



## MAJOR LINE

Comfort units



NCH model



CV model

### *Versatile*

*unit meeting all building-specific constraints*

*Energy and ecodesign performance.*

*Improved occupant **comfort**,*

*very low sound level*

***Innovative** design ensuring easy installation and simplified maintenance*

*New coils with patented fins,  
new size designations.*



## MAJOR LINE

Designed for heating and cooling, **MAJOR LINE** is available in 4 models (cased or uncased, horizontal or vertical).

The versatility of MAJOR LINE, thanks to its different assembly options and range of accessories, means it can be adapted to any type of installation.

In Europe, it has become a benchmark solution for renovations of large office blocks and hotel chains and restoration of buildings, etc.

Modern aesthetic lines, excellent sound levels and optimised thermal performance. With MAJOR LINE, CIAT offers a comfort solution which is both economical and quick to set up.

## INNOVATIVE DESIGN

A true stylistic evolution, MAJOR LINE has distinguished lines with a slim and elegant shape. Its attractive and modern design will blend perfectly with all types of interior.



### VERSATILITY OF THE MODELS

- Two versions:
- Cased (visible)
  - Uncased (flush-mounted)
- The same product reference for both applications: CV (Cased Vertical)/CH (Cased Horizontal).
- The same product reference for both applications: NCV (Uncased Vertical)/NCH (Uncased Horizontal).
- Units with left/right hydraulic connections available for easier adaptation to refurbished buildings.

Cased or Uncased models available with classic air return (assemblies 1, 41, 1V and 41V) and front mounted air return (assemblies 1D, 41D, 1VD and 41VD).

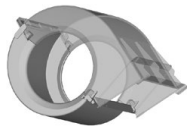
- A large selection of accessories available in:
- Fresh air and mixed
  - Diffusion and return air

For NCH, the hydraulic and electrical connections can be supplied on the same side making the unit more compact and simplifying installation.

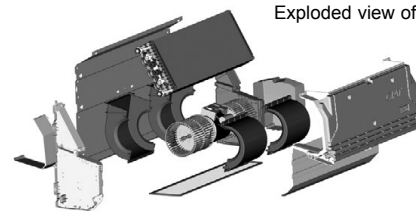
Unit operates with 50 and 60 Hz supply.

### INNOVATIVE DESIGN

- New shaped ABS volute designed to optimise output and performance.
- 160 mm HEE (High Energy Efficiency) impeller, with CIAT exclusive airfoil blades in self-extinguishable HB ABS.
- Hydraulic coil with total frontal surface increased from 5 to 15% (according to the size and in relation to the units of previous ranges) for improved performance and output .



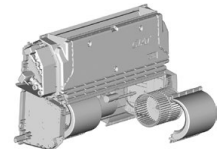
Shaped ABS volute



Exploded view of NCV model

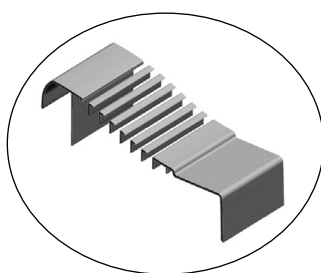
### SIMPLE TO INSTALL AND MAINTAIN

- Filter easily accessible.
- Single unit casing easily removed with two screws in the lower part of the unit.
- Option of replacing only the faulty component on the fan motor assembly: only the motor or the impeller.
- All the speeds are connected to the electrical terminal of the unit and are easily accessible on site for customised adjustment.
- No plastic moving parts on the casing (hinged access hatch for example) for increased durability of the unit over time.



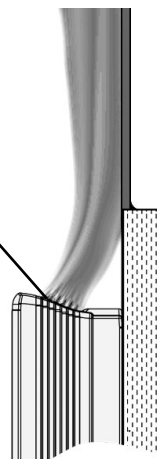
### LATEST GENERATION OF COMFORT

- Improved control of the supply air temperature to reduce discomfort.
- Diffusion grille optimised in our Research & Innovation Centre for increased overall comfort in accordance with the most demanding standards.

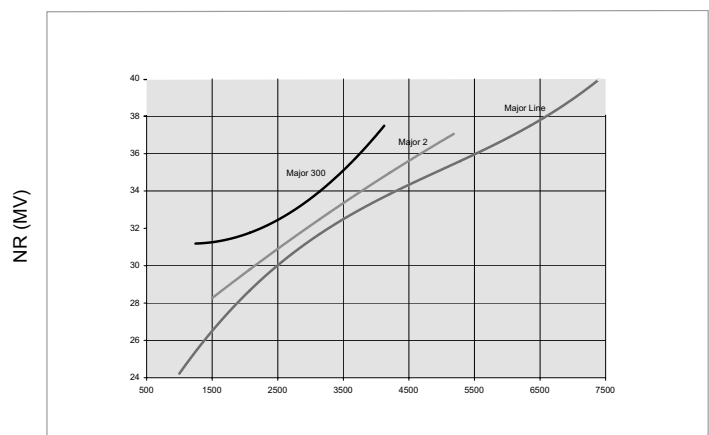


Details of the air supply grille

Modelling of air distribution in the room

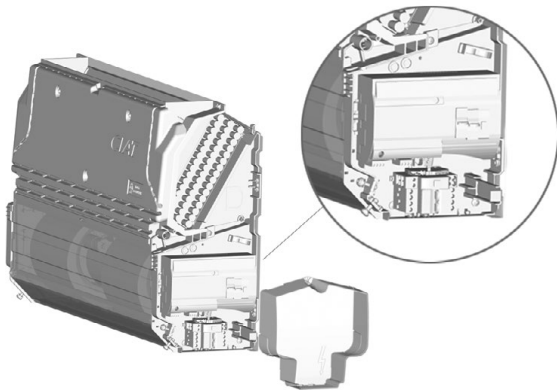


Acoustic performance (MV trend line)



MV cooling capacity (W)

## INCREASED SAFETY



- The entire electrical connection part is encased in a housing. Access is only possible using a tool.
- No electrical terminals on the motor.
- Large condensate pan to prevent water leaks and any damage to the building.
- Pan in ABS/PC 10% fibreglass, to eliminate the risk of corrosion present with metal pans and limit the creation of biofilm that causes the proliferation of bacteria.
- A tool must be used to access the inside of the unit. This prevents users from modifying the product or rearming the safety limiters contrary to specifications.
- The electrical unit has been sized to enable all types of controls to be fitted.
- For NCH, the condensate outlet has been raised 30 mm to facilitate the gravity drain.

## COMPLIANCE WITH ENERGY AND ENVIRONMENTAL REQUIREMENTS

- A small size developed for buildings whose use of energy is optimised.
- Intelligent design of the unit allowing the power input of the standard motor to be reduced by an average of 20 %.
- Reduction of the electrical power of the heating (resistors) to better meet the requirements of new buildings.
- HEE motor (very low consumption) also available as an option for this range.



## ECODESIGN

- The MAJOR LINE comfort unit is **at least 85 % recyclable**.
- MAJOR LINE has been designed using **up to 20 % fewer raw materials** compared with previous ranges.
- **100%** of the MAJOR LINE parts made from **ABS** are **recyclables** and stamped with the logo below which enables the materials used to be traced and thus facilitates sorting at the end of its life.
- Designed for **easy dismantling** at end of life.
- The three French production sites of the CIAT group are **ISO 14001** certified. This certification is awarded for environmental management, thereby formalising the company's contribution to **sustainable development**.
- Since 2013, CIAT has been working in partnership with ECOLOGIC for the collection and recovery of waste from our appliances at end of life, subject to the WEEE directive.



### MORPHO CODES - MAJOR LINE DESCRIPTION

Range	Size	Model	Installation	Coil type	Connector	Thermal function	Motor	Speeds	Filter
MJL	10 2A	CV	1	2T2F	G	F + 500W	HEE	depending on selection	G3

HEE 2-10V	Energy efficient motor, 2-10 V control
HEE ON/OFF	Energy efficient motor, 3-speed control
AC	5-speed asynchronous motor

10	300 W or 600 W
20	500 W or 1000 W
30	800 W or 1600 W
40	1200 W or 2400 W
50	1600 W or 3200 W
60	Not available

F	Cooling
C	Heating
CF	Heating/Cooling

G	Left, facing air supply
D	Right, facing air supply

2T	2 pipes
2T2F	2-pipe + wiring
4T	4 pipes

1	Return underneath CV
1D	Front-mounted return CV
41	Rear-mounted return CH
41D	Return underneath CH
1V	Return underneath NCV
1VD	Front-mounted return NCV
41V	Rear-mounted return NCH
41VD	Return underneath NCH

CV	Cased Vertical model
CH	Cased Horizontal model
NCV	Uncased Vertical model
NCH	Uncased Horizontal model
NCH Y	Y Uncased Horizontal model with supply plenum (plenum delivered not fitted)
NCH H	Horizontal uncased model with supply & return plenum
NCH U	Horizontal uncased model with supply & return plenum

2J	2-pipe 1.5-row version (+ possible wiring)
2K	2-pipe 2-row version
2M	2-pipe 2.5-row version (+ possible wiring)
2N	2-pipe 3-row version
4P	4-pipe, 2.5-row version (cooling) + 0.5 row version (heating)
4R	4-pipe, 1-row version (cooling) + 2 row version (heating)

10	Size
20	
30	
40	
50	
60	

MJL Major Line

## TECHNICAL DESCRIPTION

### Casing

- Single-unit casing and side members in ABS
- Front/rear panel in galvanised steel with mounting holes for easy fixing.

### Casing for CV/CH model

Bi-material casing in two colours:

- Flange, side member and supply air grille in RAL 7035 grey ABS
- Front pressed metal panel painted RAL 9010 white and front mounted return air grille (1D, 41D) in RAL 7035 grey
- Central access point for housing the built-in thermostats

### Water coil

- High performance coil concept
- Coil casing in galvanised panels.
- Copper pipes, aluminium louvre or non-louvre fins, patented.
- Water coil tap on the left or right of the unit from the front of the supply air (to be specified when ordering).
- 2 or 4-pipe main coil fitted with ½" or ¾" rotary couplings with air purge and drain screw.
- Additional coil for 4 pipes fitted with ½" rotary couplings with 40 mm centre-to-centre distance.
- Nominal pressure of 16 bar (at 20°C)
- Test pressure 18 bar.
- Maximum hot water inlet temperature:
  - 4-pipe application: 90°C
  - 2-pipe application: 90°C
  - 2-pipe/2-wire application: 55°C (min. air flow: 200 m³/h)

### Electric heater

- Single pipe 230V single phase 50/60 Hz electrical elements inserted into the aluminium housing.
- Two capillary tube temperature limiters with manual and automatic reset inserted in the aluminium housing.

### Condensate drain pan

- Pan in ABS PC 10% fibreglass with M1 class reinforced EPS insulation (20 mm thick).
- Reinforced insulation for all climates, M1 class EPS panel (20 mm thick).
- ABS auxiliary pan.
- 22 mm external Ø raised condensate outlet.

### Fan motor assembly

#### ■ Fan(s)

Impeller(s) in ABS in split units for total accessibility of the different parts of the fan motor assembly.  
160 mm HEE impeller(s), with CIAT exclusive airfoil blades in self-extinguishable HB ABS.

#### ■ HEE motor

High energy efficiency motor enabling a reduction of up to 85% in electricity consumption.

