



## HEAT PUMP IN CASCADE

# ARIANEXT LINK R32

Thanks to the Cascade Manager accessory, it is possible to create a cascade heat pump system with the new Arianext Link R32 range. The perfect solution to cover different applications, such as condominiums and small commercial environments.



### CASCADE SYSTEMS

Up to 75 kW\* from 2 to 5 units



**Condominiums**  
with central heating system



**Small commercial activities**  
offices, gyms,  
supermarkets

### MAIN ADVANTAGES

- > Up to 75 kW\* of power for heating, cooling and domestic water
- > Flexibility: both monobloc and split heat pumps, different models of boilers and puffers are available, for all needs
- > Intelligent management of the «Smart Cascade» system patented by Chaffoteaux
- > Maximum energy optimization thanks to the modularity of the system
- > Defrost mode only active on a single unit at a time, never interrupting the operation of the system
- > 24/7 remote assistance service (optional)

### Selection guide for cascade heat pumps



1 Choose the external unit

2 Choose the internal unit

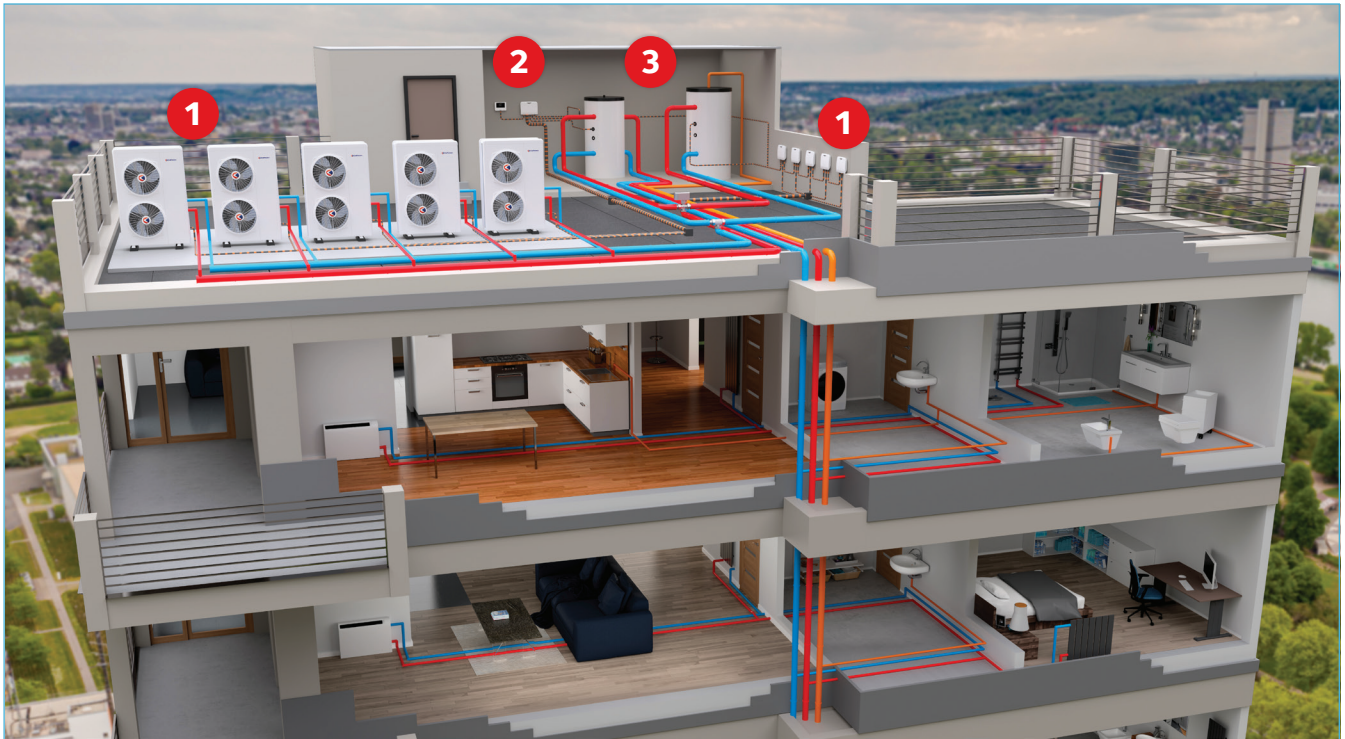
3 Order The Cascade Manager code 3301821

4 Order the external probe code. 3318599

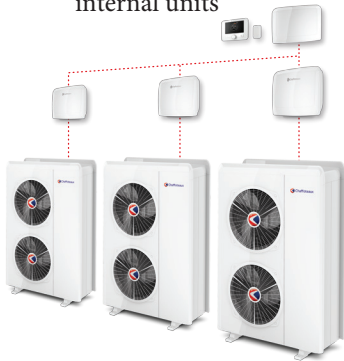
5 Choose the connectivity accessory

6 Choose Puffers and Kettles for Domestic Water

\*Nominal power in heating with  $T_{air}=+7^{\circ}C$  and  $T_w=35^{\circ}C$



**1** External and internal units



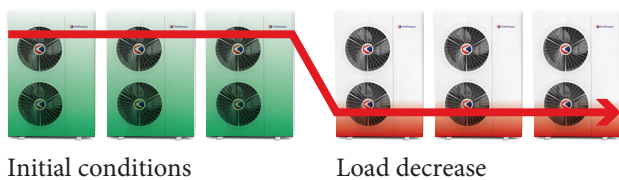
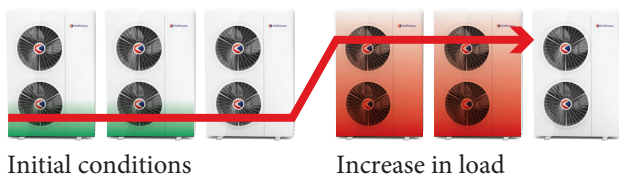
**2** Cascade Manager and Expert HD system interface



