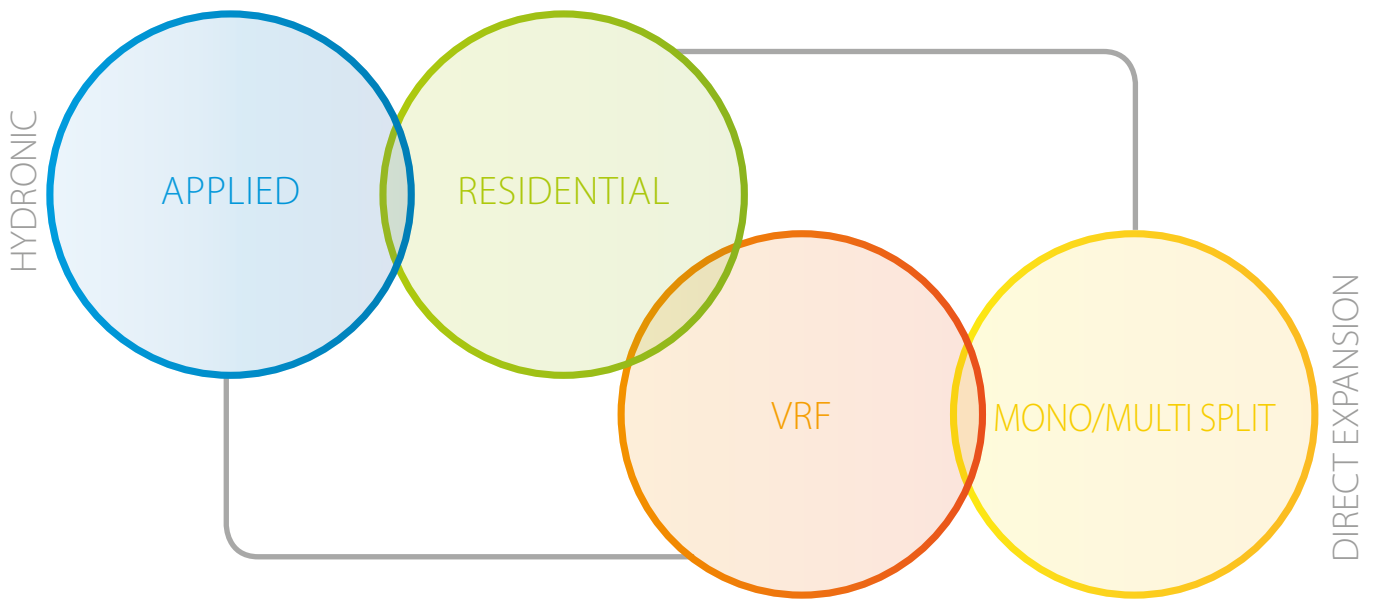


SAHU
Mini air handling units
for indoor installation



Clivet. Change things



Solutions to ensure sustainable comfort and the well-being of people and the environment

In 30 years of working on the design, manufacturing and distribution of air conditioning and handling systems, combining high efficiency with minimal environmental impact, Clivet has developed solutions to ensure sustainable comfort and the well-being of people and the environment.

Designing and developing year-round air conditioning solutions with innovative technologies are part of Clivet's DNA, which means the company has always been ready for the future.





Features and applications

The SAHU Clivet project allows configurations suitable for any type of application. Everything through simple changes already made available and selectable.

- The completeness of the versions available and the flexibility of the SAHU range includes 8 sizes for horizontal and vertical installation, with air flow rates from 600 to 16.950 m³/h, with external static pressure up to 700 Pa in base of components and sizes of unit.
- This allows us to satisfy all the plant requirements, respecting the optimal design conditions in all situations that the market requires.
- SAHU units have a self-supporting panels (without frame) through a special fittings which makes the panels all removable.
- Are available with 4 or 6 rows water coil or with 4 rows expansion coil, with left or right water/gas connections and with a very large range of accessories.
- SAHU units are supplied without electric control and without components for regulation.
- The new release of the CTAPRO selection software permits the selection and quoting also for SAHU range.

