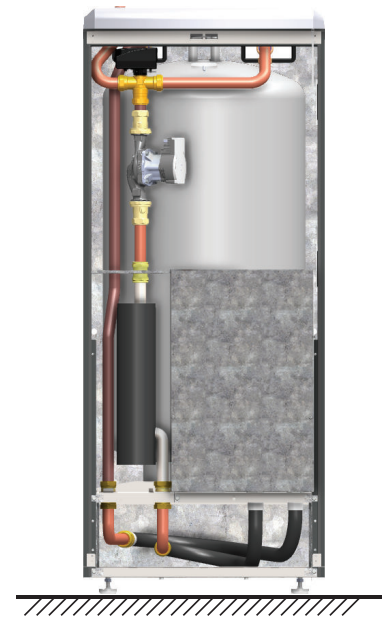
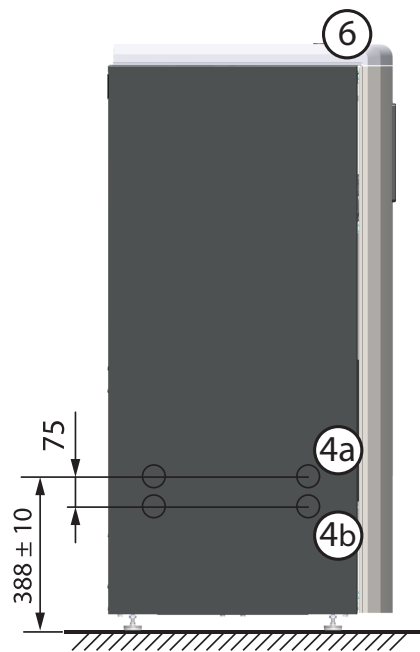
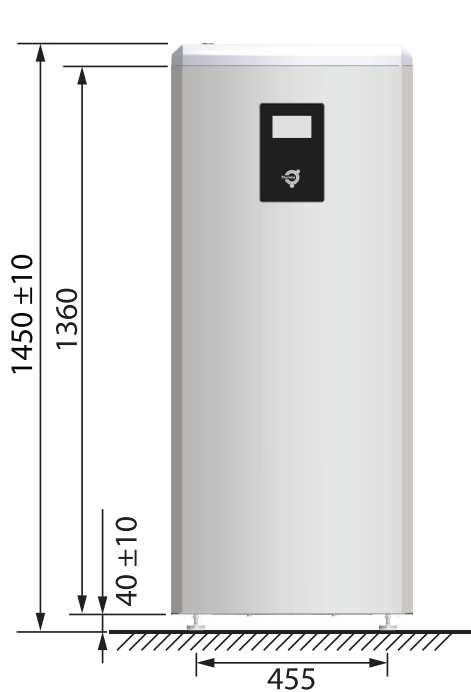
- 1a. Hot water line, 22 mm
- 1b. Cold water line, 22 mm
- 2a. Heating system supply, 28 mm
- 2b. Heating system return, 28 mm
- 3. Connection for bleed valve, 28 mm
- 4a. Supply line from outdoor unit, 28 mm Cu (left or right)
- 4b. Return line to outdoor unit, 28 mm Cu (left or right)
- 5. Lead-in for power supply, sensor and communication cable
- 6. Top hood



## Indoor unit Athena Compact

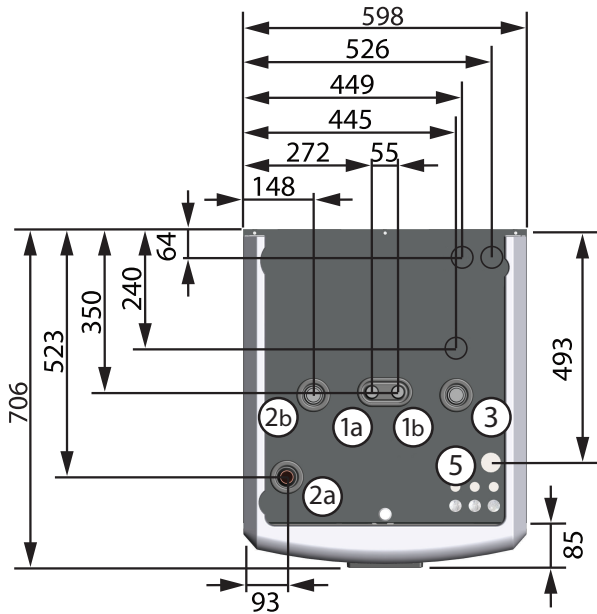


- 1a. Hot water line, 22 mm
- 1b. Cold water line, 22 mm
- 2a. Heating system supply, 28 mm
- 2b. Heating system return, 28 mm
- 3. Connection for bleed valve, 28 mm
- 4a. Supply line from outdoor unit, 28 mm Cu (left or right)
- 4b. Return line to outdoor unit, 28 mm Cu (left or right)
- 5. Lead-in for power supply, sensor and communication cable
- 6. Top hood