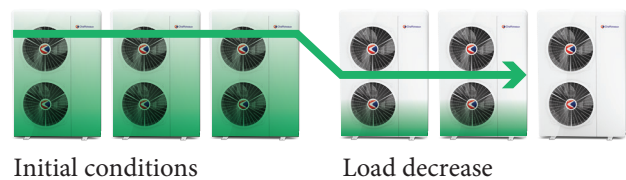
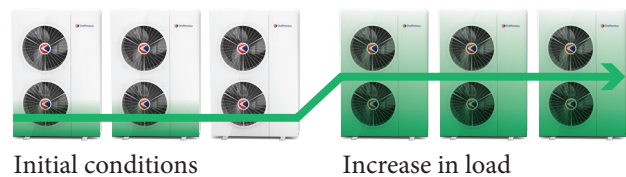
**3** Puffer and boiler for domestic water



### Operation not optimized



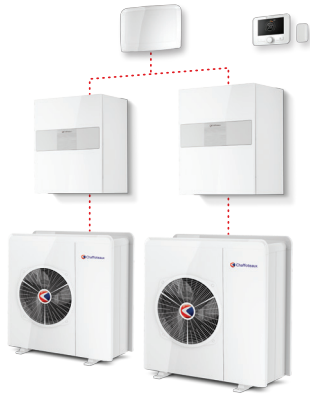
### Smart Cascade operation





# ARIANEXT PLUS S R32

## CASCADE



### > SPLIT HEAT PUMPS FOR CASCADE MANAGEMENT

- Up to 5 heat pumps in cascade
- Intelligent management of the “Smart Cascade” system, patented by Chaffoteaux
- Maximum energy optimization thanks to the modularity of the system
- Defrost mode only active on a single unit at a time, never interrupting system operation
- Ecological gas R32
- High efficiency heat pumps
- Integrated magnetic filter as standard (in the indoor unit)
- 12 lt system expansion tank integrated as standard (in the indoor unit)
- The heat exchange with the system water takes place in the internal unit eliminating the risk of freezing
- Expert HD interface as standard with Cascade Manager
- Connectivity available as an accessory
- 24/7 remote assistance (optional)

RECOMMENDED SOLUTIONS			80 x 2	80 x 2
TOTAL CASCADE CAPACITY (kW)*			16 (1-ph)	16 (3-ph)
TYPE	DESCRIPTION	CODE	AMOUNT	
Outdoor Unit (ODU)	Arianext 80 S EXT R32	3630244	2	-
External unit (ODU)	Arianext 80 S-T EXT R32	3630245	-	2
Indoor unit (IDU)	Arianext WH 80 S Cascade	3301819	2	2
Cascade Manager	Cascade Manager	3301821	1	1

NOTE: Connectivity and external probe are not included.

### TECHNICAL DATA SPLIT

HEAT PUMP		80 x 2	80 x 2
PERFORMANCE IN WARM UP		Min / Nom / Max	
Nominal heat output (Ta +7°C, Tw 35/30 °C)	kW	5,48 / 16,0 / 23,5	5,48 / 16,0 / 23,5
COP nom (Ta +7°C, Tw 35/30 °C)		4,8	2,95
PERFORMANCE IN COOLING		Min / Nom / Max	
Thermal power min/nom/max (Ta +35°C, Tw 7/12 °C)	kW	5,30 / 14,0 / 17,0	5,30 / 14,0 / 17,0
COP nom (Ta +35°C, Tw 7/12 °C)		3,10	3,10
TECHNICAL DATA			
Refrigerant / GWP		R32 / 675	
Refrigerant charge	g	3600	
CO <sub>2</sub> eq.	ton	2,43	
Back up electrical resistance**	kW	8	
P Maximum electrical power / current absorbed	kW/A	9,06 / 42,6	
Voltage-Phase-Frequency	v/ph/Hz	230-1-50	

Data according to UNI EN 14511. \*Nominal power in heating. Tair=+7°C and Tw=35°C.