Horizontal and vertical installation

The SAHU units can be installed both horizontally and vertically.

For floor applications the basement in aluminum 2 mm thickness is available as option for all sizes.



Sound and thermal insulated panels with thermal break

The panels of SAHU are double skin type, with double sheet steel and insulation through either polyurethane foam (thickness 40mm).

Materials of double skin panels:

- Panel internal skin: galvanized steel;
- Polyurethane injected;
- Panel external skin: galvanized preplastified sheet.

Features of polyurethane injected:

- Density: 43 kg/m³ according to EN 1602;
- Fire reaction class: 1 according to UNI 9177.



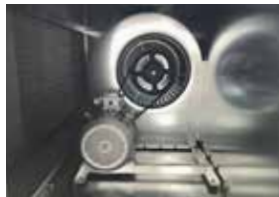
Centrifugal fan with belt/pulley transmission or Plug Fan EC

The SAHU units are available with centrifugal fan with double air inlet aluminium blades (forward curved fins) with belt/pulley transmission. Mounted on anti-vibration supports. Easy access to the variable diameter pulley of fan-deck for the settings.

Large range of motorizations is available which enables to satisfy any air-flow and static pressure. The efficiencies of selectable motors can be:

- IE1: Standard efficiency
- IE2: High efficiency
- IE3: Premium efficiency

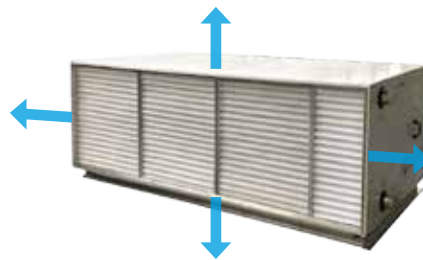
The SAHU units are also configurable with Plug Fan EC motors (IE4: Super premium efficiency).



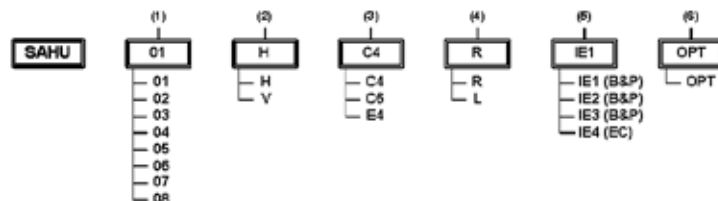
Wide range of filters removable from any side

The filter range extends from G4 to F9 making the SAHU units suitable in various applications.

All types of filters can be extracted for maintenance on each side of the SAHU (right, left, over and under).



Unit configuration



1. SIZE (nominal air flow):

- 01 (1.500 m³/h)
- 02 (2.090 m³/h)
- 03 (2.890 m³/h)
- 04 (4.020 m³/h)
- 05 (5.580 m³/h)
- 06 (7.750 m³/h)
- 07 (10.770 m³/h)
- 08 (15.000 m³/h)

2. VERSION:

- H = Horizontal
- V = Vertical

3. TYPE OF COIL:

- C4 = 4 Rows (water coil)
- C6 = 6 Rows (water coil)
- E4 = 4 Rows (expansion coil)

4. INSPECTION AND WATER/GAS CONNECTION:

- R = Right
- L = Left

5. POWER AND EFFICIENCY OF MOTOR:

- IE1 = Standard efficiency
- IE2 = High efficiency
- IE3 = Premium efficiency
- IE4 = Super premium efficiency

6. OPTIONS



Indication of inspection and water/gas connection (top view)

Main accessories

Additional heating water coil with 1 or 2 rows (CH1 or CH2)

Depending on the conditions, the heating coils are in these units.

The coils used with hot water are made of copper tubes with aluminum fins. The heat exchanger is designed to achieve the optimal pressure drop on both sides of the air and water.

The water inlet sides for the heating coils come from the bottom. All additional coils must be selected with the CTAPRO software.