- Brushless technology.
- Sealed type, tropicalised with protected shaft.
- Progressive control with 0-10V control signal.
- Internal normally closed series automatic overload protection on the windings.
- Mounted on anti-vibration mounts.
- Supply 230V±10%/1-Ph/50-60 Hz.
- optional:
  - 3-speed on/off output motor actuation
  - "DFS" motor fault output using a photocoupler for potential alarm feedback via a KNX protocol communication bus. (via V3000 controller)

**Note:** The minimum voltage to start up the motor is 2V.

#### ■ Asynchronous motor

- 5 factory-fitted wired speeds (connected and available at the terminal) for customised adjustment.
- Sealed, tropicalised type, class F with protected shaft.
- Permanent capacitor.
- Ball bearings.
- Automatic overload protection as standard on winding.
- Resilient mounts.
- 230V single-phase 50/60 Hz power supply, reduced consumption.

### Electrics box

- Box incorporated on the side of the base opposite the hydraulics.
- Fully encased in an enclosure in PP 20% Talc.
- Electrical connection terminal on DIN rail in compliance with EN 50022, 7.5 mm deep.
- Wire clamps for customer connection.

### Air filter

- Flexible filter medium made of regenerative polyester fibre, on rigid frame.
- Efficiency class EN 779: G3.
- Fire rating: M1.
- Mounted on pivoting runners for easy maintenance

### Packaging

- Delivered in individual boxes on pallets protected by stretch wrap film.

### Controls

- RTR-E electromechanical thermostat range.
- V30 electronic range.
- V300 electronic range.
- Networked electronic range (KNX): V3000.
- Networked electronic range (LON): V-LON2.

### Factory-fitted options

- Condensate drain pump.
- Rectangular supply air sleeve for direct distribution in soffit.
- Supply and return air plenum for H and U assembly (contact us) for sizes 2 to 4.
- Electrics box on hydraulic side for NCH models only.
- Hydraulic coil with blades protected for use in harmful/corrosive atmospheres (coastal locations, or areas close to chemical industries).
- Unit without electrics box, or DIN Rail ("bare wire option")

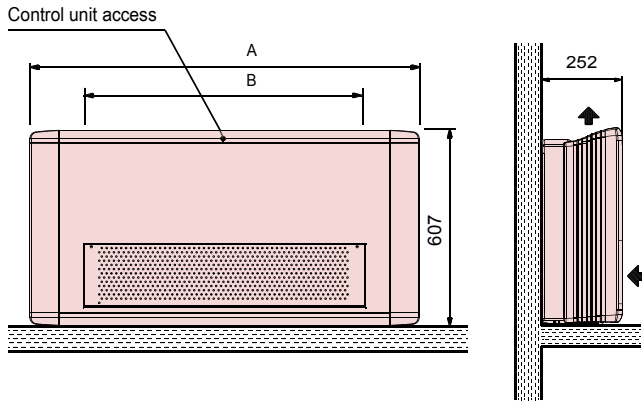
### Accessories supplied separately

- Support feet or base
- Return air grille between feet
- Rear skirting support and rear painted panel
- Internal/external air recovery unit
- Single- or dual-deflection diffusion grille
- Diffusion kit with round duct
- Supply air plenum kit for sizes 1 to 6
- Condensate drain pump kit
- Elastic bushings
- Smooth sleeve or Ø 100 mm MR Module
- Hose or tube kit with or without insulation
- 2-way or 3-way valve kit with 230V on/off bypass

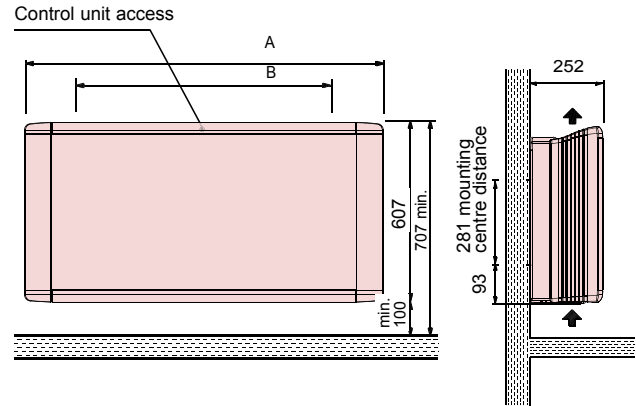
**Note:** refer to the technical manual and the instruction manual for more information.

## ASSEMBLY AND DIMENSIONS – CV MODEL (CASED VERTICAL)

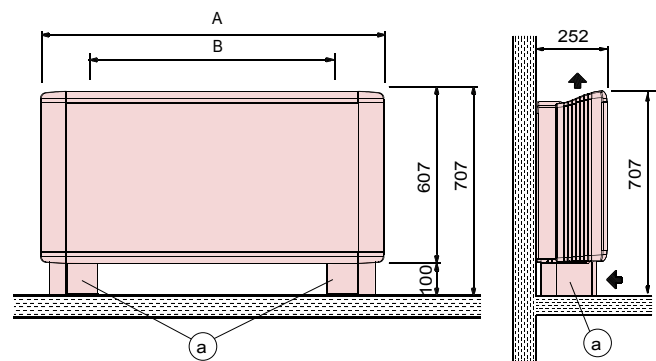
### → Assembly 1D: Unit with return on front



### → Assembly 1: Basic unit with return underneath



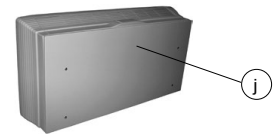
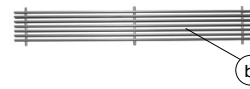
### → Assembly 2: Basic unit with feet



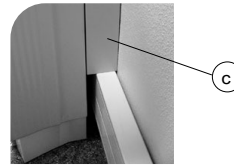
#### Options available with assembly 2:

- Base mounted grille

- Rear painted panel



- Rear skirting support



### Accessories for assembly configurations (supplied separately)

- a: Support feet
- b: Aluminium return air grille between feet
- c: Painted rear skirting support
- j: Rear painted panel RAL 7035

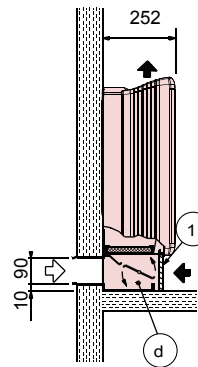
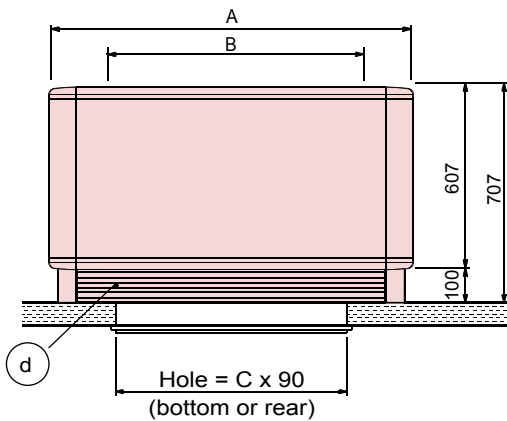
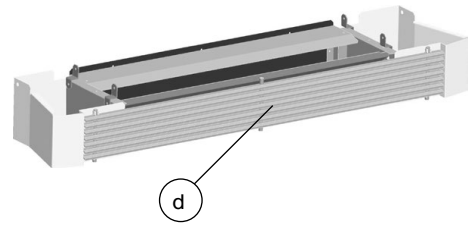
Sizes MAJOR LINE	A	B mounting centre distance	Weight (kg) *	
			Assembly 1/ 1D	Assembly 2
10	840	505	20	21
20	1000	665	23	24
30	1200	865	28	29
40	1400	1065	34	35
50	1600	1265	39	40
60	1800	1465	44	45

\* Weight of the unit in 4-pipe version (without valves)

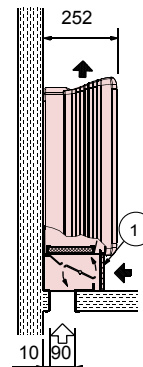
## ASSEMBLY AND DIMENSIONS – CV MODEL (CASED VERTICAL)

### → Assemblies 5 and 6:

Basic unit equipped with a manual pretreated air/recycled air mixing unit with a return air grille and a damper regulating the pretreated air intake.



Assembly 5



Assembly 6

⇒ Air pretreated by an air handling unit

### Accessories for assembly configurations (supplied separately)

d: Manually controlled int./ext. air recovery unit with return air grille ① for filter removal

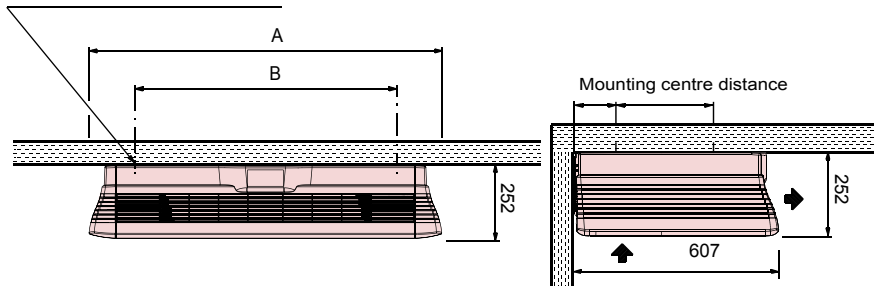
Sizes MAJOR LINE	A	B mounting centre distance	C hole space	Weight (kg) *
10	840	505	430	24
20	1000	665	430	28
30	1200	865	780	32
40	1400	1065	780	40
50	1600	1265	1180	45
60	1800	1465	1180	50

\* Weight of the unit in 4-pipe version (without valves)

## ASSEMBLY AND DIMENSIONS – CH MODEL (CASED HORIZONTAL)

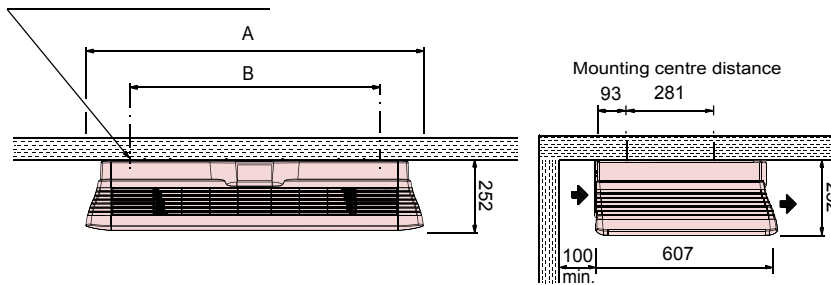
### → Assembly 41D: Unit with return on front

Mounting: 4 sealed M6 shafts, nuts and washers (not supplied)



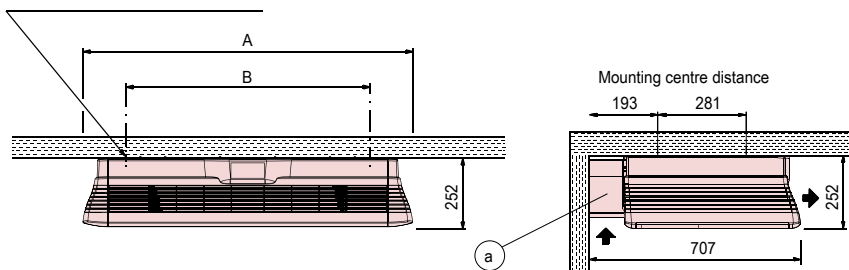
### → Assembly 41: Basic unit

Mounting: 4 sealed M6 shafts, nuts and washers (not supplied)



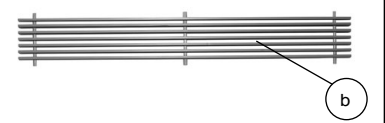
### → Assembly 42: Basic unit with feet

Mounting: 4 sealed M6 shafts, nuts and washers (not supplied)