# ARIANEXT PLUS M R32 CASCADE



## >MONOBLOCK HEAT PUMP FOR CASCADE MANAGEMENT

- Up to 5 heat pumps in cascade
- Intelligent management of the “Smart Cascade” system, patented by Chaffoteaux
- Maximum energy optimization thanks to the modularity of the system
- Defrost mode only active on a single unit at a time, never interrupting system operation
- Ecological gas R32
- High efficiency heat pumps
- Integrated magnetic filter as standard (in the indoor unit)
- 12 lt system expansion tank integrated as standard (in the indoor unit)
- Easy installation: no F-gas license required
- Expert HD interface as standard with Cascade Manager
- Connectivity available as an accessory
- 24/7 remote assistance (optional)

RECOMMENDED SOLUTIONS			80 x 2	80 x 2	120 x 2	150 x 2	150 x 3	150 x 4	150 x 5
TOTAL CASCADE CAPACITY (kW)*			16 (1-ph)	16 (3-ph)	24 (3-ph)	30 (3-ph)	45 (3-ph)	60 (3-ph)	75 (3-ph)
TYPE	DESCRIPTION	CODE	AMOUNT						
External unit (ODU)	Arianext 80 M EXT R32	3630236	2	-	-	-	-	-	-
External unit (ODU)	Arianext 80 M-T EXT R32	3630237	-	2	-	-	-	-	-
External unit (ODU)	Arianext 120 M-T EXT R32	3630239	-	-	2	-	-	-	-
External unit (ODU)	Arianext 150 M-T EXT R32	3630241	-	-	-	2	3	4	5
Indoor unit (IDU)	Arianext MGP M Cascade	3301840	2	2	-	-	-	-	-
Indoor unit (IDU)	Arianext MGP-L M Cascade	3301841	-	-	2	2	3	4	5
Cascade Manager	Cascade Manager	3301821	1	1	1	1	1	1	1

NOTE: Connectivity and external probe are not included.

## MONOBLOC TECHNICAL DATA

HEAT PUMP		80 x 2	80 x 2	120 x 2	150 x 2	150 x 3	150 x 4	150 x 5
PERFORMANCE IN WARM UP		Min / Nom / Max						
Nominal heat output (Ta +7°C, Tw 35/30 °C)	kW	5,48 / 16,0 / 23,5	5,48 / 16,0 / 23,5	8,50 / 24,0 / 28,7	8,16 / 30,0 / 35,3	12,2 / 45 / 53	16,3 / 60 / 70,6	20,4 / 75 / 88,3
COP nom (Ta +7°C, Tw 35/30 °C)		4,8	2,95	4,9	4,70	4,70	4,70	4,70
PERFORMANCE IN COOLING		Min / Nom / Max						
Thermal power min/nom/max (Ta +35°C, Tw 7/12 °C)	kW	5,30 / 14,0 / 17,0	5,30 / 14,0 / 17,0	7,40 / 18,1 / 20,6	7,40 / 22,0 / 23,8	11,1 / 33,0 / 35,6	14,8 / 44,0 / 47,5	18,5 / 55,0 / 59,4
COP nom (Ta +35°C, Tw 7/12 °C)		3,10	3,10	3,15	2,93	2,93	2,93	2,93
TECHNICAL DATA								
Refrigerant / GWP		R32 / 675						
Refrigerant charge	g	2.800	2.800	4200	4200	6.300	8.400	10.500
CO <sub>2</sub> eq.	ton	1,89	1,89	2,84	2,84	4,25	5,67	7,09
Back up electrical resistance**	kW	8	8	12	12	18	24	30
Maximum electrical power / current absorbed	kW/A	9,06 / 42,6	9,06 / 16,2	10,3 / 16,6	12,4 / 20	18,5 / 30	24,7 / 40	30,9 / 50
Voltage-Phase-Frequency	v/ph/Hz	230-1-50						

Data according to UNI EN 14511. \*Nominal power in heating. Tair=+7°C and Tw=35°C. \*\*PLUS version



# ARIANEXT LITE M R32 CASCADE



## > MONOBLOCK HEAT PUMP FOR CASCADE MANAGEMENT

- Up to 5 heat pumps in cascade
- Intelligent management of the “Smart Cascade” system, patented by Chaffoteaux
- Maximum energy optimization thanks to the modularity of the system
- Defrost mode only active on a single unit at a time, never interrupting system operation
- Ecological gas R32
- High efficiency heat pumps
- Light Box electrical box that can also be installed outdoors
- Plug & Play solution
- Easy installation: no F-gas license is required
- Back up electrical resistance available as an accessory
- Expert HD interface as standard with Cascade Manager
- Connectivity available as an accessory
- 24/7 remote assistance (optional)

RECOMMENDED SOLUTIONS			80 x 2	80 x 2	120 x 2	150 x 2	150 x 3	150 x 4	150 x 5
TOTAL CASCADE CAPACITY (kW)*			16 (1-ph)	16 (3-ph)	24 (3-ph)	30 (3-ph)	45 (3-ph)	60 (3-ph)	75 (3-ph)
TYPE	DESCRIPTION	CODE	AMOUNT						
External unit (ODU)	Arianext 80 M EXT R32	3630236	2	-	-	-	-	-	-
External unit (ODU)	Arianext 80 M-T EXT R32	3630237	-	2	-	-	-	-	-
External unit(ODU)	Arianext 120 M-T EXT R32	3630239	-	-	2	-	-	-	-
External unit (ODU)	Arianext 150 M-T EXT R32	3630241	-	-	-	2	3	4	5
Light Box (LB)	Arianext MLB Cascade	3301815	2	2	2	2	3	4	5
Cascade Manager	Cascade Manager	3301821	1	1	1	1	1	1	1

NOTE: Connectivity and external probe are not included.

