

**Air-cooled Split  
Air Conditioners  
SCOC-076 H(C) to 180 H(C)/SICH-076 to 180B**



Ref.: TSCCBE1

**Technical Information**



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## Index

	Page		Page
<b>General information</b>	5	<b>Malfunctions</b>	23
- General description	5	- Indoor fan thermal switch	23
- Nomenclature	5	- High and low pressure switches	23
		- Electric heating thermal switch (accessory)	24
		- Thermostat errors	24
		- Protection for defrost cycles (heat pump only)	24
<b>Technical specifications</b>	5	- Protection for temperature	24
- Mechanical specifications	5 - 6	- Open or short circuit of the outdoor or indoor liquid probe	24
- Operating diagram	6	- Open or short circuit of discharge probe	24
- Physical data	7	- Signalling	24
- Limits of use	8	- Incidents	24
- General dimensions	8 - 13	- Failures (lockouts)	24 - 25
- Process for converting a horizontal discharge into a vertical discharge (SICH-076, 090, 150B units)	14	- Reset	25
- Variant chart	15		
- Nominal characteristics	16	<b>Wiring diagrams</b>	26 - 29
- Correcting factors	16		
- Sensible cooling capacities	17		
- Test conditions	18	<b>Accessories</b>	30
- Nominal flows	18	- Standard accessories	30
- Indoor fan features	19	- Hot water heat coil for SICH-076, 090 and 150B	31
- Outdoor fan features	20		
- Electrical characteristics	21		
		<b>Internal electric heaters for SICH-076 to 180</b>	32
<b>Operation</b>	22	- Technical specifications	32
- Indoor fan	22	- Assembly and general dimensions	32 - 33
- Outdoor fan	22	- General characteristics	33
- Four-way valve (heat pump only)	22	- Dimensions with packing and weights	33
- Compressor	22	- Installation	34
- Defrost (heat pump only)	22	- Wiring diagrams	35 - 36
- Start-up	22		
- End	22		
		<b>Duct electric heaters for SICH-076 to 180B</b>	37
<b>Test button and LEDs</b>	22	- Technical specifications	37
		- General dimensions	37
		- General characteristics	38
<b>Configuration</b>	22	- Dimensions with packing and weights	38
- Microswitches	23	- Installation	38
- Configuration of switches	23	- Location of the heater	39 - 40
- Configuration of accessories	23	- Wiring diagrams	41 - 42
		- Vertical air discharge conversion kit for: SCOH-070 H(C) to 120 H(C) and SCOC-076B and 090B	43
		- General dimensions	43 - 44
<b>Installation of accessories</b>	23	- Vertical air discharge conversion kit for: SCOH-150 H(C) to 300 H(C) and SCOC-150B and 180B	45
- Tray heater (heat pump only)	23	- General dimensions	45 - 46
- Electric heating	23	- Vertical air discharge conversion kit for: SICH-180B	47
- Indoor coil probe (heat pump only)	23		