Option available on assembly 42:

- Base mounted grille



### Accessories for assembly configurations (supplied separately)

a: Support feet

b: Aluminium internal return air grille between feet

**Note:** For assembly 42 the condensate drain pump must be used.

Sizes MAJOR LINE	A	B mounting centre distance	Weight (kg) *	
			Assembly 41D/ 41	Assembly 42
10	840	505	20	21
20	1000	665	23	24
30	1200	865	28	29
40	1400	1065	34	35
50	1600	1265	39	40
60	1800	1465	44	45

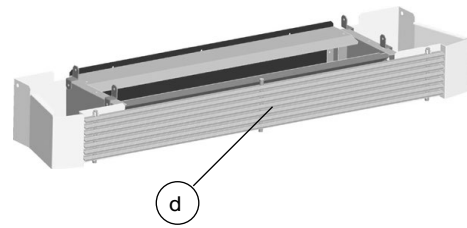
\* Weight of heaviest unit in 4-pipe configuration



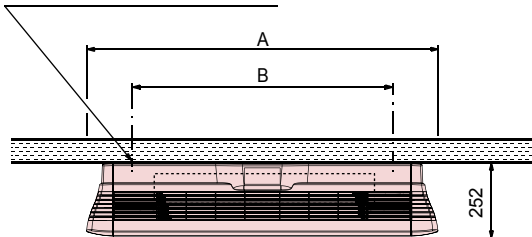
## ASSEMBLY AND DIMENSIONS – CH MODEL (CASED HORIZONTAL)

### → Assemblies 45 and 46:

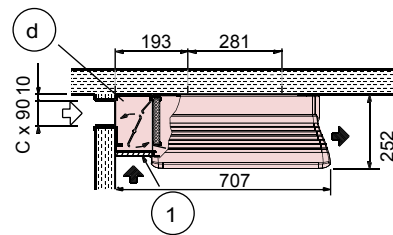
Basic unit equipped with a manual pretreated air/recycled air mixing unit with a return air grille and a damper regulating the pretreated air intake.



Mounting: 4 sealed M6 shafts, nuts and washers (not supplied)



Mounting centre distance



Assembly 46

Assembly 45:  
identical with ceiling mounted pretreated air intake

⇒ Air pretreated by an air handling unit

### Accessories for assembly configurations (supplied separately)

d Manually controlled int./ext. air recovery unit with return air grille ① for filter removal

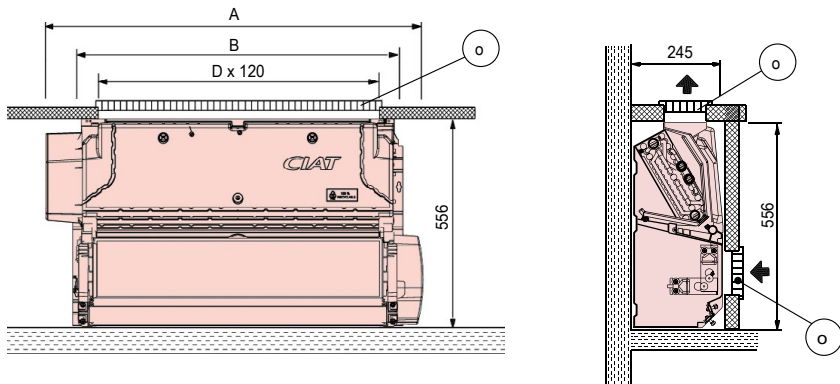
For assemblies 45-46 the condensate drain pump must be used.

Size MAJOR LINE	A	B mounting centre distance	C hole space	Weight (kg) *
10	840	505	430	24
20	1000	665	430	28
30	1200	865	780	32
40	1400	1065	780	40
50	1600	1265	1180	45
60	1800	1465	1180	50

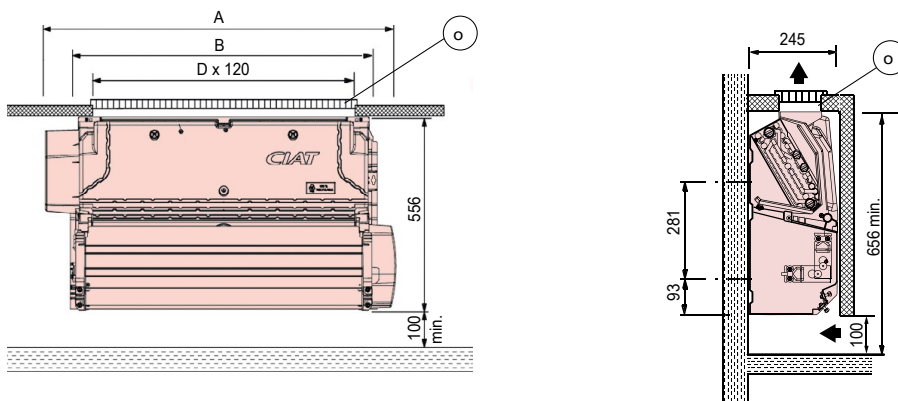
\* Weight of the unit in 4-pipe version (without valves)

## ASSEMBLY AND DIMENSIONS – NCV MODEL (UNCASED VERTICAL)

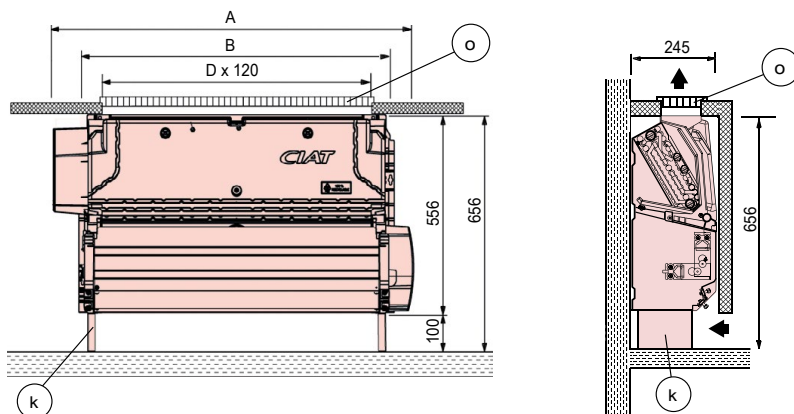
→ **Assembly 1VD:** Unit with return on front



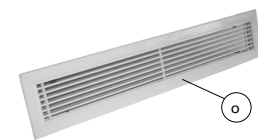
→ **Assembly 1V:** Basic unit with bottom-mounted return



→ **Assembly 2V:** Basic unit with support base



**Accessories for assembly configurations (supplied separately)**



k Support base

o Aluminium single deflection diffusion or return air grille with sealing frame (without hatch).

**Note:** this grille can be used for both return and supply air.

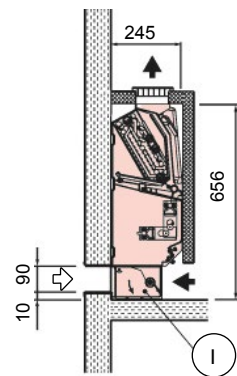
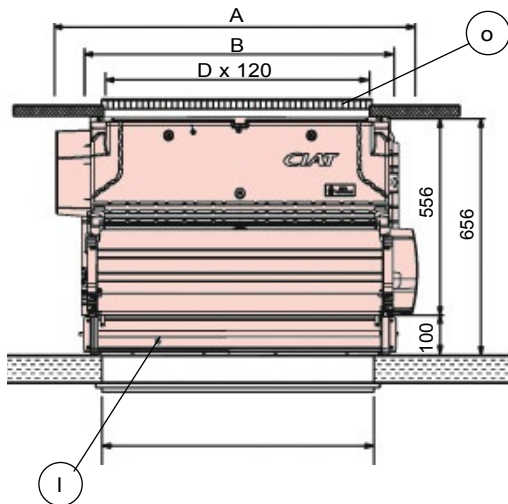
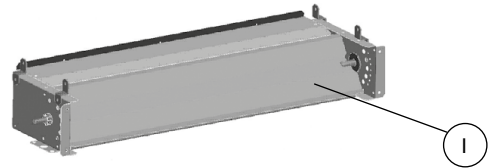
Sizes MAJOR LINE	A	B mounting centre distance	D grille space	Weight (kg) *
10	652	505	355	15
20	812	665	515	18
30	1012	865	715	22
40	1212	1065	915	28
50	1412	1265	1115	32
60	1612	1465	1315	36

\* Weight of the unit in 4-pipe version (without valves)

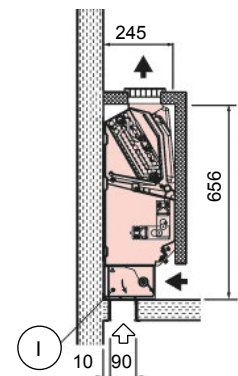
## ASSEMBLY AND DIMENSIONS – NCV MODEL (UNCASED VERTICAL)

### → Assemblies 5V and 6V:

Basic unit equipped with a manual pre-treated air/ recycled air mixing unit with a damper regulating the pre-treated air intake.



Assembly 5V



Assembly 6V

⇨ Air pretreated by an air handling unit

### Accessories for assembly configurations (supplied separately)

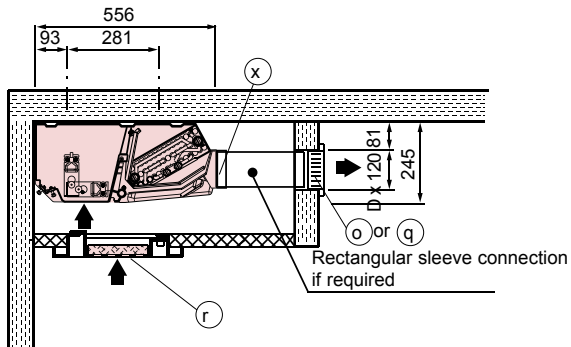
- I: Internal/external manually controlled air return unit
  - o: Aluminium single deflection diffusion or return air grille with sealing frame (without hatch).
- For other applications, please consult us.