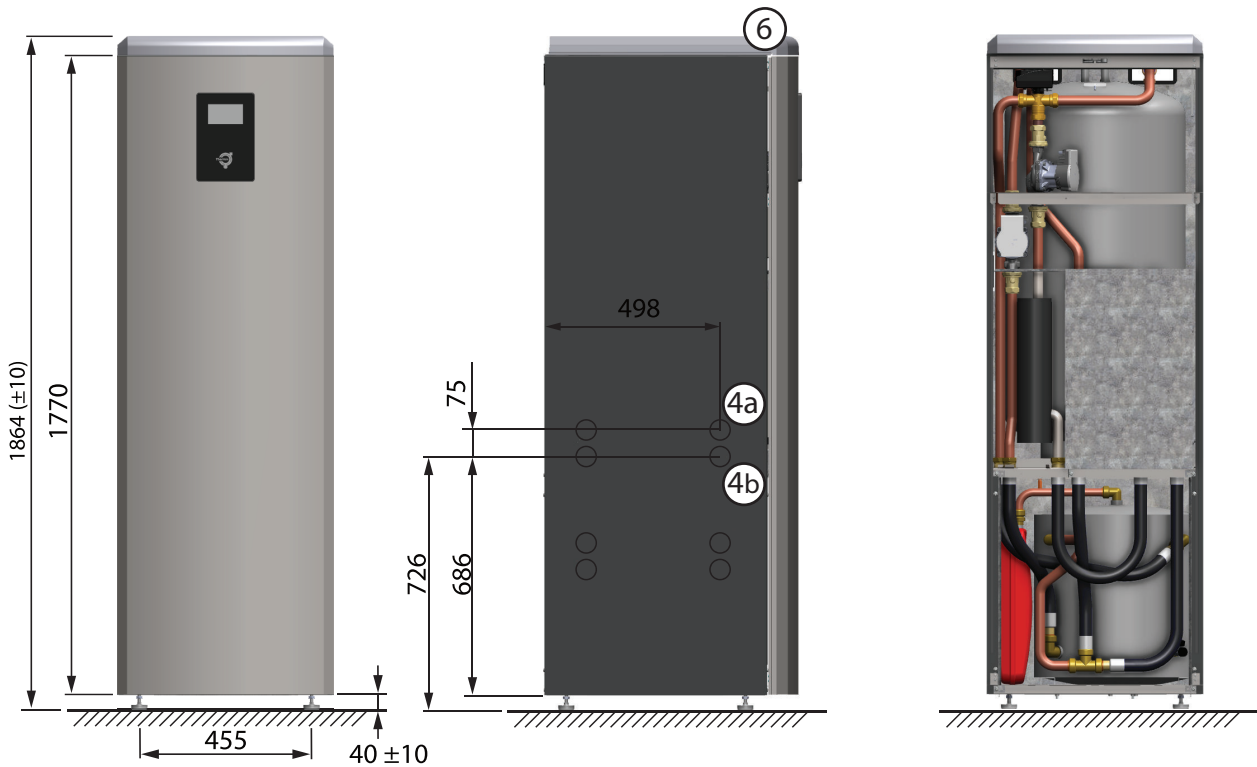


# Technical description      Athena

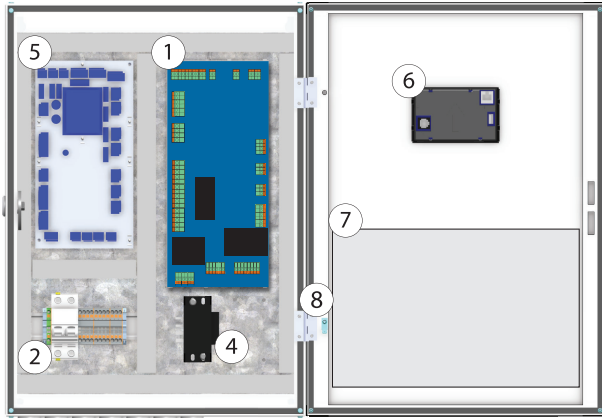
## Indoor unit Athena Total EQ



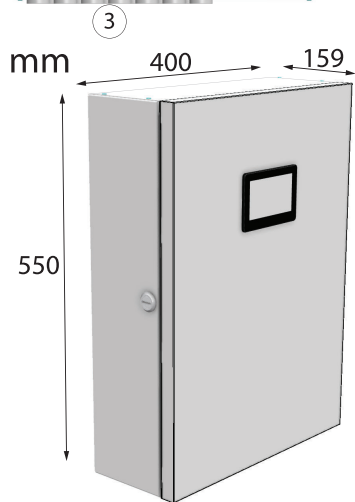
- 1a. Hot water line, 22 mm
- 1b. Cold water line, 22 mm
- 2a. Heating system supply, 28 mm
- 2b. Heating system return, 28 mm
- 3. Connection for bleed valve, 28 mm
- 4a. Supply line from outdoor unit, 28 mm Cu (left or right)
- 4b. Return line to outdoor unit, 28 mm Cu (left or right)
- 5. Lead-in for power supply, sensor and communication cable
- 6. Top hood



## Indoor unit Athena Standard



1. BM-Card
2. Incoming power, sensor and communication terminal
3. Lead-in
4. Transformer, TR1
5. Designated place for EM-Card
6. Back of display, connections for BM-Card, network & USB
7. Label sheet, instructions for connections
8. Grounded cable





# Technical description **Athena**

## 2 Technical data, Athena indoor unit

### 2.1 Indoor unit

Indoor unit	Unit	Athena Total EQ	Athena Total 300L	Athena Compact	Athena Standard
		204464	204465	204463	204462
Mains power supply	V	400~3N 50Hz			230V~1N
Marking power, circulation pumps	kW	0,2	0,1	0,1	N/A
Immersion heater, steps	kW	3/6/9			N/A
Fuse separate supply, indoor unit <sup>1</sup>	A	6/10/16			10
Max current, Immersion heater only	A	5,2/9,5/13,9	4,8/9,1/13,5	4,8/9,1/13,5	N/A