Size			01	02	03	04	05	06	07	08
CH1										
▶ Heating capacity	(1)	kW	3,60	4,47	6,56	9,32	13,50	18,70	26,20	37,30
Water flow	(1)	m ³ /h	0,60	0,80	1,10	1,60	2,40	3,30	4,60	6,50
Pipe connection		Ø " gas	½" M	¾" M	¾" M	1" M	1" M	1" M	1" ¼ M	1" ¼ M
Weight	(2)	Kg	5	6	7	9	11	14	18	22
CH2										
▶ Heating capacity	(1)	kW	6,18	8,54	11,80	16,60	23,50	30,70	43,10	61,40
Water flow	(1)	m ³ /h	1,10	1,50	2,10	2,90	4,10	5,40	7,50	10,70
Pipe connection		Ø " gas	½" M	½" M	¾" M	1" M	1" M	1" ½ M	2" M	2" M
Weight	(2)	Kg	6	7	9	12	16	21	28	36

Notes:

- (1) Heating condition (45°C); Exchanger inlet water 45°C (temperature differential 5°C) - Ambient air 20°C D.B.
 (2) The weight indicated refer to unit without water inside of the coil.

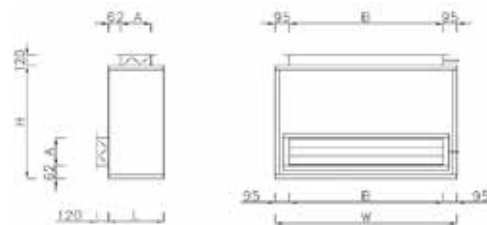
Mixing box with 2 regulation dampers (MBX)

The mixing section with two dampers is designed to save energy by mixing the required amount of fresh air and return air. The system uses the fresh air damper and the extract air damper to regulate the mixture of air to be treated. The dampers can be positioned on both sides, outside or inside. The control system of this mechanism is of vital importance thanks to the arrangement of fresh air / percentage of indoor air. The mixing box has a front recirculation damper with external damper, without actuator. It's available with manual control,

with flexible anti-vibration mounts and with basement. At the top there is a fresh air damper with the same options for the recirculation sections.

The panels of mixing box are double skin type, with double sheet steel and insulation through either polyurethane foam (thickness 40mm). In details:

- Panel internal skin: galvanized steel;
- Polyuretane injected;
- Panel external skin: galvanized preplasticated sheet.



Size			01	02	03	04	05	06	07	08
W		mm	780	880	1120	1280	1500	1720	1890	2510
H		mm	530	530	530	590	660	750	900	900
L		mm	235	335	335	335	335	435	435	435
A		mm	110	210	210	210	210	310	310	310
B		mm	590	690	930	1090	1310	1530	1700	2320
Weight		Kg	13	19	23	27	33	50	59	77

Electric heaters (EC1 or EC2)

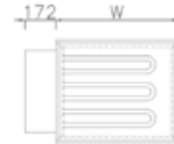
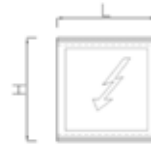
Electric heaters are generally used in units that have constant flow. It has staged structure and provided with safety thermostat.

During installation cabling and controlling this unit is highly important.



Construction:

- Frame: sandwich panel 40mm thickness;
- Elements: tubular finned electric heaters;
- Stages: from 1 to 4;
- Safety thermostat (automatic reset e manual reset);
- Terminal board;
- Main switch of electric heaters.



Size		01	02	03	04	05	06	07	08
W	mm	480	480	480	580	580	580	680	680
H	mm	380	380	380	480	480	480	580	580
L	mm	350	350	350	450	450	550	550	550
EC1									
Capacity	kW	3,5	4,9	6,8	9,5	13,1	18,2	25,3	35,2
Stage	n°	1	1	1	1	2	2	2	4
Power supply	V/Ph/Hz	230/1/50 or 400/3/50							
EC2									
Capacity	kW	7,0	9,8	13,6	18,9	26,2	36,4	50,6	70,4
Stage	n°	1	1	2	2	3	4	4	4
Power supply	V/Ph/Hz	400/3/50							