MAJOR LINE size	A	B mounting centre distance	C hole space	D grille space	Weight (kg)*
10	652	505	430	355	16,5
20	812	665	430	515	20
30	1012	865	780	715	25
40	1212	1065	780	915	32
50	1412	1265	1180	1115	37
60	1612	1465	1180	1315	42

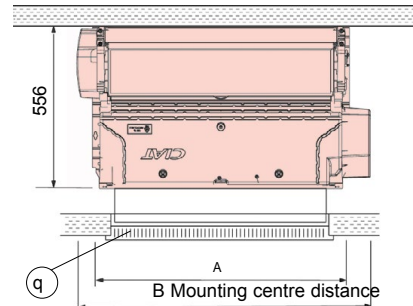
\* Weight of heaviest unit in 4-pipe configuration

## ASSEMBLY AND DIMENSIONS – NCH MODEL (UNCASED HORIZONTAL)

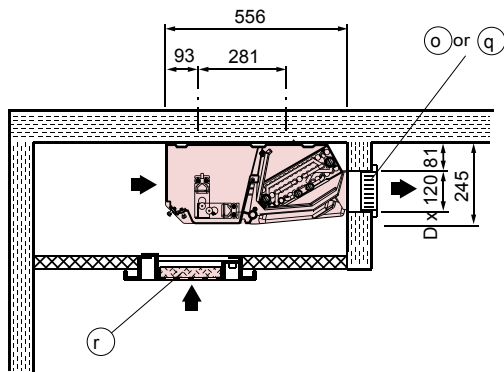
→ **Assembly 41VD:** Unit with return on front



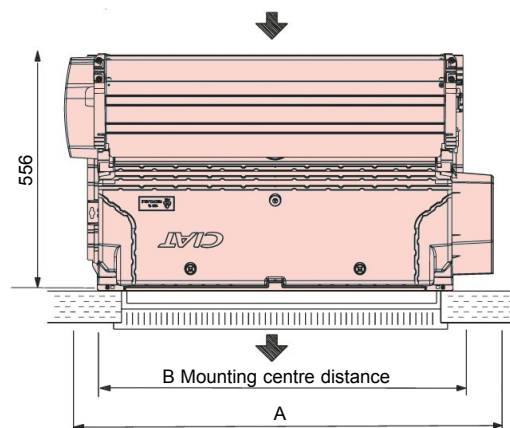
View from beneath



→ **Assembly 41VD:** Unit with return on front



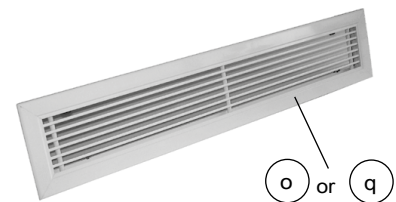
View from beneath



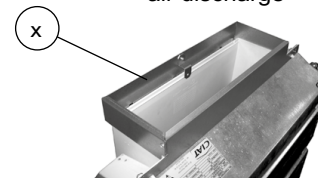
Option available

on assemblies 41VD, 41V and 42V:

- Aluminium single (o) or double (q) deflection diffusion grille with sealing frame



- Metal sleeve for connection to air discharge



### Accessories for assembly configurations (supplied separately)

- o: Aluminium single deflection diffusion grille with sealing frame.
- q: Aluminium double deflection diffusion grille with sealing frame
- r: 600 x 600 microperforated return air grille (see diffusion range)
- x: Metal sleeve connecting rectangular sleeve to supply air

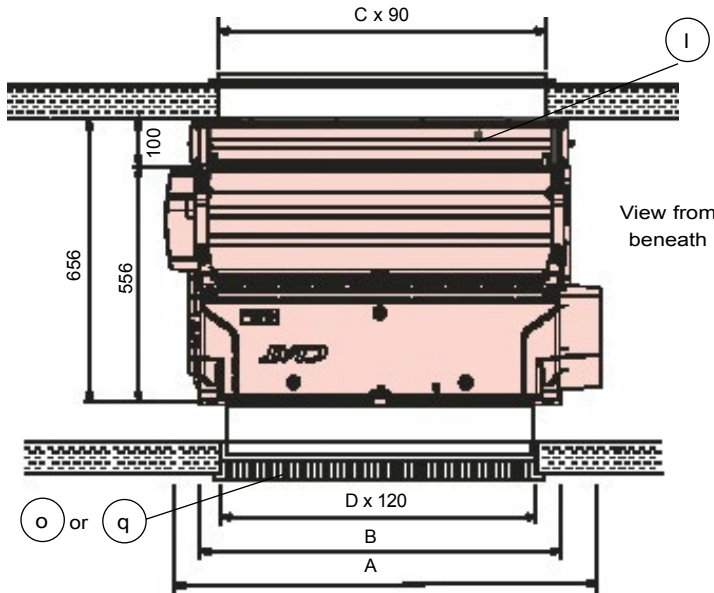
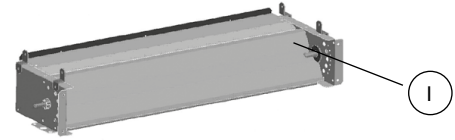
Size MAJOR LINE	A	B mounting centre distance	D grille space	Weight (kg) *
10	652	505	355	15
20	812	665	515	18
30	1012	865	715	22
40	1212	1065	915	28
50	1412	1265	1115	32
60	1612	1465	1315	36

\* Weight of the unit in 4-pipe version (without valves)

## ASSEMBLY AND DIMENSIONS – NCH MODEL (UNCASED HORIZONTAL)

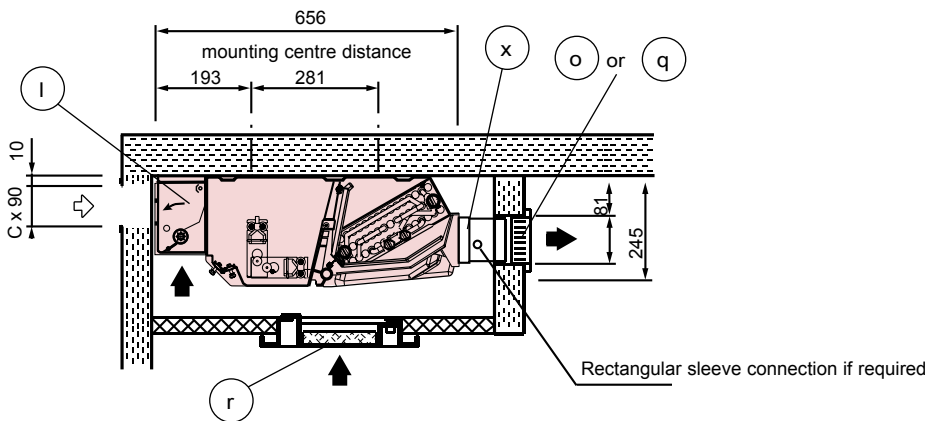
### → Assemblies 45V and 46V:

Basic unit equipped with a manual fresh air/recycled air mixing unit with a damper regulating the pre-treated air intake.



Option available  
**Assemblies 45V and 46V:**

- Aluminium single or double deflection diffusion grille with sealing frame



⇨ Air pretreated by an air handling unit

### Accessories for assembly configurations (supplied separately)

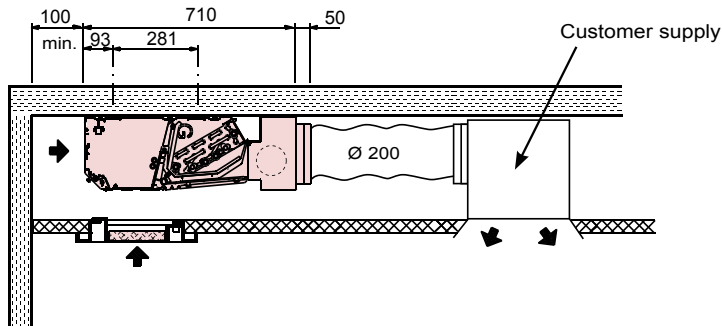
- l: Internal/external manually controlled air return unit
- o: Aluminium single deflection diffusion grille with sealing frame
- q: Aluminium double deflection diffusion grille with sealing frame
- r: 600 x 600 microperforated return air grille (see diffusion range)
- x: Metal sleeve connecting rectangular sleeve to supply air frame

MAJOR LINE size	A	B Mounting centre distance	C hole space	D grille space	Weight (kg)*
10	652	505	430	355	16,5
20	812	665	430	515	20
30	1012	865	780	715	25
40	1212	1065	780	915	32
50	1412	1265	1180	1115	37
60	1612	1465	1180	1315	42

\* Weight of heaviest unit in 4-pipe configuration

## ASSEMBLY AND DIMENSIONS – NCH MODEL (UNCASED HORIZONTAL)

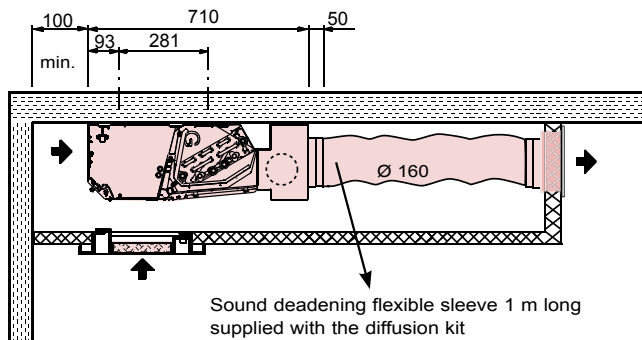
### → Y assembly:



Supply air plenum delivered not fitted. Available for sizes 1 to 6

Size	Number of collars	Ø of collars
T1	1	200
T2	1	200
T3	2	200
T4	3	200
T5	3	200
T6	3	200

### → YK assembly:

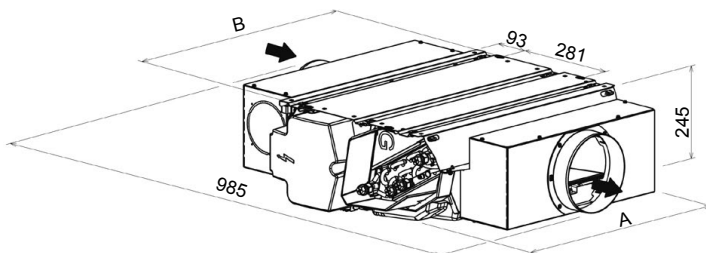


Supply air plenum delivered not fitted. Available for sizes 1 to 5

Size	Number of collars	Ø of collars
T1	1	160
T2	1	160
T3	2	160
T4	3	160
T5	3	160

### → Assembly H:

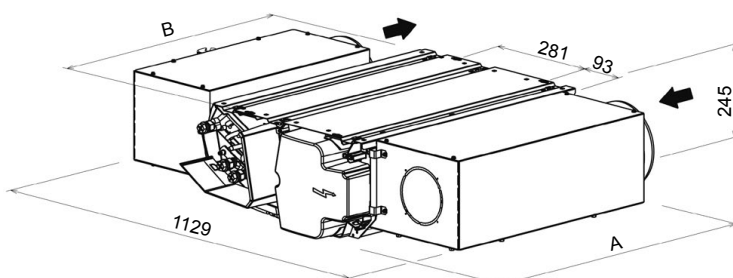
Supply and return air plenum factory-fitted with Ø 160 mm or 200 mm collars available for sizes 2 to 4



Size	A	B	Number of collars
T2	760	665	1
T3	960	865	2
T4	1160	1065	3

### → Assembly U:

Supply and return air plenum factory-fitted with Ø 160 mm or 200 mm collars available for sizes 2 to 4



Size	A	B	Number of collars
T2	770	665	1
T3	970	865	1
T4	1170	1065	1

## PERFORMANCE – 2-TUBE SYSTEM

Cooling mode: water temperature: 7/12 °C, inlet air temperature: 27 °C - 19 °C (WB)