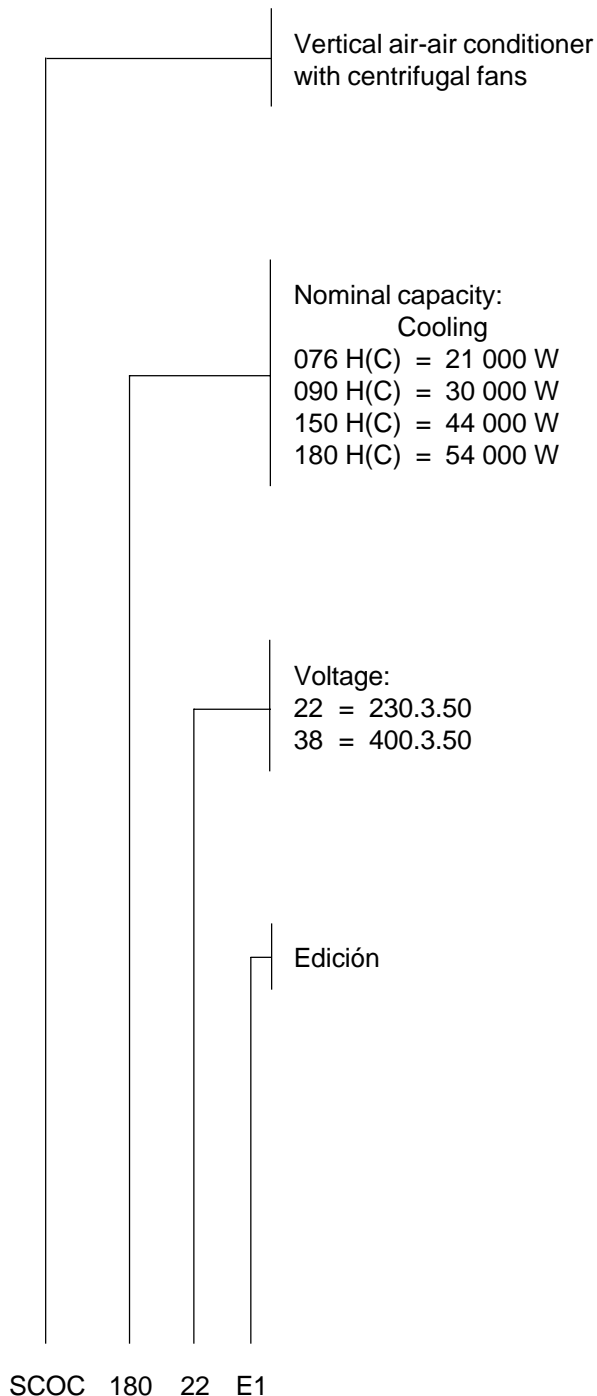


## General information

### General description

The SCOC/SICH air conditioners are air-air units with centrifugal fans both in the indoor as well as the outdoor units. The SCOC outdoor unit includes compressor, condensing unit, centrifugal fan and controls. The SICH indoor units include evaporating coil, filter and fan. If necessary, they can be easily modified on job site so as to have a compact unit. The outdoor unit can be installed either outdoors or indoors, as it is protected to withstand outdoor conditions, while the fans are of the centrifugal type and can accept ducts. Supplied complete, factory tested and ready for installation of interior or duct electric heaters accessories. Designed to achieve considerable savings in energy and a long service life. Automatic start-up and regulation of the temperature is carried out by means of a 24 V ambient thermostat.

### Nomenclature



## Technical specifications

### Mechanical specifications

#### Compressor

Vertical hermetic type, mounted on antivibratory supports, specially designed for heat pump units with oversizing of mechanical components and low consumption motor. The SCOC-076 H(C) and 090 H(C) units have one compressor, while the SCOC-150 H(C) and 180 H(C) units have two compressors. Supplied with a charge of special oil so as to avoid foaming. With oil electric heater.

#### Compressor heater

Keeps the sump oil hot for easy start-up and avoiding oil being dragged out of the compressor.

#### Coils

Of a large surface, made of grooved copper tubing and aluminium fins. Located inside the cabinet, and thus protected against damage during transportation or installation.

#### Indoor fan (SICH-076B)

A centrifugal fan driven by an independent motor and belt drive is installed.

#### Indoor (SICH-090, 150, 180) and outdoor (SCOC-076 H(C) and 090 H(C)) fans

Two centrifugal fans with a common shaft and belt drive, driven by one single motor and coupled to the single plenum, are installed.

#### Outdoor fan (SCOC-150 H(C) and 180 H(C))

Two independent centrifugal fans are installed. Each one of these is driven by an independent motor and is coupled to the single plenum. Fan motor transmission is belt-driven. These fans have sufficient available pressure for the installation of ducts and optional accessories.

#### Cooling circuit

Made of welded copper tubing and equipped with access connections on the high and low pressure sides.

#### Refrigerant

The SCOC and SICH units are supplied with connections ready for welding. The refrigerant load should be carried out completely on job site. See refrigerant loads in physical data table. The refrigerant used is R-407C (R-22 can also be used).