Energy class - system	Floor heating (35°C)/Radiator heating (55°C)	A+++/A++			
Energy class - product <sup>2</sup>	Floor heating (35°C)/Radiator heating (55°C)	A+++/A++			
	Water heater/ Declared load profile	A/XL			N/A
Hot water performance	Volume 40°C hot water <sup>3</sup> (l)	254	417	254	N/A
	Volume 40°C hot water <sup>4</sup> (l)	212	326	212	N/A
	Water heater energy efficiency <sup>5</sup> (η <sub>wh</sub> %)	102	100	102	N/A
Min. water flow	m <sup>3</sup> /h	1			
Recommended min. flow	m <sup>3</sup> /h	1,1			
Hot water tank, size	l	184	290	184	N/A
Weight	kg	147,5	123	96,5	11,4
Dimensions (WxDxH)	mm	598x704x1863±10	598x704x1863±10	598x704x1453±10	400x159x550±10

1) The minimum recommended fuse size depends on the limitation of the electrical immersion heater, except for Athena Standard which contains no immersion heater.

2) When the heat pump is not connected to a heating system, and the function of the built-in control computer is not taken into account. According to EU regulation 811/2013.

3) Hot water performance according to EN16147, V40 according to XL cycle with the control computer set for Comfort mode.

4) Hot water performance according to EN16147, V40 according to XL cycle with the control computer set for Normal mode.

5) Hot water performance according to EN16147, V40 according to XL cycle with the control computer set for Normal mode.