Heating operation: water temperature: 45/40 °C, inlet air temperature: 20 °C

Major Line	AC motor Motor reference	HEE motor Voltage (V)	Cooling cap. W		Heating capacity W	Sound power LW dB(A)	Electrical power W		Electric heater	
			Total	Sensible			Motor AC	Motor EC	High capacity W	Low capacity W
102J / 120J HEE	V4	4,6	1 040	990	1 530	46	24	10	300	600
	V3	3,9	880	830	1 360	41	19	6		
	V1	2,8	710	660	1 030	33	12	5		
102M / 102M HEE	V4	5,0	1 390	1 130	1 880	46	25	11	300	600
	V3	4,2	1 200	970	1 600	42	19	8		
	V1	2,9	850	670	1 160	36	11	5		
202J / 202J HEE	V4	4,8	1 760	1 690	2 500	50	42	15	500	1000
	V3	4,3	1 620	1 540	2 330	47	40	12		
	V1	2,7	1 150	1 050	1 550	36	33	5		
202M / 202M HEE	V4	4,8	2 140	1 800	2 690	50	42	15	500	1000
	V3	4,3	1 910	1 640	2 430	46	40	12		
	V1	2,7	1 320	1 120	1 670	35	33	5		
202N / 202N HEE	V4	4,8	2 420	1 960	2 960	50	42	15		
	V3	4,3	2 190	1 770	2 650	47	40	12		
	V1	2,7	1 480	1 150	1 740	36	33	5		
302J / 302J HEE	V4	5,3	2 720	2 150	3 410	53	53	26	800	1600
	V3	4,4	2 390	1 870	2 960	47	47	17		
	V1	2,2	1 380	1 030	1 670	29	36	4		
302K / 302K HEE	V4	5,3	3 160	2 620	3 840	53	53	26		
	V3	4,4	2 760	2 250	3 180	47	47	17		
	V1	2,2	1 300	1 080	1 680	29	36	4		
302M / 302M HEE	V4	5,3	3 510	2 700	4 280	53	53	26	800	1600
	V3	4,4	3 050	2 340	3 590	47	47	17		
	V1	2,2	1 370	1 060	1 690	29	36	4		
402M / 402M HEE	V4	6,8	5 750	4 480	6 310	60	102	59	1200	2400
	V3	5,4	4 740	3 590	5 150	55	87	31		
	V1	3,2	2 910	2 160	3 170	41	68	10		
502M / 502M HEE	V4	7,1	6 150	4 840	6 950	60	94	60	1600	3200
	V3	5,8	5 350	4 100	5 740	55	80	35		
	V1	3,6	3 440	2 620	3 660	42	64	11		
602N / 602N HEE	V4	7,8	7 990	5 970	8 590	63	122	87		
	V3	7,1	7 420	5 550	7 870	61	118	65		
	V1	4,4	5 070	3 770	5 230	49	105	18		

Table with hypothetical acoustic attenuation of the room and installation for 2-pipe system from previous page:

**CV/CH/NCV models:**

12dB: Sizes 102J, 102M, 202J, 202M, 202N, 302J, 302K, 302M

14dB: Sizes 402M, 502M

15dB: Size 602N

**NCH models:**

14dB: Sizes 102J, 102M, 202J, 202M, 202N, 302J, 302K, 302M

16dB: Sizes 402M, 502M, 602N

**(1) Important:** the air supply temperature should not exceed 65°C (CIAT recommendation).

## PERFORMANCE – 4 TUBE SYSTEM

Cooling operation: water temperature: 7/12°C, inlet air temperature: 27°C - 19°C (WB)

Heating operation: water temperature: 65/55°C, inlet air temperature: 20°C

Major Line	AC motor Motor reference	HEE motor Voltage (V)	Cooling cap. W		Heating capacity W	Sound power LW dB(A)	Electrical power W	
			Total	Sensible			Motor AC	Motor EC
104P / 104P HEE	V4	5,0	1 390	1 130	1 130	46	25	11
	V3	4,2	1 200	970	1 030	42	19	8
	V1	2,9	850	670	850	36	11	5
204P / 204P HEE	V4	4,8	2 130	1 850	1 860	50	42	15
	V3	4,3	1 940	1 660	1 760	46	40	12
	V1	2,7	1 320	1 120	1 390	35	33	5
204R / 204R HEE	V4	4,8	1 910	1 740	3 420	50	42	15
	V3	4,3	1 720	1 560	3 250	46	40	12
	V1	2,7	1 200	1 090	2 470	35	33	5
304P / 304P HEE	V4	5,3	3 310	2 690	2 980	53	53	26
	V3	4,4	2 790	2 280	2 650	47	47	17
	V1	2,2	1 200	1 040	1 540	29	36	4
304R / 304R HEE	V4	5,3	2 930	2 390	4 730	53	53	26
	V3	4,4	2 550	2 040	4 150	47	47	17
	V1	2,2	1 180	960	2 130	29	36	4
404P / 404P HEE	V4	6,8	5 480	4 300	4 110	60	102	59
	V3	5,4	4 650	3 570	3 600	55	87	31
	V1	3,2	2 940	2 190	2 610	41	68	10
404R / 404R HEE	V4	6,8	4 910	4 080	5 720	60	102	59
	V3	5,4	4 150	3 380	4 990	55	87	31
	V1	3,2	2 650	2 070	3 600	41	68	10
504P / 504P HEE	V4	7,1	5 880	4 810	5 770	60	94	60
	V3	5,8	4 980	4 070	5 090	55	80	35
	V1	3,6	3 330	2 590	3 790	42	64	11
604P / 604P HEE	V4	7,8	8 150	6 040	9 150	64	120	82
	V3	7,1	7 460	5 550	8 160	62	117	61
	V1	4,5	4 960	3 670	6 270	50	105	19

Table with hypothetical acoustic attenuation of the room and the installation:

**CV/CH/NCV models**

12dB: Sizes 104P, 204P, 204R, 304P, 304R

14dB: Sizes 404P, 404R, 504P

15dB: Sizes 604P

**NCH models:**

14dB: Sizes 104P, 104R, 204P, 204R, 304P, 304R,

16dB: Sizes 404P, 404R, 504P, 604P



### CIAT - MAJOR LINE CONTROL RANGE

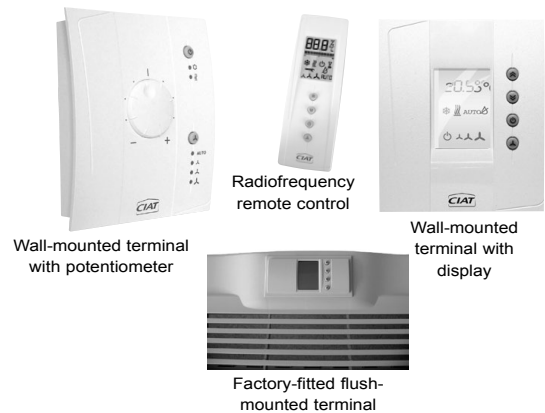
#### V3000 KNX

PID "communicating" control

##### The excellence of networked systems

- Networked system based on the KNX communications protocol (international standard).
- Modulating control of valve(s) and electric heater (2-pipe/2-wire version).
- Automatic or manual control.
- Selection of ergonomic and highly intuitive controllers.
- Radiofrequency remote control.
- Modulating control of the ventilation with HEE motor (optional).

Option for control by communicating PID also available with LON protocol (contact us).



Wall-mounted terminal (also available in factory flush-mounted version)

#### V300

PI Control

##### Simplified performance

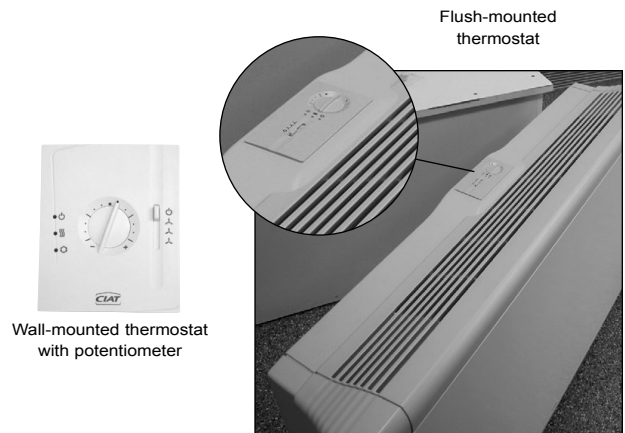
- Technology that makes it possible to control several units with a single terminal (suites, conference rooms, open-plan offices, etc.).

#### V30

Electronic On/Off control

##### Individualised performance

- A single electronic terminal that meets all individual control needs.
- The accuracy of electronic control programmable on-site with switches.
- Management of a window switch for energy savings.
- 3 manually selected ventilation speeds.
- Control of ventilation or valve(s).



#### RTR - E

Electromechanical On-Off control

##### Absolute simplicity

- The robustness of an electromechanical thermostat with three manual ventilation speeds.

#### Valves

Valve kits supplied separately

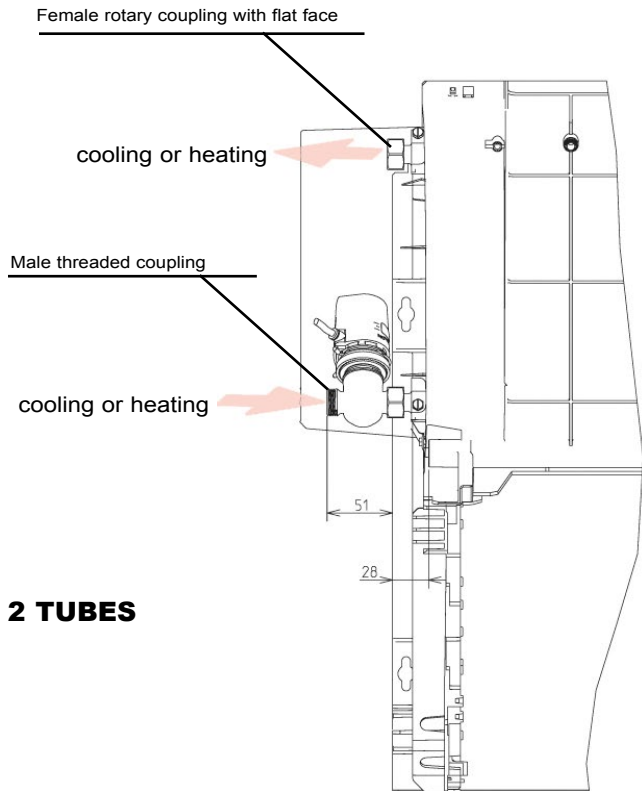
##### Quick on-site installation

- Valve kits for each application (2- or 4-pipe coils and thermal on/off 230 V 2- or 3-way valves) available in stock.

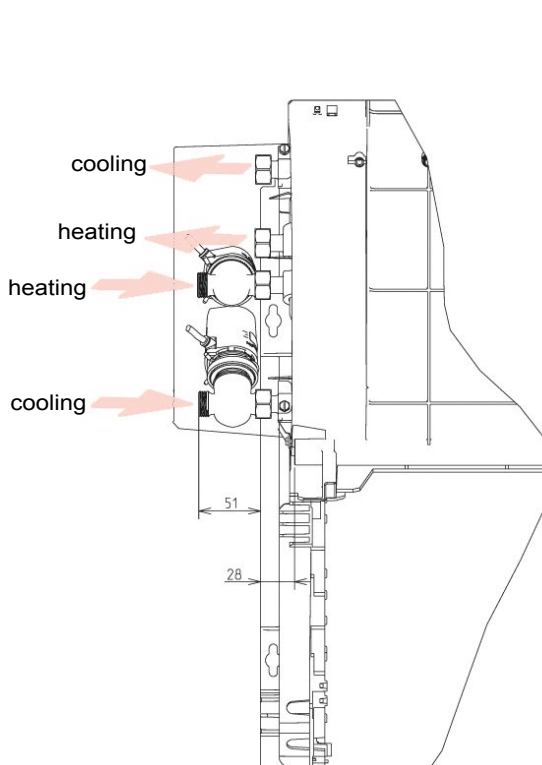
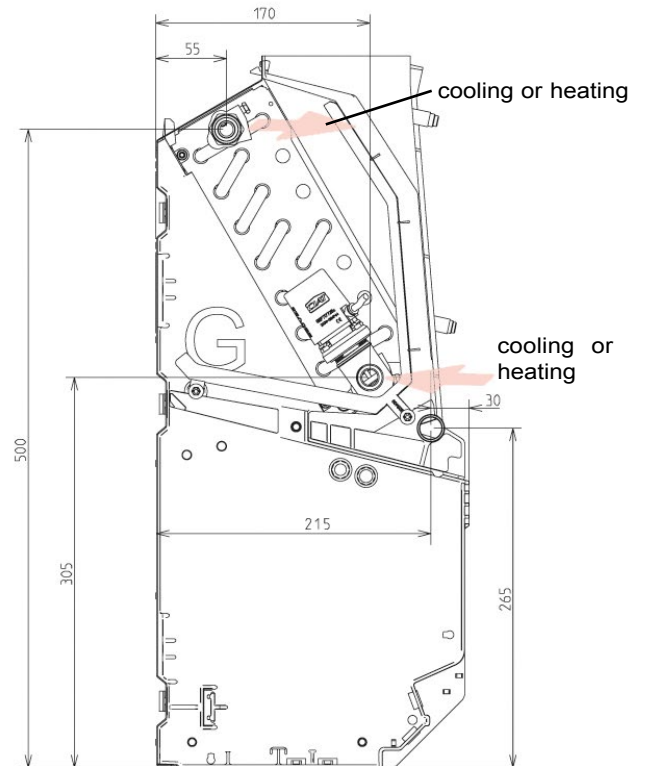