#### Casing

Made of zinc-aluminium plated steel sheeting, primed and enamelled in epoxy powder for outdoor installation.

#### Complementary heaters

Of the open-air wire type for fast heat dissipation, avoiding temperature inertia that could affect components.

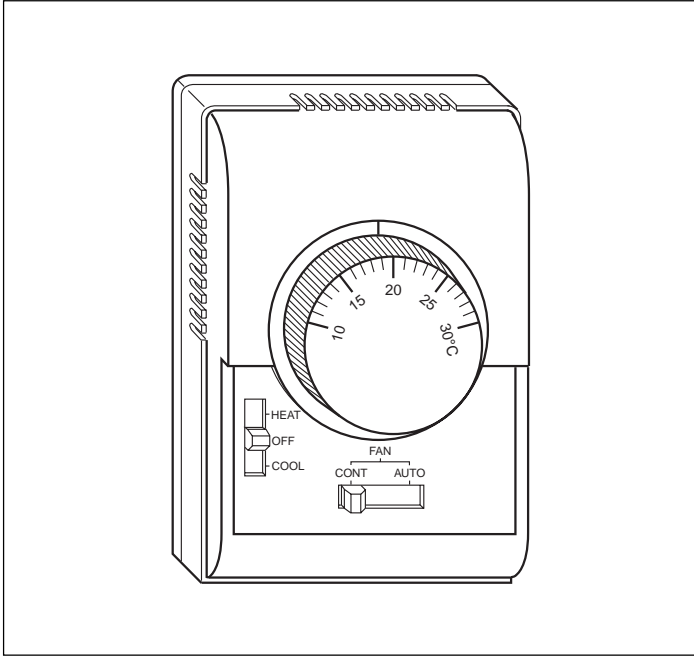
#### Thermostat

The SCOC/SICH-076 to 090 units include, as standard equipment, a T-11 electromechanical thermostat. Nevertheless, upon request and as an accessory, the ARTTH001S one-stage electronic thermostat, as well as the ARTTH003S thermostat programmable for one stage and with communication possibilities, can also be used.

The SCOC/SICH-150 and 180 units include a ARTTH003S thermostat. To connect the thermostat to the Rolón board, screened 10x0.22 mm<sup>2</sup> communication cable should be used.

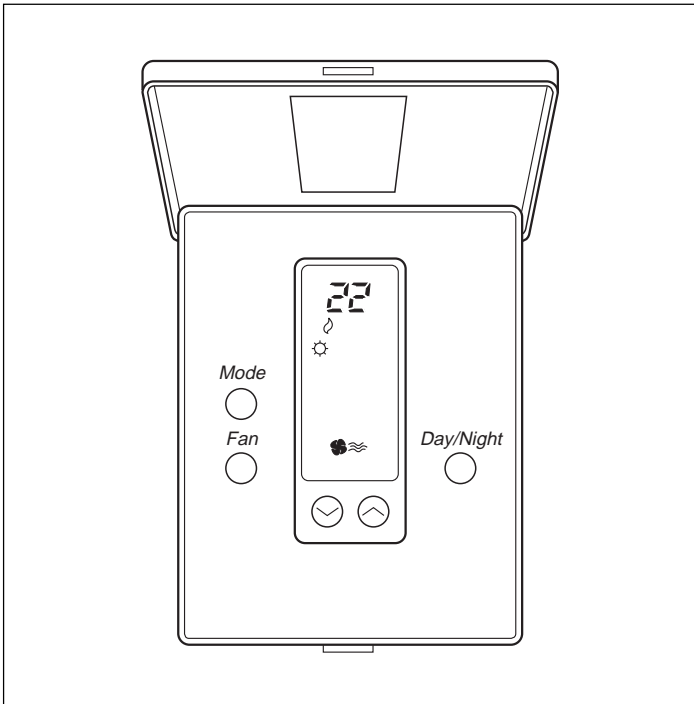
**Thermostat T-11**

24 Vac digital electronic type. To control one cool stage and one heat stage. Allows AUTO/ON operation of the indoor fan. See the Operating and Maintenance Instructions.