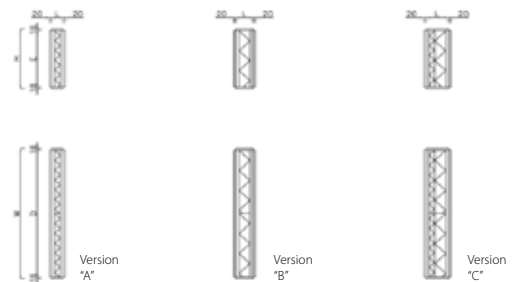
Filters

The filter range extends from G4 to F9. In details:

- Filter "A" version: G4 filter efficiency (48 mm thickness)
- Filter "B" version: M5, M6, F7, F8, F9 filter efficiency (98 mm thickness);
- Filter "C" version: G4 filter efficiency (48 mm thickness) + only one between M5, M6, F7, F8, F9 filter efficiency (98 mm thickness).

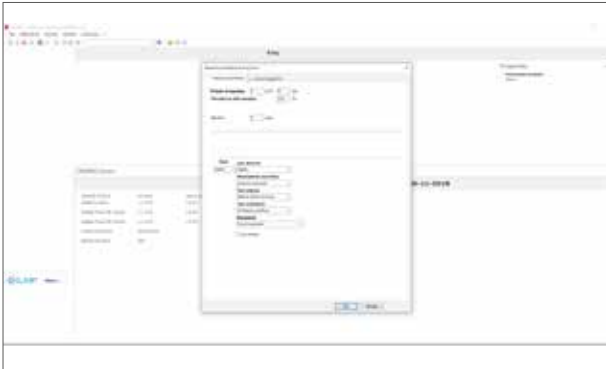
The panels of filter section are double skin type, with double sheet steel and insulation through either polyurethane foam (thickness 20 mm). In details:

- Panel internal skin: galvanized steel;
- Polyuretane injected;
- Panel external skin: galvanized preplasticated sheet.



Size		01	02	03	04	05	06	07	08
W	mm	780	880	1120	1280	1500	1720	1890	2510
H	mm	530	530	530	590	660	750	900	900
D	mm	744	844	1084	1244	1464	1684	1854	2474
E	mm	494	494	494	554	624	714	864	864
L ("A")	mm	100	100	100	100	100	100	100	100
Weight ("A")	Kg	6	6	7	8	10	13	15	19
L ("B")	mm	150	150	150	150	150	150	150	150
Weight ("B")	Kg	9	10	12	15	18	22	28	36
L ("C")	mm	200	200	200	200	200	200	200	200
Weight ("C")	Kg	12	14	16	20	24	30	37	48

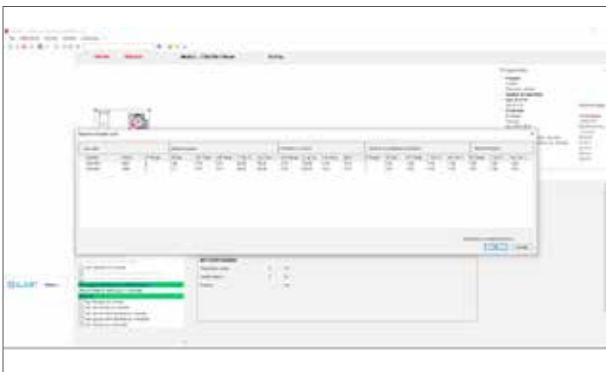
Unit size selection



Technical selection



Model selection



Selection Report



CTAPRO Clivet selection program for SAHU

CTAPRO is the powerful selection software to offer a fast and complete service for the customer, in order to make the correct technical choice and the economic evaluation of each SAHU. It is a complete tool that can configure any type of product and respond exactly to the most stringent design requirements. The result is a complete economic offer that includes all the technical data and drawings.

CTAPRO is a very advanced software developed and designed to quickly convert into an executive order.