## MONOBLOC TECHNICAL DATA

HEAT PUMP		80 x 2	80 x 2	120 x 2	150 x 2	150 x 3	150 x 4	150 x 5
PERFORMANCE IN WARM UP		Min / Nom / Max						
Thermal power nom (Ta +7°C, Tw 35/30 °C)	kW	5,48 / 16,0 / 23,5	5,48 / 16,0 / 23,5	8,50 / 24,0 / 28,7	8,16 / 30,0 / 35,3	12,2 / 45 / 53	16,3 / 60 / 70,6	20,4 / 75 / 88,3
COP nom (Ta +7°C, Tw 35/30 °C)		4,8	4,8	4,9	4,70	4,70	4,70	4,70
PERFORMANCE IN COOLING		Min / Nom / Max						
Thermal power min/nom/max (Ta +35°C, Tw 7/12 °C)	kW	5,30 / 14,0 / 17,0	5,30 / 14,0 / 17,0	7,40 / 18,1 / 20,6	7,40 / 22,0 / 23,8	11,1 / 33,0 / 35,6	14,8 / 44,0 / 47,5	18,5 / 55,0 / 59,4
COP nom (Ta +35°C, Tw 7/12 °C)		3,10	3,10	3,15	2,93	2,93	2,93	2,93
TECHNICAL DATA								
Refrigerant / GWP		R32 / 675						
Refrigerant charge	g	2.800	2.800	4200	4200	6.300	8.400	10.500
CO <sub>2</sub> eq.	ton	1,89	1,89	2,84	2,84	4,25	5,67	7,09
Back up electrical resistance**	kW	8	8	12	12	18	24	30
Maximum electrical power / current absorbed	kW/A	9,06 / 42,6	9,06 / 16,2	10,3 / 16,6	12,4 / 20	18,5 / 30	24,7 / 40	30,9 / 50
Voltage-Phase-Frequency	v/ph/Hz	230-1-50						

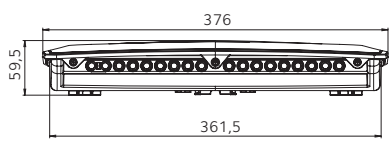
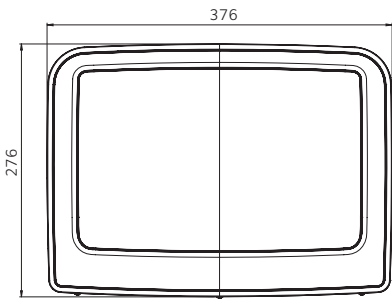

Data according to UNI EN 14511. \*Nominal power in heating. Tair=+7°C and Tw=35°C. \*\*PLUS version



**> CASCADE MANAGER FOR HEAT PUMPS**

- Management of up to 5 heat pumps
- Quick and easy installation
- Can also be installed externally thanks to the high degree of electrical protection
- Expert HD interface and T10 probe integrated as standard

**TECHNICAL DATA**

		<b>CASCADE MANAGER</b>
Voltage / Phase / Frequency	V - ph - Hz	230 - 1 - 50
Degree of electrical protection	IP	IPX5
Voltage range	V	196 ÷ 253
Nominal absorbed power	W	6
Nominal absorbed current	mA	25
Maximum current absorbed	mA	140
Magnetic switch	A	2 - C type (6 A max)



## DESIGN GUIDE - HEATING

The following tables aim to provide an indication on the correct selection of heat pumps for cascade applications, depending on the thermal load to be satisfied. The number presented below is only the minimum number of heat pumps in cascade given the thermal load in the different external and delivery temperature conditions, without any other boundary conditions.

		EXTERNAL TEMPERATURE											
		-20 °C	-15 °C	-10 °C	-7 °C	-3 °C	0 °C	2 °C	7 °C	10 °C	12 °C	15 °C	
THERMAL LOAD	Number of heat pumps (size 150) Heating - LWT 45°C	-	3	2	2	2	2	2	2	2	2	2	2
	20 kW	-	3	3	3	2	2	2	2	2	2	2	2
	25 kW	-	4	3	3	3	2	2	2	2	2	2	2
	30 kW	-	5	4	3	3	3	3	3	3	3	3	3
	35 kW	-	5	4	4	3	3	3	3	3	3	3	3
	40 kW	-	-	5	4	4	3	3	3	3	3	3	3
	45 kW	-	-	5	5	4	4	4	3	3	3	3	3
	50 kW	-	-	5	5	5	4	4	4	3	3	3	3
	55 kW	-	-	5	5	5	5	4	4	4	4	4	4
	60 kW	-	-	-	5	5	5	4	4	4	4	4	4
	65 kW	-	-	-	-	5	5	5	4	4	4	4	4
	70 kW	-	-	-	-	-	5	5	5	5	5	5	5
	75 kW	-	-	-	-	-	5	5	5	5	5	5	5
	80 kW	-	-	-	-	-	-	-	5	5	5	5	5
85 kW	-	-	-	-	-	-	-	-	-	5	5	5	