**Thermostat ARTTH001S**

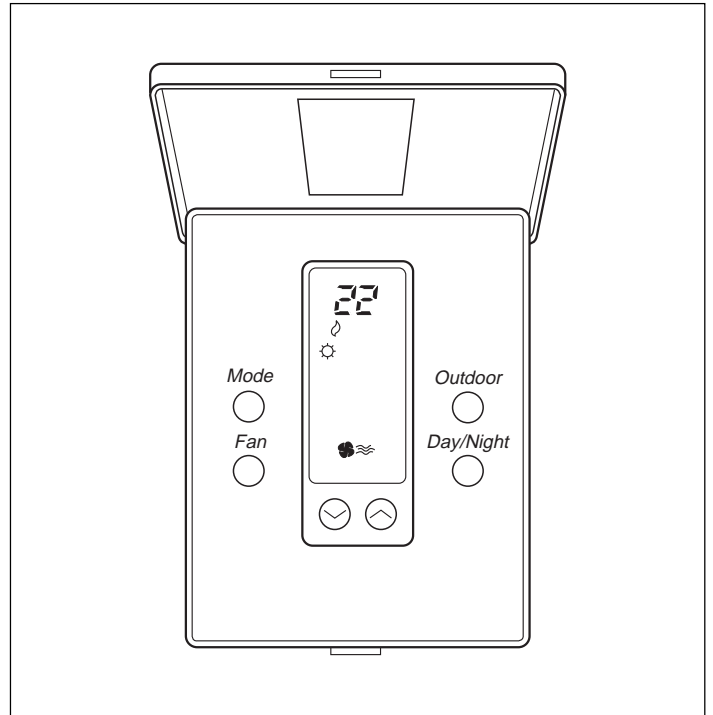
24 Vac digital electronic type. To control one cool stage and one heat stage. Designed to give a precise control of the ambient temperature and graphic information of the mode in which the air conditioner is operating. This is a Proportional-Differential-Integral response control and, in accordance with the difference between the programmed temperature and the ambient temperature, it varies the on-off cycles to between 3 and 7.5 cycles per hour. Allows AUTO/ON operation of the indoor fan. See the Operating and Maintenance Instructions.