## HYDRAULIC CONNECTIONS WITH FITTED VALVES

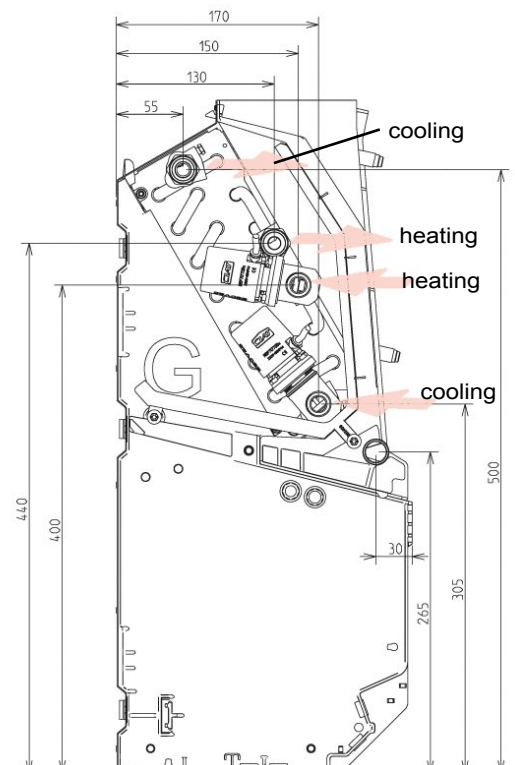
With assembly of 2-way valves



**2 TUBES**



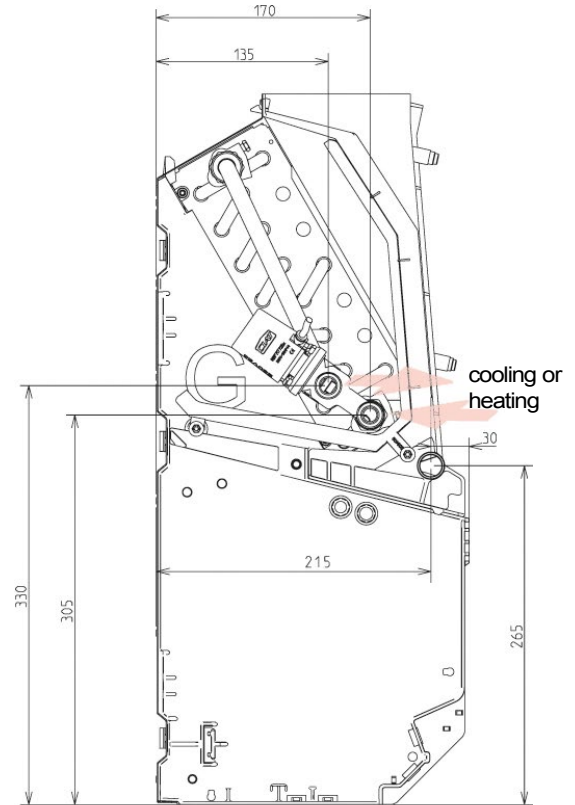
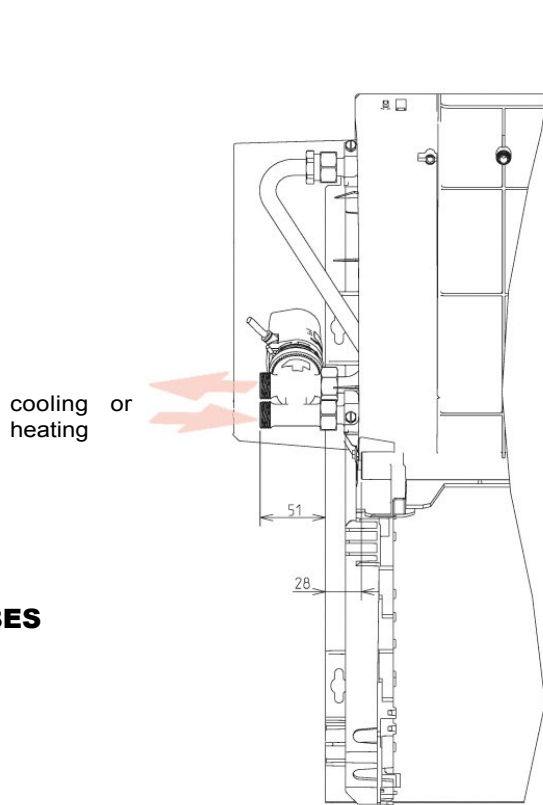
**4 PIPES**



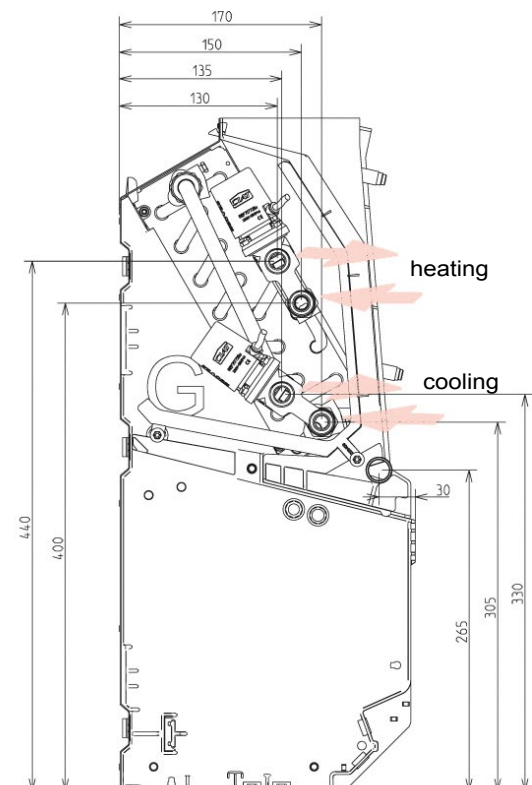
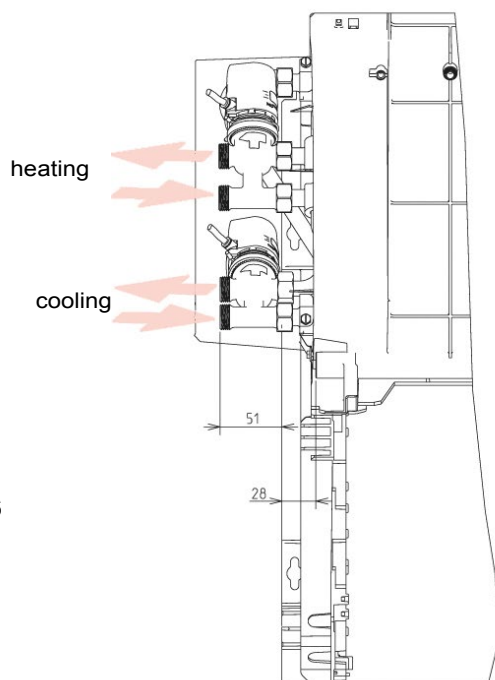
**HYDRAULIC CONNECTIONS WITH FITTED VALVES**

**With 3-way valves + bypass fitted (centre to centre distance 40 mm)**

**2 TUBES**



**4 PIPES**



## TECHNICAL CHARACTERISTICS

### Coil capacity (litres)

		102J	102M	202J	202M	202N	302J	302K	302M	402M	502M	602N	
2-pipe system	Hot or cold water coil	0,23	0,33	0,30	0,45	0,53	0,40	0,47	0,63	0,84	1,03	1,33	
		104P		204P		204R		304P		304R		404P	
4-pipe system	Cold water coil	0,33		0,45		0,36		0,60		0,52		0,71	
	Hot water coil	0,075		0,098		0,19		0,13		0,21		0,22	

### Coil connection diameters

- Coil connection type: rotary couplings with flat face;
- Valve connection type: install flush fit male threaded unions.

		102J	102M	202J	202M	202N	302J	302K	302M	402M	502M	602N	
2-pipe system	Hot or cold water coil	G1/2"	G1/2"	G1/2"	G1/2"	G1/2"	G1/2"	G1/2"	G1/2"	G1/2"	G3/4"	G3/4"	
		104P		204P		204R		304P		304R		404P	
4-pipe system	Cold water coil	G1/2"		G1/2"		G1/2"		G1/2"		G1/2"		G3/4"	
	Hot water coil	G1/2"		G1/2"		G1/2"		G1/2"		G1/2"		G1/2"	

### Motor specifications

	Speeds	AC Asynchronous Motor						Speeds	HEE brushless motor					
		Sizes							Sizes					
		10--	20--	30--	40--	50--	60--		10--	20--	30--	40--	50--	60--
Max. power input (W)	V5	33	58	88	106	108	135	V5	11	25	32	77	90	100
	V4	31	41	67	93	94	114	V4	9	15	22	63	80	75
	V3	29	36	52	80	79	99	V3	6	11	13	36	42	55
	V2	27	31	42	72	72	88	V2	5	8	7	21	26	32
	V1	26	27	35	63	63	77	V1	4	5	3	11	13	16
Max. input current (W)	V5	0,14	0,25	0,38	0,46	0,47	0,59	V5	0,11	0,20	0,29	0,62	0,71	0,74
	V4	0,13	0,18	0,29	0,40	0,41	0,50	V4	0,09	0,13	0,20	0,50	0,62	0,67
	V3	0,13	0,16	0,23	0,35	0,34	0,43	V3	0,07	0,11	0,13	0,30	0,35	0,44
	V2	0,12	0,13	0,18	0,31	0,31	0,38	V2	0,06	0,09	0,08	0,19	0,21	0,27
	V1	0,11	0,12	0,15	0,27	0,27	0,33	V1	0,06	0,06	0,06	0,11	0,13	0,16

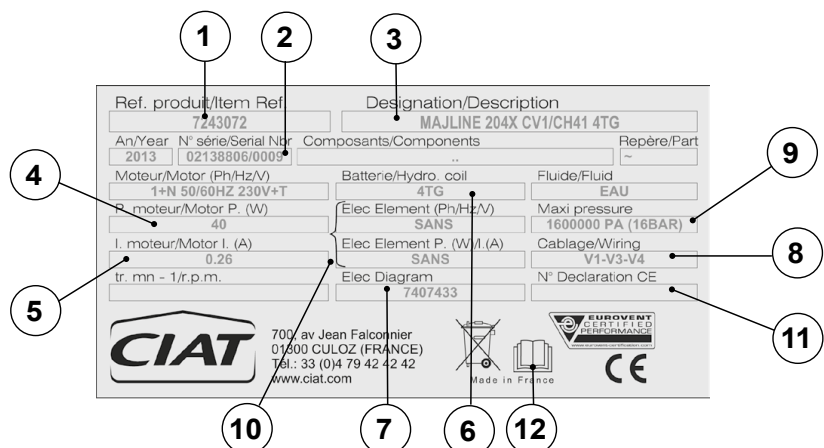
**Note:** Specifications determined for 230V +/-10% - 50Hz supply.