## Technical description **Athena**

### 3 Technical data Athena 14 400V H/HC

#### 3.1 Technical data Athena 14 400V H/HC

Athena 14 outdoor units		Units	Athena 14 400V H	Athena 14 400V HC	
Heating capacity <sup>1</sup>		kW	7,85-13,98		
Refrigerant	Type		R410A		
	Amount <sup>2</sup>	kg	4,70	5,50	
	CO2 equivalent	tCO2e	9,810	11,480	
	Design pressure	bar(g)			
Compressor	Type		Scroll		
	Oil		POE		
Electrical data, 400V ~3N 50Hz	Mains power supply	V	400~3N		
	Max working power, compressor	kW	5,5		
	Immersion heater <sup>3</sup>	kW	8,8		
	Fuse separate supply <sup>3</sup>	A	16		
	Max current, compressor only	A	7,9		
	Max current, immersion heater only	A	14		
Performance	SCOP, floor heating (35°C) - cold climate		4,2	4,25	
	SCOP, radiator heating (55°C) - cold climate		3,22	3,25	
	SCOP, floor heating (35°C) - average climate		4,7	4,87	
	SCOP, radiator heating (55°C) - average climate		3,65	3,74	
	A7/W35 / A7/W65 (max. power output)	kW	10,8/13,98		
	A-7/W35 / A-7/W65 (max. power output)	kW	10,14/11,06		
	COP (A7W35)			5,09	
Energy class - system	Floor heating (35°C)		A+++		
	Radiator heating (55°C)		A++		
Energy class - product	Floor heating (35°C)		A+++		
	Radiator heating (55°C)		A++		
Max temperature	Heating circuit	°C	65		
Operating temperature range (outdoors)	Heating/hot water		°C	-20~+37	
	Cooling		°C	+15~+37	
Sound power level	Normal operation - EN12102 - A7/W55		dB(A)	55	
	Max		dB(A)	66	
Sound pressure level - open field	1/5/10m	dB(A)	48/32/28		
Weight		kg	176,5	188	
Dimensions (WxDxH)		mm	1495x593x1045		

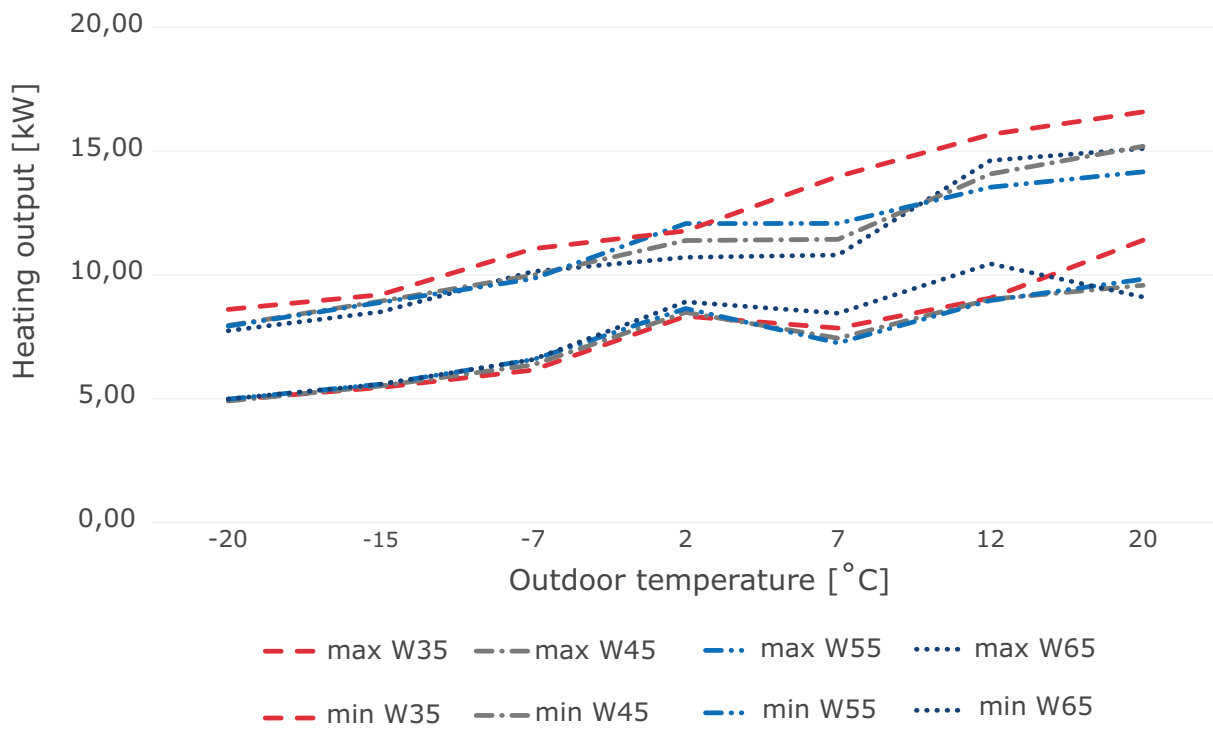
1) Min. output corresponds to part-load at A7/W35 and max. output to full compressor speed at A7/W65