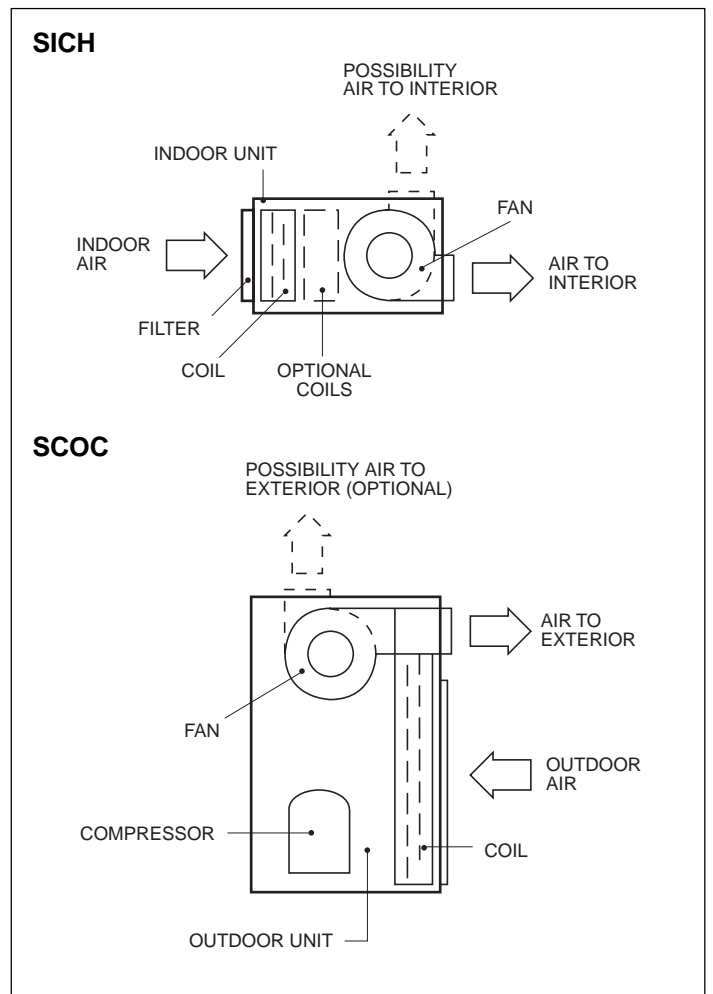
**Thermostat ARTTH003S**

Digital electronic type. To control two cool stages and two heat stages. Programmable for one cool stage and one heat stage only. Designed to give a precise control of the ambient

temperature and graphic information of the mode in which the air conditioner is operating. This is a Proportional-Differential-Integral response control in accordance with the difference between the programmed temperature and the ambient temperature. Allows communication with a PC and AUTO/ON operation of the indoor fan. See the Operating and Maintenance Instructions.



**Operating diagram**



## Physical data

### Outdoor units

Model			SCOC-076H (C)	SCOC-090H (C)	SCOC-150H (C)	SCOC-180H (C)
Compressor	Amount		1	1	2	2
	Power rating	kW	6.2	7.1	2 x 5.1	2 x 7.1
	Power supply	V.ph.Hz	230.3.50 or 400.3.50			
Outdoor fan	Power rating	kW	1.5	3	2 x 2.2	2 x 2.2
	Power supply	V.ph.Hz	230.3.50 or 400.3.50			
	Motor r.p.m.		1 400	1 400	1 400	1 400
	Diameter turbines	mm	270	320	320	380
	Width turbines	mm	270	320	320	380
Outdoor coil	Amount		1	1	2	2
	Tubing depth x height		5 x 37	5 x 40	5 x 40	5 x 42
	Diameter tubing		3/8"			
	Surface	m <sup>2</sup>	1.01	1.47	2 x 0.84	2 x 1.02
Dimens. with packing	Height	mm	1 412	1 546	1 612	1 661
	Width	mm	1 360	1 738	2 040	2 240
	Depth	mm	883	883	883	883
Approx. weight	Nett	kg	315	370	555	645
	Gross	kg	319	374	559	649
Refrigerant load	Nominal load R-22	kg	9	14.5	9.9 x 2	9 x 2
	Nominal load R-407C	kg	8.7	13.8	9.4 x 2	9 x 2

### Indoor units

Model			SICH-076B	SICH-090B	SICH-150B	SICH-180B
Indoor fan	Power rating	kW	0.75	1.5	1.5	3
	Power supply	V.ph.Hz	230.3.50 or 400.3.50			
	Motor r.p.m.		1 400			
	Diameter turbines	mm	320	320	320	320
	Width turbines	mm	320	240	320	320
Indoor coil	Amount		1	1	1	1
	Tubing depth x height		4 x 21	4 x 25	4 x 25	4 x 29
	Diameter tubing		3/8"			
	Surface	m <sup>2</sup>	0.57	0.84	1.11	1.40
Dimens. with packing	Height	mm	760	833	833	935
	Width	mm	1 444	1 825	2 125	2 390
	Depth	mm	930	930	930	955
Approx. weight	Nett	kg	120	165	195	240
	Gross	kg	142	195	230	290