CTAPRO integration has therefore made possible the complete automated management of the process, to reduce the time of the offer and delivery and improve the service to our customers.

Nominal Technical Data

Size	SAHU H / SAHU V	01	02	03	04	05	06	07	08	
Air flow	m ³ /h	1500	2090	2890	4020	5580	7750	10770	15000	
C4 ▶ Cooling capacity	(1) kW	8,46	11,50	15,74	22,67	32,35	42,92	60,47	82,95	
C4 Sensible capacity	(1) kW	6,24	8,53	11,71	16,64	23,42	31,66	44,27	61,14	
C4 Water flow	(1) m ³ /h	1,44	1,79	2,88	3,96	5,40	7,20	10,44	14,40	
C6 ▶ Cooling capacity	(1) kW	10,25	13,83	19,39	26,55	37,91	50,27	70,94	99,17	
C6 Sensible capacity	(1) kW	7,33	9,97	13,88	19,19	27,06	36,52	51,17	71,41	
C6 Water flow	(1) m ³ /h	1,80	2,52	3,24	4,68	6,48	8,64	12,24	16,92	
E4 ▶ Cooling capacity	(2) kW	7,28	10,10	15,48	22,17	30,94	42,31	59,08	82,29	
E4 Sensible capacity	(2) kW	5,76	7,97	11,60	16,45	22,89	31,43	43,75	60,89	
C4 ▶ Heating capacity	(3) kW	9,57	13,11	18,03	24,46	35,61	48,57	67,72	93,84	
C4 Water flow	(3) m ³ /h	1,80	2,16	3,24	4,32	6,12	8,28	11,88	16,20	
C6 ▶ Heating capacity	(3) kW	10,88	14,89	20,63	28,72	40,12	54,86	76,51	106,65	
C6 Water flow	(3) m ³ /h	1,80	2,50	3,60	5,00	6,80	9,40	13,32	18,72	
Type of supply fan	(4) -	CFG C&P								
MAX power input	kW	0,75	1,10	1,10	2,20	3,00	4,00	5,50	7,50	
Power supply	V/Ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	
Sound power level	(5) dB(A)	67	74	75	77	78	80	82	89	
Pipe connections										
C4 Inlet	"	½" M	¾" M	1" M	1" M	1" ¼ M	1" ½ M	2" M	2" ½ M	
C4 Outlet	"	½" M	¾" M	1" M	1" M	1" ¼ M	1" ½ M	2" M	2" ½ M	
C6 Inlet	"	¾" M	1" M	1" M	1" ¼ M	1" ½ M	2" M	2" ½ M	2" ½ M	
C6 Outlet	"	¾" M	1" M	1" M	1" ¼ M	1" ½ M	2" M	2" ½ M	2" ½ M	
E4 Inlet	mm	16	18	18	22	22	22	28	28	
E4 Outlet	mm	22	28	28	35	35	35	42	42	
Drain pipe	"	¾"	¾"	¾"	¾"	¾"	¾"	¾"	¾"	

Notes:

The Product is compliant with the Erp (Energy Related Products) European Directive. It includes the Commission delegated Regulation (EU) No 2016/2281, also known as Ecodesign Lot21.

Data referred to the following conditions:

- (1) Cooling: Exchanger inlet water 7°C (temperature differential 5°C). Ambient air 27°C D.B. / 19°C W.B.
 (2) Cooling: Indoor temperature 27°C D.B. / 19°C W.B. Evaporating temperature 8°C. Condensing temperature 46°C. (units with R410A)

(3) Heating: Exchanger inlet water 45°C (temperature differential 5°C). Ambient air 20°C D.B. 50% U.R.

(4) CFG C&P = Centrifugal fan with belt & pulley transmission

(5) Sound levels refer to units with full load under nominal test conditions.

Data subject to change. Always refer to the data in the CTAPRO software selection reports.