For operation at 60 Hz, the power input and rotation speed values are generally higher. Motor operating range: minimum return T°C: 0°C, maximum return T°C: 40°C

### Unit information plate

The information plate shows all the information needed to identify the unit and its configuration. This plate is located on the condensate pan, on the electrical connection side.

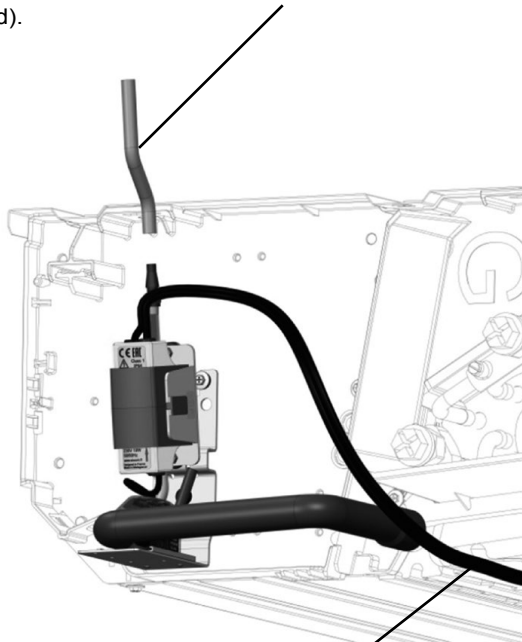
- ① Code
- ② Serial number
- ③ Description of the unit
- ④ Nominal motor output
- ⑤ Motor rotation speed
- ⑥ Coil type
- ⑦ Wiring diagram reference
- ⑧ Motor speed wiring
- ⑨ Maximum operating pressure
- ⑩ Electrical heater specifications (if fitted)
- ⑪ EC declaration no.
- ⑫ Refer to the installation instructions



### CONDENSATE DRAIN PUMP

#### Technical characteristics

The pump outlet must be connected to the wastewater pipe by a flexible tube with an internal diameter of 6 mm (not supplied).



Cables for power supply and fault signal

Maximum flow rate	10.4 l/h
Maximum discharge height	7 m (flow rate = 4 l/h)
Maximum pressure	10 m (flow rate = 0 l/h)
Sound level at 1 m in accordance with EN ISO 3744 and 4871 (Measurement taken at LNE, pump in water, outside of application)	20.2 dBA
Power supply	230 V +10%/-15% - 50/60 Hz – 19 W
Electrical insulation class	Class 1
Detection levels	ON: 14.7 mm, OFF: 10.7 mm, AL: 17 mm
Safety switch	NF: 5 A resistance – 250 V Contacts made from AgNI 90/10, gold-plated.
Thermal protection (overheating)	70°C (automatic restart)
Operating cycle (duty factor)	100%
Protection (according to NF EN 60529)	IP64
Safety standard	CE
RoHS directive	Compliant
WEEE directive	Compliant

#### Pump performance:

Water flow rate in litres per hour (-15 %/+20 %)

Discharge height	Horizontal length of the discharge pipe			
	5 metres	10 metres	20 metres	30 metres
1 metre	10.4	9.1	8.3	7.3
2 metres	8.5	7.8	7	6.4
3 metres	7.9	7.1	6.3	5.8
4 metres	7	6	5.3	4.9

#### Operating limit:

Drainage: → 6 mm int. flexible pipe, → 8.8 mm end piece. This accessory must be paired with a valve control to allow the upper safety limit to control the valve's closure (stop condensate).

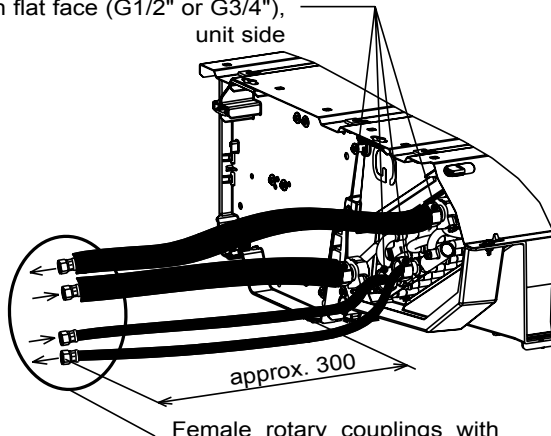
#### Condensate flow

$$\text{rate (l/h)} = \frac{\text{Total capacity} - \text{Sensible capacity (W)}}{680}$$

## ASSEMBLING FLEXIBLE HOSES (ACCESSORIES SUPPLIED IN KIT) WITH OR WITHOUT VALVES - NCH/NCV

### ASSEMBLY WITHOUT VALVE

Male cylindrical fixed couplings with flat face (G1/2" or G3/4"), unit side



Female rotary couplings with flat face (G1/2" or G3/4"), customer side

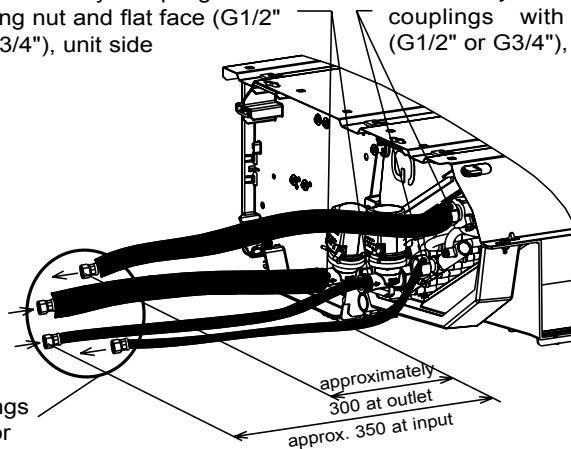
### TECHNICAL DESCRIPTION OF FLEXIBLE HOSES

- Machined brass coupling unless otherwise specified
- Thread and internal thread in line with standards NFE 03-004 and NFE 03-005
- Pipe in EPDM elastomer in line with EN 684-1 and AISI 304 stainless steel sheath
- Stainless steel crimped bush between coupling and tube + duct
  - Only on cold insulated flexible couplings
    - Heat insulating sheath in M1 cellular foam (9 mm thick) glued at each end to the crimping bush
    - Protective end-piece glued at each end to the heat insulating sheath
- DN corresponds to the pipe's internal diameter
- Min./max. operating temperature = 6°C to 110°C
- Max. operating pressure at 110°C: 10 bar

### ASSEMBLY WITH 2-WAY VALVES

Female rotary couplings with turning nut and flat face (G1/2" or G3/4"), unit side

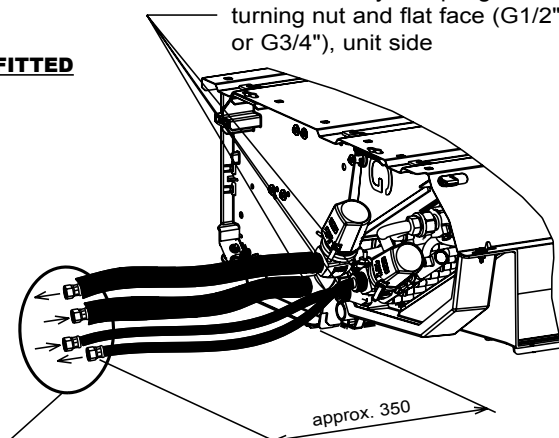
Male cylindrical fixed couplings with flat face (G1/2" or G3/4"), unit side



Female rotary couplings with flat face (G1/2" or G3/4"), customer side

### ASSEMBLY WITH 3-WAY+BYPASS VALVES FITTED

Female rotary couplings with turning nut and flat face (G1/2" or G3/4"), unit side



Female rotary couplings with flat face (G1/2" or G3/4"), customer side

## CONNECTING THE TUBES (ACCESSORIES SUPPLIED IN KIT) WITH OR WITHOUT VALVES

### **ASSEMBLY WITHOUT VALVE**

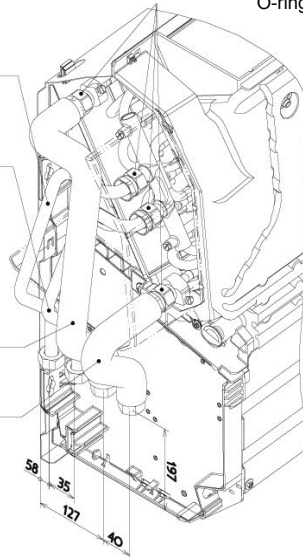
O-rings (supplied with the unit)

G1/2" hot water outlet tube

G1/2" hot water inlet tube

G1/2" G3/4" cold water outlet tube

G1/2" G3/4" cold water inlet tube



### **ASSEMBLY WITH 2-WAY VALVES**

G1/2" hot water inlet tube

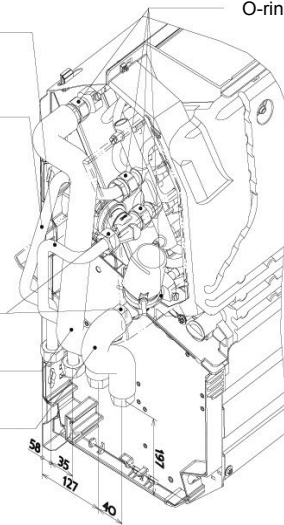
O-rings (supplied with the unit)

G1/2" hot water outlet tube

flat gaskets (not supplied)

G1/2" G3/4" cold water outlet tube

G1/2" G3/4" cold water inlet tube



### **ASSEMBLY WITH 3-WAY VALVE + BYPASS**

O-rings (supplied with the unit)

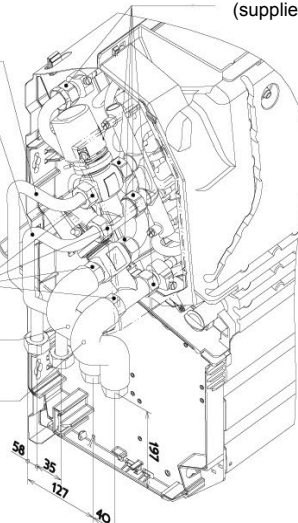
G1/2" hot water outlet tube

G1/2" hot water inlet tube


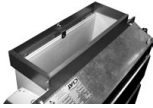

flat gaskets (not supplied)

G1/2" G3/4" cold water outlet tube







G1/2" G3/4" cold water inlet tube



**OPTIONS (MOUNTED ON THE UNIT)**




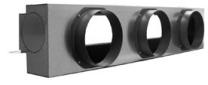





CV/CH	NCV/NCH	Installation	Figures	Assembly markings and dimensions	Description
●	●	All			Condensate drain pump fitted to unit with high safety device.
	●	All		x	Metal sleeve for connection to air discharge
	●	NCH only			Plenums installed for H or U assembly for sizes 2 to 4
	●	NCH only			Hydraulic and electrical connections on same side

**ACCESSORIES (AVAILABLE SEPARATELY)**

CV/CH	NCV/NCH	Installation	Figures	Assembly markings and dimensions	Description		102-104	202-204	302-304	402-404	502-504	602-604
●		2, 42		a	Support feet for cased model	Code	7242933					
●		2, 42		b	Internal return air grille between feet	Code	7242935	7242936	7242937	7242938	7242939	7242940
●		2		c	Rear skirting support in RAL7035 light grey, 55 mm thick (for 70 mm skirting)	Code	7242926	7242927	7242928	7242929	7242930	7242931
●		2		j	Rear painted panel in RAL7035 light grey for positioning the unit by a window	Code	7262703	7262704	7262705	7262706	7262707	7262708
●		5/6, 45/46		d	Manual internal/external air recovery unit with return air grille	Code	7242949	7242950	7242951	7242952	7242953	7242954
	●	2V		k	Support base for uncased unit	Code	7242932					