2) The refrigerant circuit is hermetically sealed and contains refrigerants covered by the F-gas regulation. The GWP for R410A according to EC 517/2014 is 2088, corresponding to 11,48 tCO2e for Athena HC and 9,81 tCO2e for Athena H

3) The immersion heater located in the outdoor unit isn't allowed to run at the same time as the compressor, only allowed to run at low outdoor temperatures when the compressor is OFF

# Technical description Athena

## 3.2 Min./max. output Athena 14 H/HC



## Technical description **Athena**

### 4 Technical data Athena 18 400V H/HC

#### 4.1 Technical data Athena 18 400V H/HC

Athena 18 outdoor units		Units	Athena 18 400V H	Athena 18 400V HC
Heating capacity <sup>1</sup>		kW	7,85-17,5	
Refrigerant	Type		R410A	
	Amount <sup>2</sup>	kg	4,70	5,50
	CO <sub>2</sub> equivalent	tCO <sub>2</sub> e	9,810	11,480
	Design pressure	bar(g)		
Compressor	Type		Scroll	
	Oil		POE	
Electrical data, 400V ~3N 50Hz	Mains power supply	V	400~3N	
	Max working power, compressor	kW	7,1	
	Immersion heater <sup>3</sup>	kW	8,8	
	Fuse separate supply <sup>3</sup>	A	16	
	Max current, compressor only	A	10,2	
	Max current, immersion heater only	A	14	
Performance	SCOP, floor heating (35°C) - cold climate		4,05	4,08
	SCOP, radiator heating (55°C) - cold climate		3,18	3,2
	SCOP, floor heating (35°C) - average climate		4,63	4,76
	SCOP, radiator heating (55°C) - average climate		3,59	3,67
	A7/W35 / A7/W65 (max. power output)	kW	12,85/17,5	
	A-7/W35 / A-7/W65 (max. power output)	kW	12,86/14,3	
	COP (A7W35)		5,09	
Energy class - system	Floor heating (35°C)		A+++	
	Radiator heating (55°C)		A++	
Energy class - product	Floor heating (35°C)		A+++	
	Radiator heating (55°C)		A++	
Max temperature	Heating circuit	°C	65	
Operating temperature range (outdoors)	Heating/hot water		°C -20~+37	
	Cooling		°C +15~+37	
Sound power level	Normal operation - EN12102 - A7/W55		dB(A) 55	
	Max		dB(A) 66	
Sound pressure level - open field	1/5/10m	dB(A)	48/32/28	
Weight		kg	176,5	188
Dimensions (WxDxH)		mm	1495x593x1045	

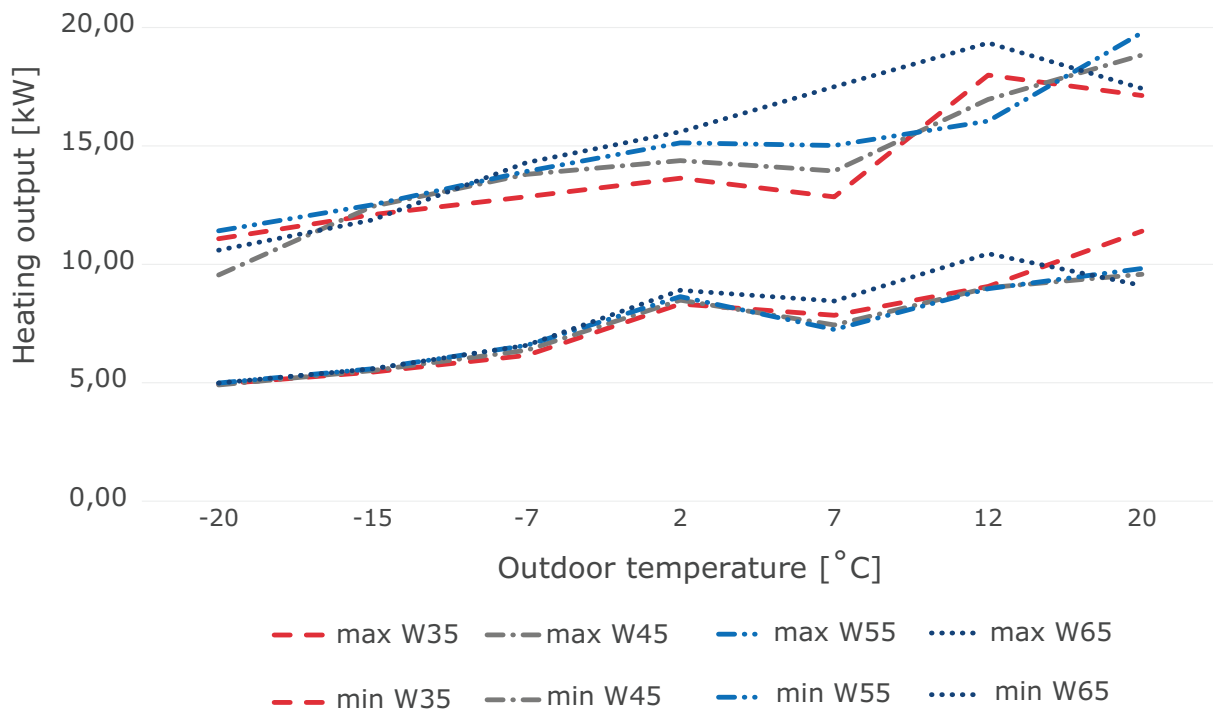
1) Min. output corresponds to part-load at A7/W35 and max. output to full compressor speed at A7/W65