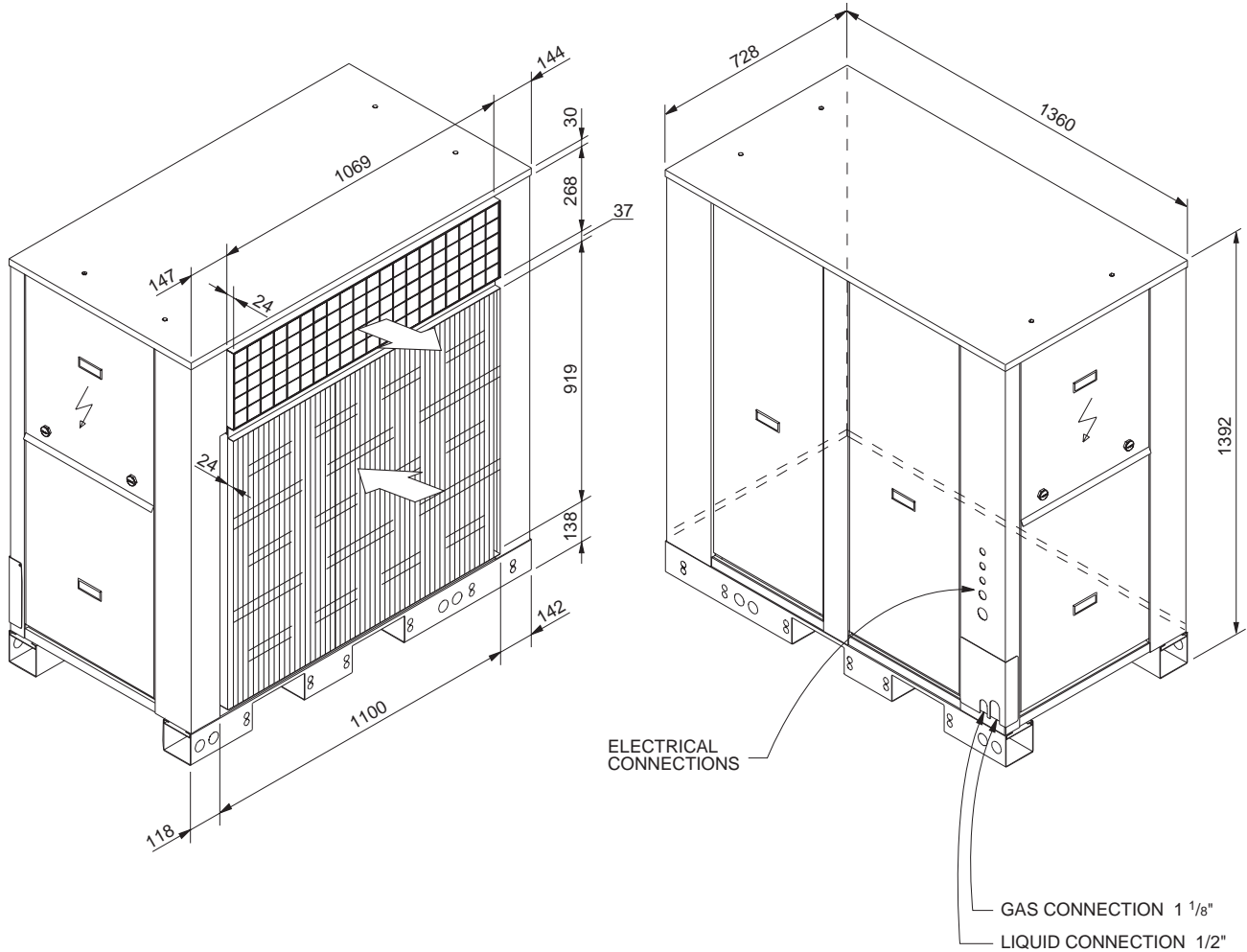
## Limits of use

Voltage limits				Air intake temperature to the condensing coil DB		Air intake temperature to the evaporating coil WB	
Nominal a 230 V		Nominal a 400 V		Maximum °C	Minimum °C	Maximum °C	Minimum °C
Minimum	Maximum	Minimum	Maximum				
198	254	342	436	46	19	22	14