**ACCESSORIES (AVAILABLE SEPARATELY)**

CV/ CH	NCV/ NCH	Installation	Figures	Assembly markings and dimensions	Description		102-104	202-204	302-304	402-404	502-504	602-604
	●	5V/6V, 45V/46V		l	Manual internal/external air recovery unit	Code	7242956	7242957	7242958	7242959	7242960	7242961
	●	All		o	Single deflection diffusion grille with sealing frame for vertical and horizontal models	Code	7256897	7256898	7256899	7256900	7256901	7256902
	●	NCH		q	Double deflection diffusion grille with sealing frame for horizontal models	Code	7242942	7242943	7242944	7242945	7242946	7242947
	●	Y		v	Supply plenum with collars Ø 200 mm	Code	7512282	7512284	7512286	7512288	7242995	7242996
	●	YK		w	Supply air plenum with Ø 160 mm collars + air diffusion grille + 1 m sheath	Code	7512283 E046175	7512285 E046175	7512287 E046183	7512289 E046191	7243490 E046191	
	●	●	All			Condensate drain pump kit to be fitted to unit with high safety device	Code	7498010				
	●	All			Elastic bushings supplied separately (4 per unit)	Code	0219453					
	●	Y		M01	Smooth sleeve alone (external Ø 100 mm), screws and bolts supplied separately	Code	7013442					
	●	Y		M07	Assembly comprising Ø100 external diameter collar* with self- adjustable module fitted with a seal. Packaged with screws, bolts and plan. The flow regulator is designed to supply the determined flow** with a pressure difference of between 50 and 100 Pa.	15/30/45 m <sup>3</sup> /h Code	7013440					

## ACCESSORIES (AVAILABLE SEPARATELY)

### Flexible connections for Horizontal/Vertical chassis models

Installation	Figures	Description		Sizes 10, 20, 30 & 40	Sizes 50 & 60
<b>For 2-pipe coils</b>				<b>G1/2" customer side coupling</b>	<b>G3/4" customer side coupling</b>
All Without Valve		2 M1 9 mm thick insulated flexible connections EPDM pipe+PN10 stainless steel braid length 300 mm Male flat face/female rotary coupling on customer side	Code	2 x 5202288	2 x 7247867
All Three-way valve + by-pass		2 M1 9 mm thick insulated flexible connections EPDM pipe+PN10 stainless steel braid length 300 mm Female rotary couplings	Code	2 x 5202289	2 x 5202298
All Two-way valve		2 M1 9 mm thick insulated flexible connections EPDM pipe+PN10 stainless steel braid length 300 mm, including: 1 male flat face/female rotary coupling on customer side 1 female rotary coupling	Code	5202288 + 5202289	7247867 + 5202298
Installation	Figures	Description		Sizes 10, 20, 30 & 40	Sizes 50 & 60
<b>For 4-pipe coils</b>				<b>Customer side coupling Heating G1/2" Cooling G1/2"</b>	<b>Customer side coupling Heating G1/2" Cooling G3/4"</b>
All Without Valve		4 EPDM pipe+PN10 stainless steel braid length 300 mm flexible connections male coupling with flat face/female rotary coupling on customer side HEATING: 2 non-insulated COOLING: 2 M1 9 mm thick insulated	Code	HEATING: 2 x 7247868 COOLING: 2 x 5202288	HEATING: 2 x 7247868 COOLING: 2 x 7247867
All 3-way valve + by-pass		4 EPDM pipe+PN10 stainless steel braid length 300 mm flexible connections female rotary couplings HEATING: 2 non-insulated COOLING: 2 M1 9 mm thick insulated	Code	HEATING: 2 x 7247837 COOLING: 2 x 5202289	HEATING: 2 x 7247837 COOLING: 2 x 5202298
All 2-way valve		4 EPDM pipe+PN10 stainless steel braid length 300 mm flexible connections, including: 1 male flat face/female rotary coupling on customer side 1 female rotary coupling HEATING: 2 non-insulated COOLING: 2 M1 9 mm thick insulated	Code	HEATING: 7247868 + 7247837 COOLING: 5202288 + 5202289	HEATING: 7247868 + 7247837 COOLING: 7247867 + 5202298

### Tubes for Horizontal/Vertical cased models

Installation	Figures	Description		Sizes 10, 20, 30 & 40	Sizes 50 & 60
<b>For 2-pipe coils</b>				<b>G1/2" customer side coupling</b>	<b>G3/4" customer side coupling</b>
All without valve		2 M1 9 mm thick insulated tubes Copper tube Ø 12.7 - PN 16 Male coupling with flat face/Female rotary coupling on customer side	Code	7299040 (L/R)* 7299041 (L) + 7299064 (R)	7299059 (L/R)* 7299061 (L) + 7299071 (R)
All 3-way valve + bypass		2 M1 9 mm thick insulated tubes Copper pipe Ø 12.7 - PN 16 Female rotary couplings	Code	7299049 (L/R) 7299050 (L/R)	7299063 (L/R) 7299062 (L/R)"
All 2-way valve		2 M1 9 mm thick insulated tubes Copper pipe Ø 12.7 - PN 16 - including: 1 male flat face/female rotary coupling on customer side 1 female rotary coupling	Code	7299049 (L/R) 7299041 (L) + 7299064 (R)	7299062 (L/R) 7299061 (L) + 7299071 (R)
Installation	Figures	Description		Sizes 10, 20, 30 & 40	Sizes 50 & 60
<b>For 4-pipe coils</b>				<b>Customer side coupling Heating G1/2" - Cooling G1/2"</b>	<b>Customer side coupling Heating G1/2" - Cooling G3/4"</b>
All Without Valve		4 copper pipes Ø 12.7 - PN 16 male flat face/female rotary coupling on customer side HEATING: 2 non-insulated COOLING: 2 M1 9 mm thick insulated	Code	HEATING: 7299048 (L) + 7299046 (L) 7299066 (R) + 7299065 (R) COOLING: 7299040 (L/R) 7299041 (L) + 7299064 (R)	HEATING: 7299048 (L) + 7299046 (L) 7299066 (R) + 7299065 (R) COOLING: 7299059 (L/R) 7299061 (L) + 7299071 (R)
All 3-way valve + by-pass		4 copper pipes Ø 12.7 - PN 16 Female rotary couplings HEATING: 2 non-insulated COOLING: 2 M1 9 mm thick insulated	Code	HEATING: 7299054 (L) + 7299051 (L) 7299070 (R) + 7299068 (R) COOLING: 7299049 (L/R) 7299050 (L/R)	HEATING: 7299054 (L) + 7299051 (L) 7299070 (R) + 7299068 (R) COOLING: 7299063 (L/R) 7299062 (L/R)
All 2-way valve		4 copper pipes Ø 12.7 - PN 16 - including: 1 male flat face/female rotary coupling on customer side 1 female rotary coupling HEATING: 2 non-insulated COOLING: 2 M1 9 mm thick insulated	Code	HEATING: 7299051 (L) + 7299048 (L) 7299068 (R) + 7299066 (R) COOLING: 7299049 (L/R) 7299041 (L) + 7299064 (R)	HEATING: 7299051 (L) + 7299048 (L) 7299068 (R) + 7299066 (R) COOLING: 7299062 (L/R) 7299061 (L) + 7299071 (R)

\* (L): Left/(R): Right

### SPECIFICATION

**Comfort units** will conform to the standards and regulations in force. They will be manufactured under ISO 9001 quality assurance and in compliance with environmental certification ISO 14001. All comfort units, as well as being Eurovent certified, must bear the CE mark.

The **bi-material and two-colour casing** will be of a modern and refined design to blend in with all types of interior. Its robust packaged design must enable it to be dismantled easily and quickly. No plastic cover or moving parts will weaken the robustness of the unit.

**The base** will have mounting holes on the metal rear panel to facilitate fixing to walls and ceilings. Under no circumstances will it be constructed using materials liable to wear out.

**The air filter**, minimum G3 type in accordance with EN 779, with M1 fire resistance and fitted on removable runners, must be easily accessible and removable.

**Air supply** will be via a COANDA effect grille in order to ensure compliance with comfort standard ISO 7730. The fins must not under any circumstances be directed or able to be directed towards the occupied space.

**The water coil** will be made of copper pipes and continuous fins in seamed aluminium. To ensure the best energy efficiency possible, different variants will be available thus limiting surplus power. The hydraulic connections will be fitted with female rotary couplings with flat faces to facilitate the fitting of regulation valves. The PN16 coils will be equipped with air bleed and draining valves. They must be tested with a minimum test pressure of 18 bar.

**The main condensate pan**, in non-corrodible smooth ABS/PC-type material with 10% fibreglass, will as standard have reinforced insulation of at least 20 mm for use in all climates. An auxiliary pan will be available to collect condensate from the regulation valves. All metal trays will be prohibited. Condensate draining must be of the raised type, raised by at least 30 mm to facilitate the gravity drain.

**The fan motor assembly** is equipped with an asynchronous motor or an HEE motor with a 230V (50/60 Hz) closed and tropicalised power supply, with a protected shaft and internal automatic overload protection as standard on the winding. The impellers will be HEE type in ABS, with a diameter of 160 mm to ensure high acoustic and air flow performance. The fan motor assembly will be sized to meet the requirements of installations needing up to 50 Pa of operating pressure. The impellers of the unit will be in ABS, and designed for optimum performance. They will be of two-piece type therefore easily removed, enabling the maintenance operator to replace only the defective part if necessary (motor or impeller).

- **The asynchronous motor** has 5 speeds connected to the electrics box of the unit for optimised selection on site.

- **The HEE motor** is a low-consumption motor which enables a reduction of up to 80% in electricity consumption. It has gradual operation by 0-10 V control signal. Optional 3-speed operation by on/off control signal.

**An electrics box** that is enclosed and of large dimensions, fitted with a DIN rail, will be able to accommodate and protect all the control components from dust. A cable clamp will ensure the electrical wires are secure. The electrics box will be large enough to contain all the components of a complete regulation loop. **Parallel control of 2 motors is prohibited.**

**The technical design** of the unit should allow it to be installed horizontally or vertically without modification.

The **control** will be factory-fitted to the units to ensure correct operation. With vertically cased units, the control unit will be flush-mounted to the top of the casing. The flush-mounted control terminals will integrate perfectly with the exterior design of the casing by using the same RAL colours.

**Eco-design** should be a permanent consideration at every stage of the unit's conception process. Recyclable parts must be stamped with the current logo to facilitate sorting and identification at end of life. The unit as a whole must be at least 85 % recyclable. The unit must be easy to dismantle at end of life.

#### Guarantees

The manufacturer guarantees the equipment's performance, and will provide the documents attesting to the equipment's compliance with the attached specifications and with the STANDARDS, in particular the heating and cooling capacity (total and sensible), the air flow, the motor power input, the efficiency of the filters and the sound power spectrum. Using a simulation tool, the manufacturer of the comfort units must be able to give the relevant comfort indices or the values in compliance with the standard EN ISO 7730. The unit's instruction manual must be in the language used in the country of installation. The manufacturer's technical specifications and the equipment's sound pressure must be given in **the documents to be appended to the submission.**

This document is not legally binding. As part of its continuous drive to improve its equipment, CIAT reserves the right to make any technical modifications without prior notice.  
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