2) The refrigerant circuit is hermetically sealed and contains refrigerants covered by the F-gas regulation. The GWP for R410A according to EC 517/2014 is 2088, corresponding to 11,48 tCO<sub>2</sub>e for Athena HC and 9,81 tCO<sub>2</sub>e for Athena H

3) The immersion heater located in the outdoor unit isn't allowed to run at the same time as the compressor, only allowed to run at low outdoor temperatures when the compressor is OFF

# Technical description Athena

## 4.2 Min./max. output Athena 18 H/HC



# Technical description      Athena

## 5      Flow and pressure

### 5.1      Flow and pressure

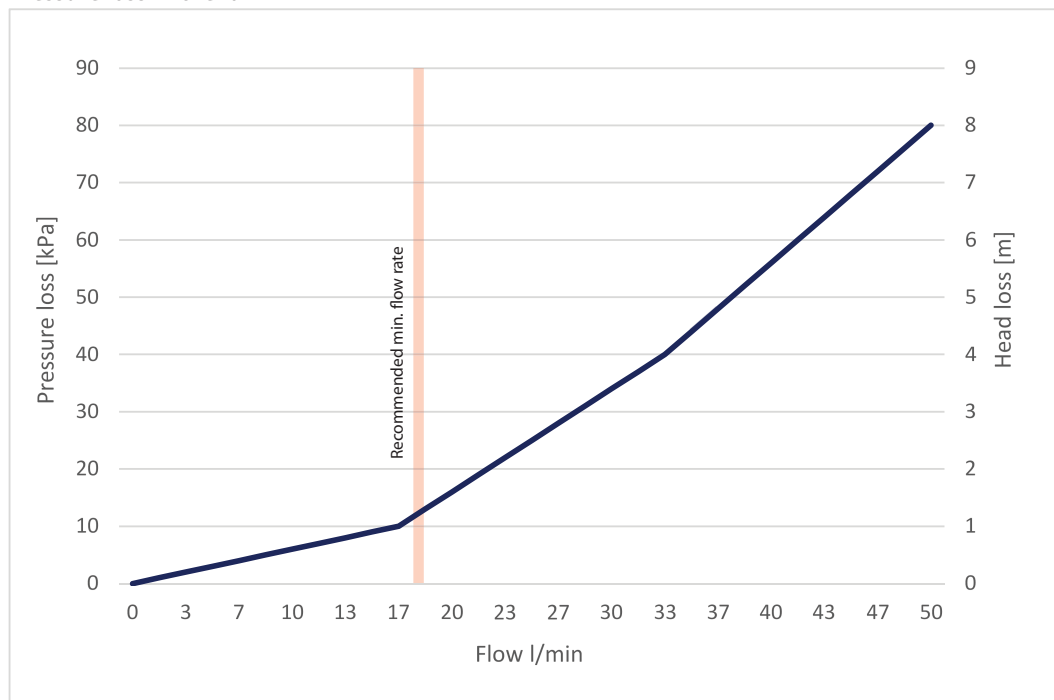
#### Water flow in the heating system

The minimum flow rate and defrost energy must always be assured. The minimum flow rate is 1 m<sup>3</sup>/h and the recommended flow rate is to have at least 10% margin, resulting in a recommended flow rate of 1,1 m<sup>3</sup>/h or approximately above 18 litres per minute.