**Notes:** WB = wet bulb. DB = dry bulb.

## General dimensions mm

### SCOC-076 H(C)







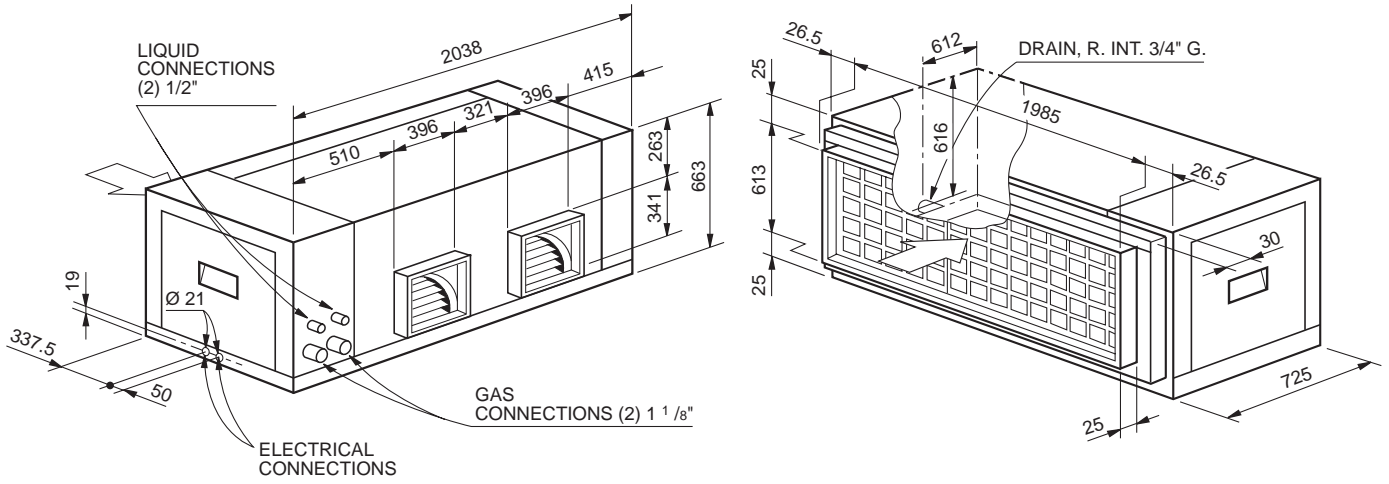