		EXTERNAL TEMPERATURE											
		-20 °C	-15 °C	-10 °C	-7 °C	-3 °C	0 °C	2 °C	7 °C	10 °C	12 °C	15 °C	
THERMAL LOAD	Number of heat pumps (size 150) Heating - LWT 55°C	-	3	2	2	2	2	2	2	2	2	2	2
	20 kW	-	3	3	3	2	2	2	2	2	2	2	2
	25 kW	-	4	3	3	3	3	2	2	2	2	2	2
	30 kW	-	5	4	3	3	3	3	3	3	3	3	3
	35 kW	-	5	4	4	3	3	3	3	3	3	3	3
	40 kW	-	-	5	4	4	4	3	3	3	3	3	3
	45 kW	-	-	5	5	4	4	4	4	4	4	4	4
	50 kW	-	-	5	5	5	4	4	4	4	4	4	4
	55 kW	-	-	5	5	5	5	4	4	4	4	4	4
	60 kW	-	-	-	5	5	5	4	4	4	4	4	4
	65 kW	-	-	-	-	5	5	5	5	5	4	4	4
	70 kW	-	-	-	-	-	5	5	5	5	5	5	5
	75 kW	-	-	-	-	-	-	5	5	5	5	5	5
	80 kW	-	-	-	-	-	-	-	-	5	5	5	5

## DESIGN GUIDE - COOLING

		EXTERNAL TEMPERATURE			
		15 °C	25 °C	35 °C	45 °C
THERMAL LOAD	Number of heat pumps (size 150) Cooling - LWT 7°C	2	2	2	2
	20 kW	3	3	3	3
	25 kW	3	3	3	3
	30 kW	3	3	3	4
	35 kW	4	4	4	4
	40 kW	4	4	4	4
	45 kW	5	5	5	5
	50 kW	5	5	5	5
	55 kW	-	-	-	-
	60 kW	-	-	-	-
	75 kW	-	-	-	-

		EXTERNAL TEMPERATURE			
		15 °C	25 °C	35 °C	45 °C
THERMAL LOAD	Number of heat pumps (size 150) Cooling - LWT 15°C	2	2	2	2
	20 kW	2	2	2	2
	25 kW	2	2	2	3
	30 kW	3	3	3	3
	35 kW	3	3	3	3
	40 kW	3	3	3	4
	45 kW	4	4	4	4
	50 kW	4	4	4	5
	55 kW	4	4	4	5
	60 kW	5	5	5	-
	75 kW	5	5	5	-

The Design Guide presented here is indicative only. For the correct functioning of the system, the project must be finalized under the responsibility of a technician and/or a professional.



## DESIGN GUIDE - DOMESTIC WATER

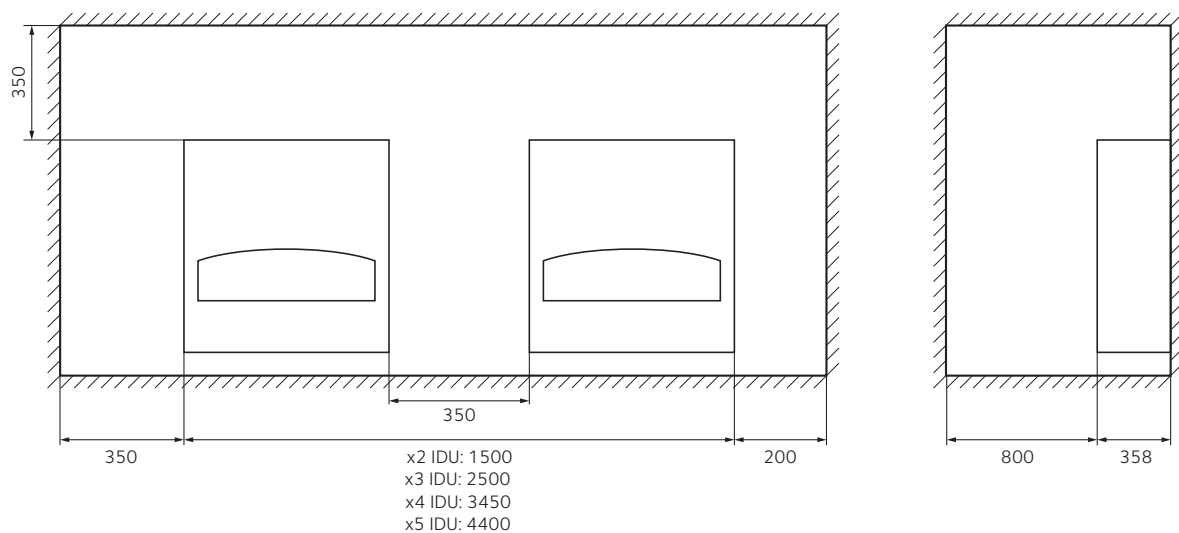
The following tables aim to provide an indication on the correct selection of heat pumps for cascade applications, depending on the thermal load to be satisfied. The number presented below is only the minimum number of heat pumps in cascade given the thermal load in the different external and delivery temperature conditions, without any other boundary conditions.