The water flow can be found in **SYSTEM INFORMATION - Operating data - Flow rate** and it is shown in l/min. The minimum water flow is set to 70% as default, but this needs to be adjusted that you have at least the recommended water flow as minimum water flow. In order to adjust the minimum water flow go to **SETTINGS - Circulation pumps - Condenser pump HP - Min speed**. Adjust the minimum speed of the condenser pump in order to have at least approximately 18 l/min.

NOTE: Athena Standard is designed to support on/off circulation pumps only, so it's crucial that circulation pumps in the system can support the minimum flow rate described in this chapter.

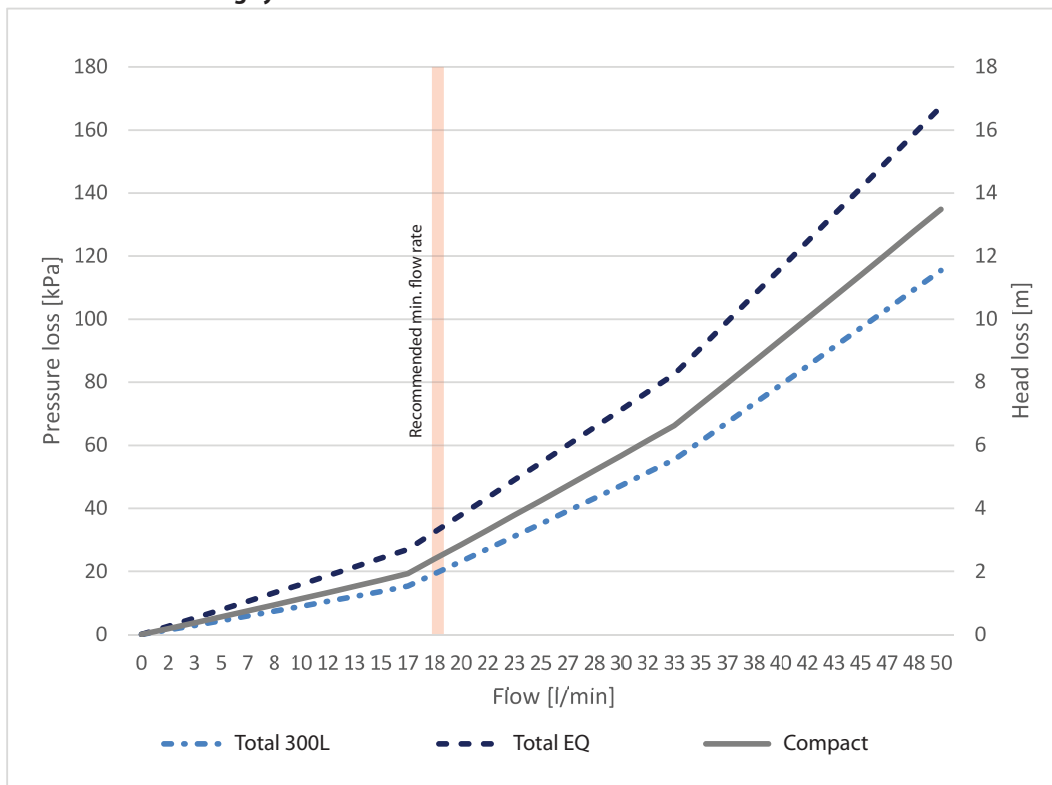
#### Pressure loss - Athena



Internal pressure loss in Athena outdoor unit.