Size	SAHU H_EC / SAHU V_EC	01	02	03	04	05	06	07	08	
Air flow	m ³ /h	1500	2090	2890	4020	5580	7750	10770	15000	
C4 ▶ Cooling capacity	(1) kW	8,46	11,50	15,74	22,67	32,35	42,92	60,47	82,95	
C4 Sensible capacity	(1) kW	6,24	8,53	11,71	16,64	23,42	31,66	44,27	61,14	
C4 Water flow	(1) m ³ /h	1,44	1,79	2,88	3,96	5,40	7,20	10,44	14,40	
C6 ▶ Cooling capacity	(1) kW	10,25	13,83	19,39	26,55	37,91	50,27	70,94	99,17	
C6 Sensible capacity	(1) kW	7,33	9,97	13,88	19,19	27,06	36,52	51,17	71,41	
C6 Water flow	(1) m ³ /h	1,80	2,52	3,24	4,68	6,48	8,64	12,24	16,92	
E4 ▶ Cooling capacity	(2) kW	7,28	10,10	15,48	22,17	30,94	42,31	59,08	82,29	
E4 Sensible capacity	(2) kW	5,76	7,97	11,60	16,45	22,89	31,43	43,75	60,89	
C4 ▶ Heating capacity	(3) kW	9,57	13,11	18,03	24,46	35,61	48,57	67,72	93,84	
C4 Water flow	(3) m ³ /h	1,80	2,16	3,24	4,32	6,12	8,28	11,88	16,20	
C6 ▶ Heating capacity	(3) kW	10,88	14,89	20,63	28,72	40,12	54,86	76,51	106,65	
C6 Water flow	(3) m ³ /h	1,80	2,50	3,60	5,00	6,80	9,40	13,32	18,72	
Type of supply fan	(4) -	PLUG FAN EC								
MAX power input	kW	1,05	1,05	1,05	1,10	1,85	2,90	3,30	5,00	
Power supply	V/Ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	
Sound power level	(5) dB(A)	74	79	85	80	85	84	83	92	
Pipe connections										
C4 Inlet	"	½" M	¾" M	1" M	1" M	1" ¼ M	1" ½ M	2" M	2" ½ M	
C4 Outlet	"	½" M	¾" M	1" M	1" M	1" ¼ M	1" ½ M	2" M	2" ½ M	
C6 Inlet	"	¾" M	1" M	1" M	1" ¼ M	1" ½ M	2" M	2" ½ M	2" ½ M	
C6 Outlet	"	¾" M	1" M	1" M	1" ¼ M	1" ½ M	2" M	2" ½ M	2" ½ M	
E4 Inlet	mm	16	18	18	22	22	22	28	28	
E4 Outlet	mm	22	28	28	35	35	35	42	42	
Drain pipe	"	¾"	¾"	¾"	¾"	¾"	¾"	¾"	¾"	

Notes:

The Product is compliant with the Erp (Energy Related Products) European Directive. It includes the Commission delegated Regulation (EU) No 2016/2281, also known as Ecodesign Lot21.

Data referred to the following conditions:

- (1) Cooling: Exchanger inlet water 7°C (temperature differential 5°C). Ambient air 27°C D.B. / 19°C W.B.
 (2) Cooling: Indoor temperature 27°C D.B. / 19°C W.B. Evaporating temperature 8°C. Condensing temperature 46°C. (units with R410A)

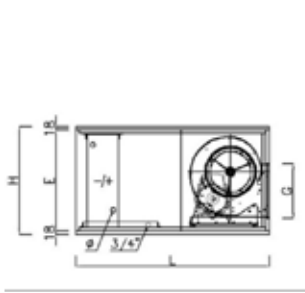
(3) Heating: Exchanger inlet water 45°C (temperature differential 5°C). Ambient air 20°C D.B. 50% U.R.

(4) PLUG FAN EC = Plug fan EC

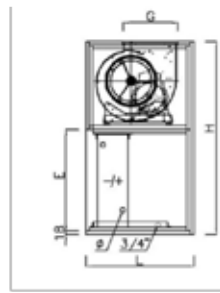
(5) Sound levels refer to units with full load under nominal test conditions.

Data subject to change. Always refer to the data in the CTAPRO software selection reports.