Boiler capacity (lt)	Maximum number of heat pumps that can be combined	Maximum coil exchangeable power** (kW)	Maximum capacity* (lt/h)	Serpentine surface (m <sup>2</sup> )
600	3	75	7056	5,7
800	3	80	7056	6,0
1000	3	80	7056	6,0
1500	5	100	9507	7,5

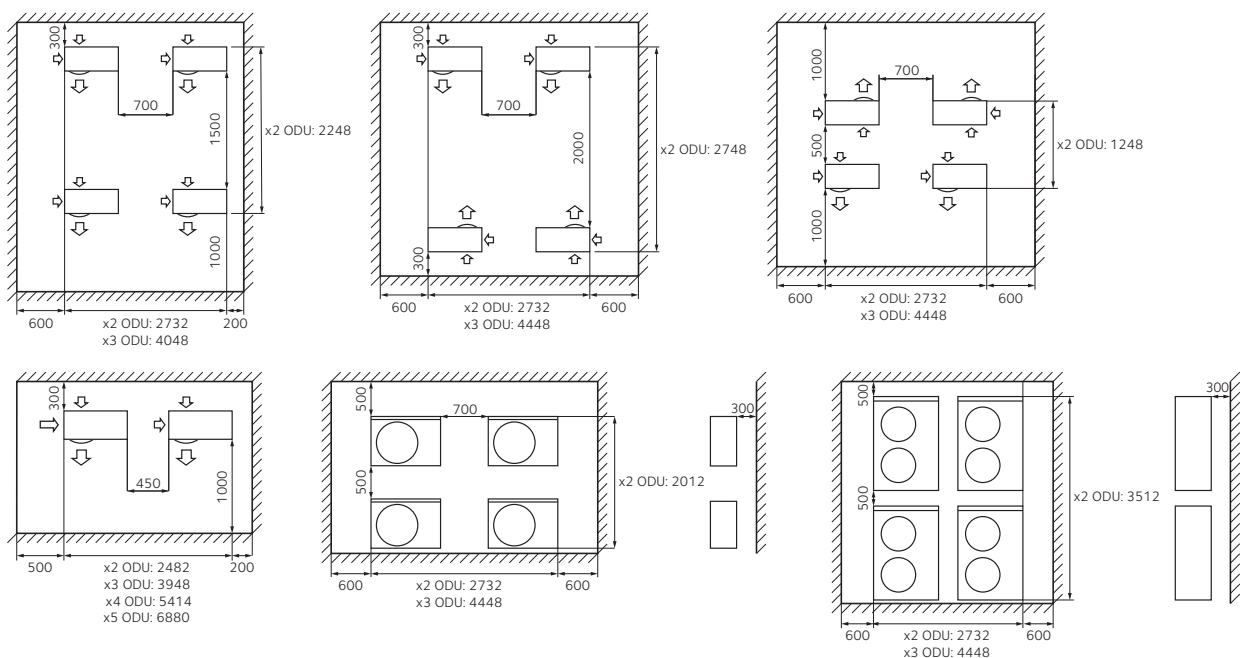
\* Considering the maximum speed of water 2 m/s