# Technical description      Athena

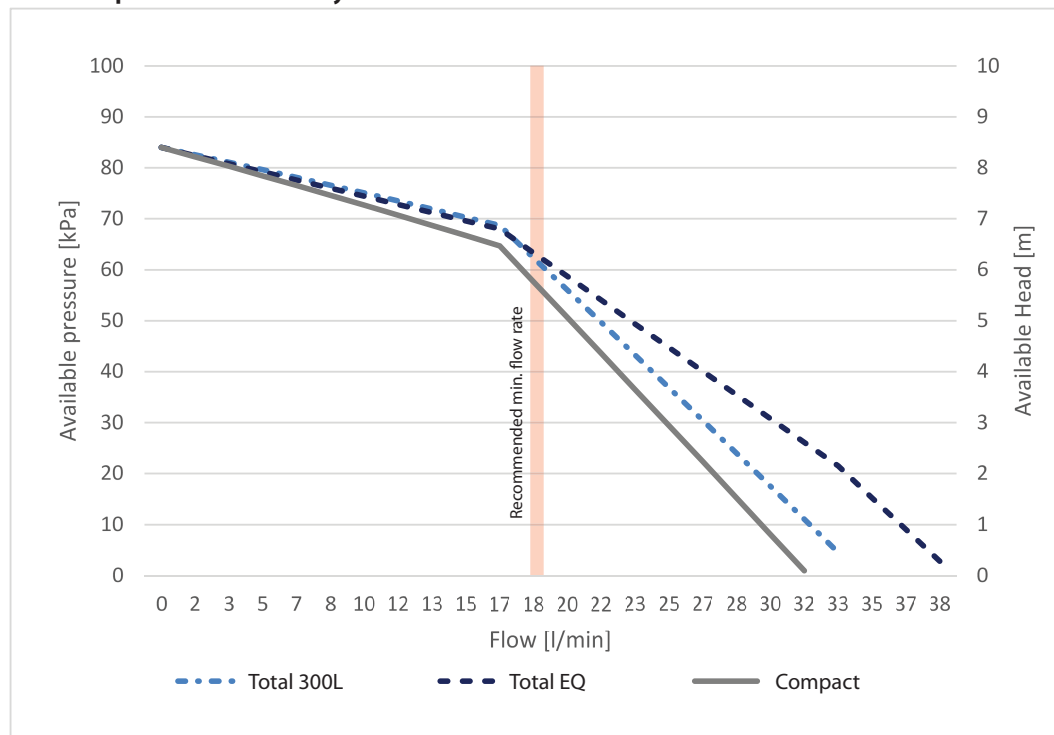
## Pressure loss - Heating system



Total pressure loss in the heating system with outdoor unit and respective indoor unit.

The pressure loss in the heating system has been calculated according to an assumed standard installation consisting of Athena outdoor units, indoor units (Athena Total EQ/Athena Total 300L/Athena Compact), 10m copper pipes (Ø 28mm) and minor losses corresponding to 90° bends.

## Available pressure - Radiator system



External available pressure with internal circulation pump for Athena.

When calculating the available pressure for Athena Total EQ, the internal pressure loss was taken into account due to its two circulation pumps, where one works towards the radiator system. For Athena Total 300L and Athena Compact, the total pressure in the heating system was considered.

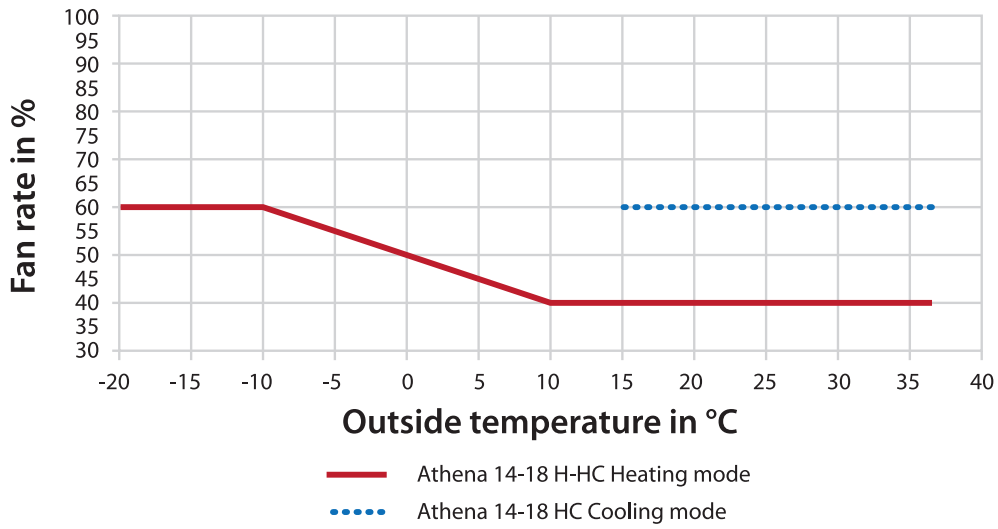
Indoor unit	Unit	Min	Max
Athena Total 300L	l/min	18	34
Athena Total EQ	l/min	18	39
Athena Compact	l/min	18	32



# Technical description      Athena

## 6      Fan speeds

### 6.1      Athena H/HC



In heating mode the fan speed increases with decreasing outdoor temperature, as shown in the table above.







## Technical description

## Athena

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