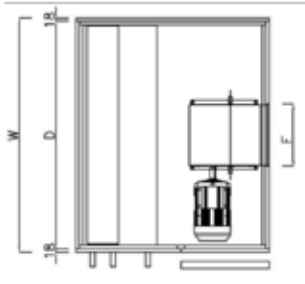
Dimensions



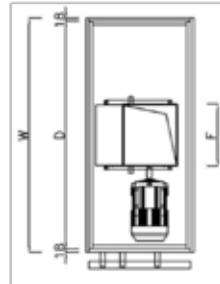
SAHU H - HORIZONTAL



SAHU V - VERTICAL



SAHU H_EC - HORIZONTAL



SAHU V_EC - VERTICAL

Size	SAHU H	01	02	03	04	05	06	07	08
W - Length	mm	780	880	1120	1280	1500	1720	1890	2510
H - Height	mm	530	530	530	590	660	750	900	900
L - Width	mm	1100	1100	1100	1300	1350	1350	1350	1350
D	mm	744	844	1084	1244	1464	1684	1854	2474
E	mm	494	494	494	554	624	714	864	864
F	mm	248	248	314	347	411	487	573	573
G	mm	278	278	278	305	357	420	494	494
C4 Weight (max)*	kg	78	85	98	134	167	202	274	330
C6 Weight (max)*	kg	81	88	102	141	176	215	292	353
E4 Weight (max)*	kg	78	84	97	133	165	199	270	326

Size	SAHU V	01	02	03	04	05	06	07	08
W - Length	mm	780	880	1120	1280	1500	1720	1890	2510
H - Height	mm	1100	1100	1100	1300	1350	1570	1870	1950
L - Width	mm	530	530	530	590	660	750	900	900
D	mm	744	844	1084	1244	1464	1684	1854	2474
E	mm	494	494	494	554	624	714	864	864
F	mm	248	248	314	347	411	487	573	573
G	mm	278	278	278	305	357	420	494	494
C4 Weight (max)*	kg	84	91	105	142	177	217	318	386
C6 Weight (max)*	kg	87	94	109	149	186	230	336	409
E4 Weight (max)*	kg	84	90	104	141	175	214	314	382

Notes:

* The weight indicated refer to unit without water/gas inside of the coil.

Data subject to change. Always refer to the data in the CTAPRO software selection reports.

Size	SAHU H_EC	01	02	03	04	05	06	07	08
W - Length	mm	780	880	1120	1280	1500	1720	1890	2510
H - Height	mm	530	530	530	590	660	750	900	900
L - Width	mm	1100	1100	1100	1300	1350	1350	1350	1350
D	mm	744	844	1084	1244	1464	1684	1854	2474
E	mm	494	494	494	554	624	714	864	864
F	mm	580	680	920	1080	1300	1520	1690	2310
G	mm	494	494	494	554	624	714	864	864
C4 Weight (max)*	kg	78	85	98	134	167	202	274	330
C6 Weight (max)*	kg	81	88	102	141	176	215	292	353
E4 Weight (max)*	kg	78	84	97	133	165	199	270	326

Size	SAHU V_EC	01	02	03	04	05	06	07	08
W - Length	mm	780	880	1120	1280	1500	1720	1890	2510
H - Height	mm	1100	1100	1100	1300	1350	1570	1870	1950
L - Width	mm	530	530	530	590	660	750	900	900
D	mm	744	844	1084	1244	1464	1684	1854	2474
E	mm	494	494	494	554	624	714	864	864
F	mm	580	680	920	1080	1300	1520	1690	2310
G	mm	494	494	494	554	624	714	864	864
C4 Weight (max)*	kg	84	91	105	142	177	217	318	386
C6 Weight (max)*	kg	87	94	109	149	186	230	336	409
E4 Weight (max)*	kg	84	90	104	141	175	214	314	382

Notes:

* The weight indicated refer to unit without water/gas inside of the coil.

Data subject to change. Always refer to the data in the CTAPRO software selection reports.

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