\*\* Considering LWT 60°C, inlet water 10°C and distribution temperature 45°C

### INDOOR UNITS - MINIMUM INSTALLATION DISTANCES (IN mm)

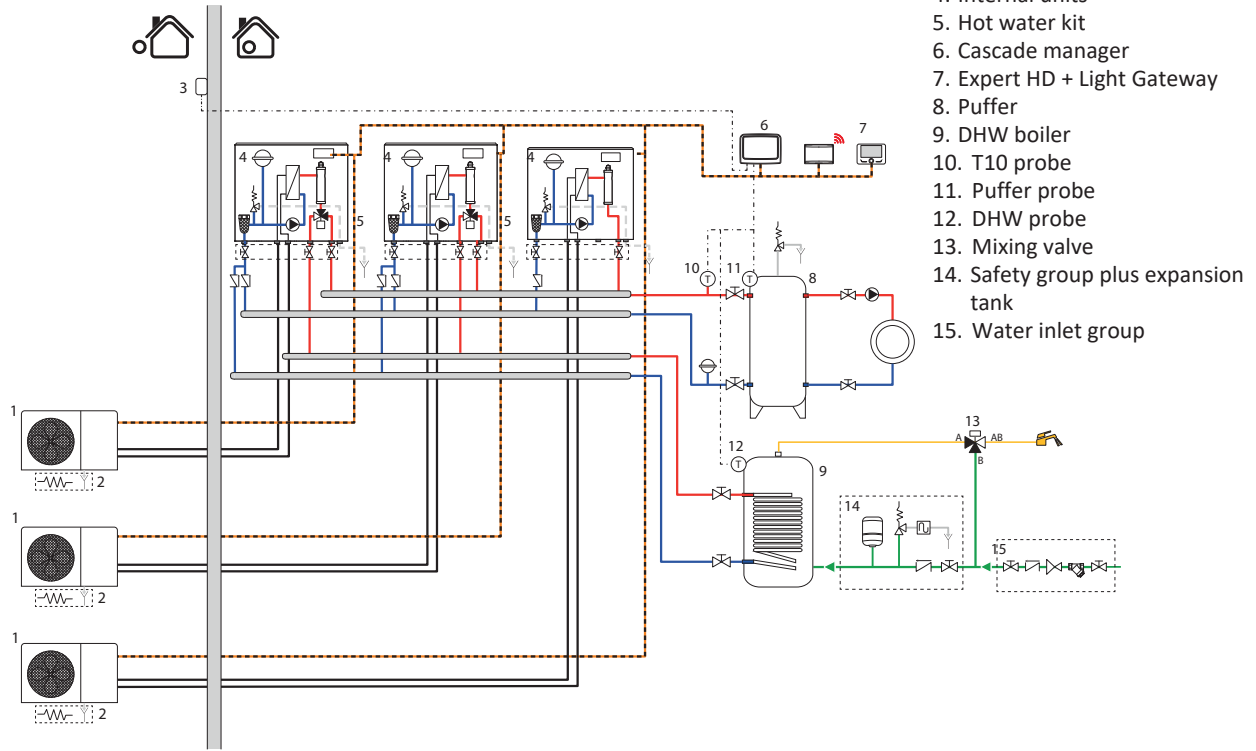


### OUTDOOR UNITS - MINIMUM INSTALLATION DISTANCES (IN mm)



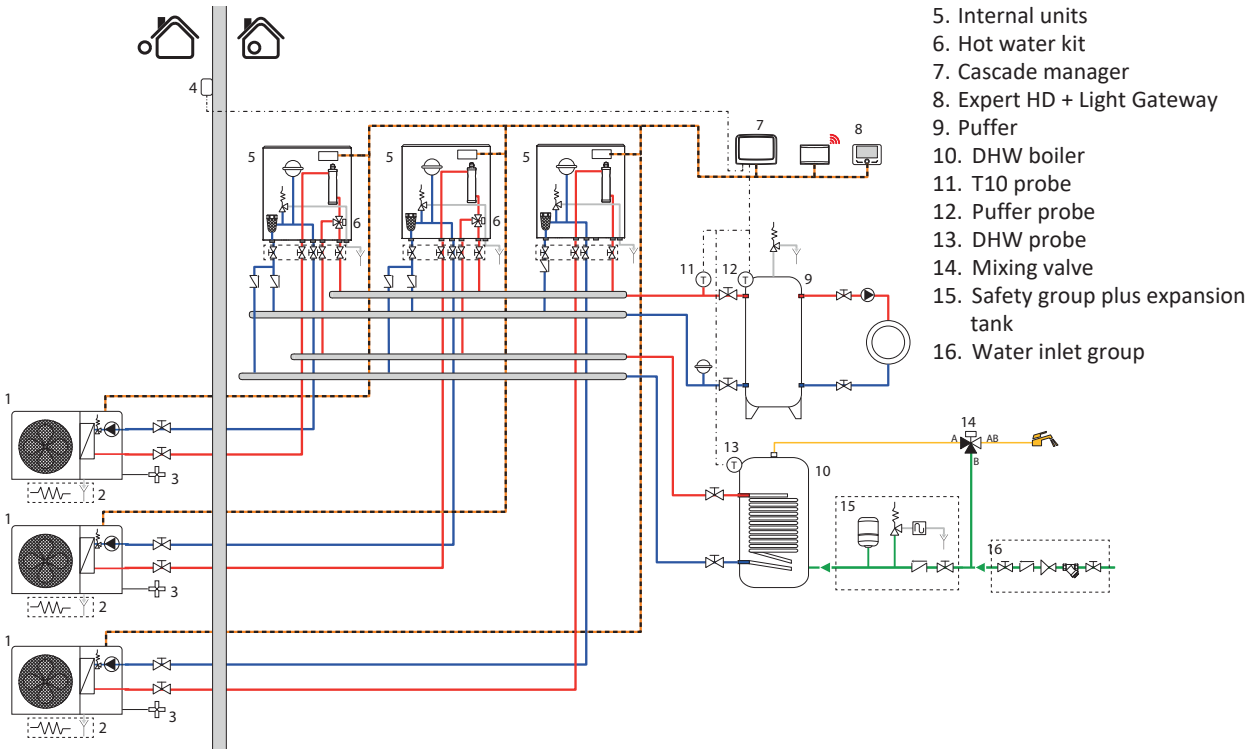


**ARIANEXT PLUS S R32 - CASCADE**

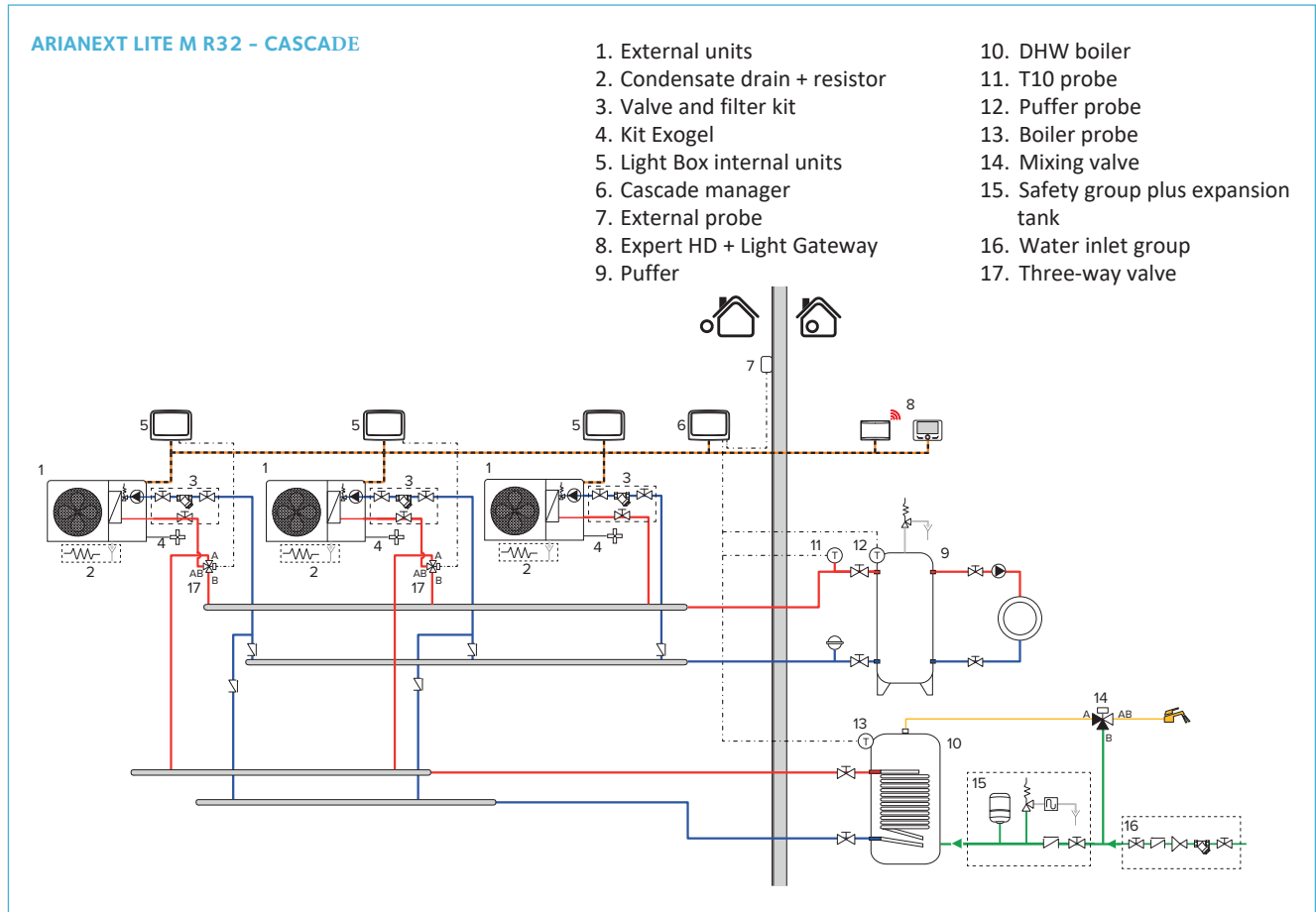


1. External units
2. Condensate drain + resistor
3. External probe
4. Internal units
5. Hot water kit
6. Cascade manager
7. Expert HD + Light Gateway
8. Puffer
9. DHW boiler
10. T10 probe
11. Puffer probe
12. DHW probe
13. Mixing valve
14. Safety group plus expansion tank
15. Water inlet group

**ARIANEXT PLUS M R32 - CASCADE**





1. External units
2. Condensate drain + resistor
3. Kit Exogel
4. External probe
5. Internal units
6. Hot water kit
7. Cascade manager
8. Expert HD + Light Gateway
9. Puffer
10. DHW boiler
11. T10 probe
12. Puffer probe
13. DHW probe
14. Mixing valve
15. Safety group plus expansion tank
16. Water inlet group



**LIST OF COMPONENTS FOR CASCADE HEAT PUMPS**

Model	Outdoor Unit (ODU)	CODE ODU	Indoor Unit (IDU)	CODE IDU
PLUS S	ARIANEXT 80 S EXT R32	3630244	ARIANEXT WH 80 S CASCADE	3301819
	ARIANEXT 80 S-T EXT R32	3630245		
PLUS M	ARIANEXT 80 M EXT R32	3630236	ARIANEXT MGP M CASCADE	3301840
	ARIANEXT 80 M-T EXT R32	3630237		
	ARIANEXT 120 M EXT R32	3630238		
	ARIANEXT 120 M-T EXT R32	3630239	ARIANEXT MGP-L M CASCADE	3301841
	ARIANEXT 150 M EXT R32	3630240		
	ARIANEXT 150 M-T EXT R32	3630241		
LITE M	ARIANEXT 80 M EXT R32	3630236	ARIANEXT MLB CASCADE	3301815
	ARIANEXT 80 M-T EXT R32	3630237		
	ARIANEXT 120 M EXT R32	3630238		
	ARIANEXT 120 M-T EXT R32	3630239		
	ARIANEXT 150 M-T EXT R32	3630241		
CASCADE MANAGER	-	-	-	3301821

**ACCESSORIES FOR CASCADE HEAT PUMPS**

Accessori		CODE
	<b>CHAFFOLINK LIGHT GATEWAY</b> WiFi Gateway for internet connection. It can be installed behind the Expert HD.	3319090
	<b>CHAFFOLINK GPRS/LAN</b> GPRS/LAN gateway for internet connection. It can be installed behind the Expert HD	3319443
	<b>EXTERNAL PROBE</b> Probe for measuring the external temperature	3318599