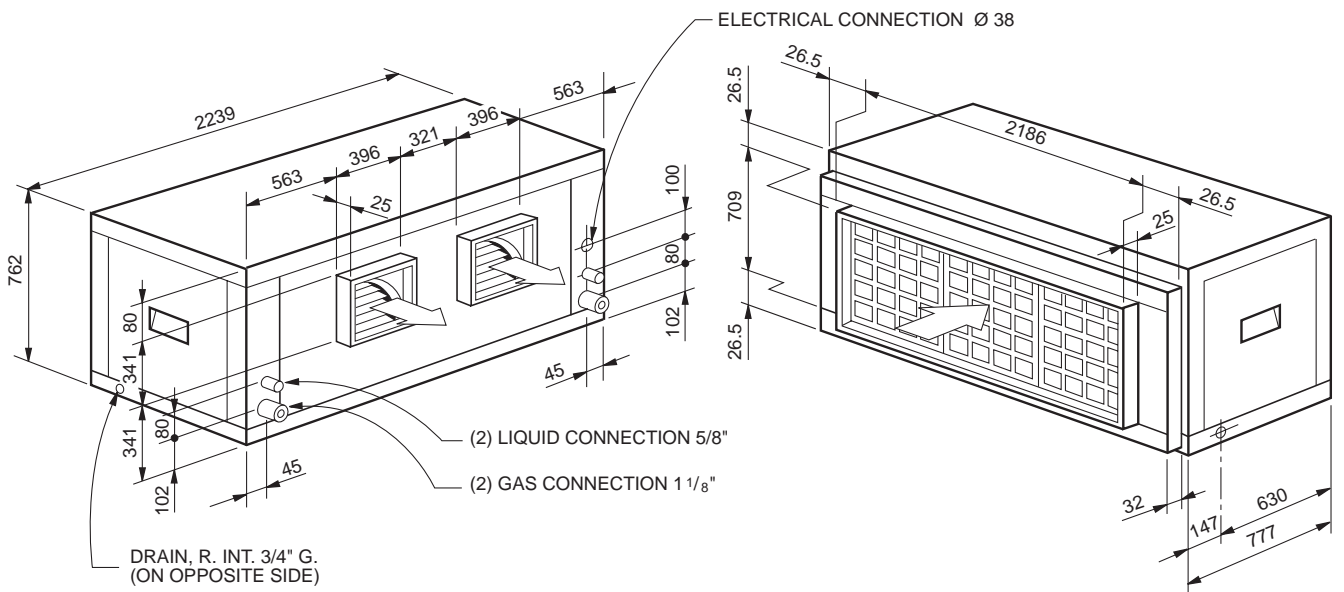


# General dimensions mm

## SICH-150B



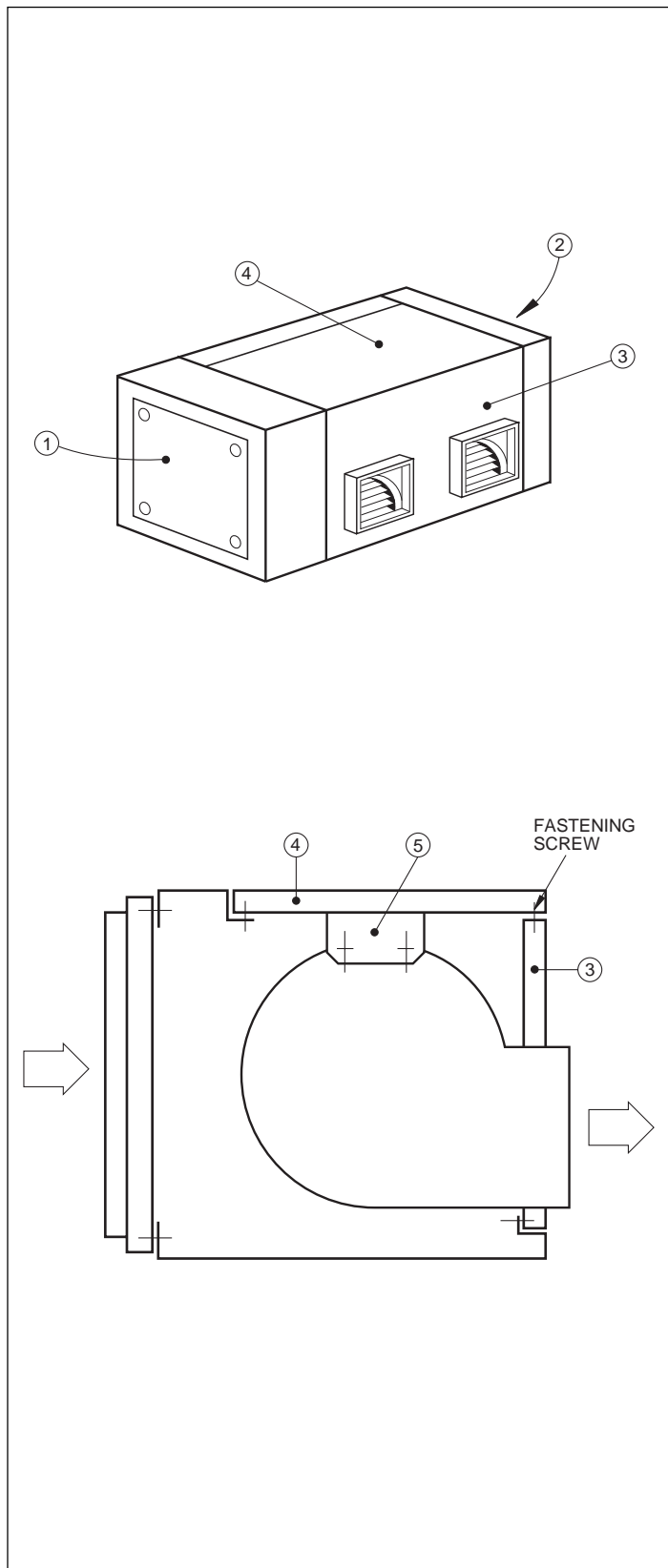
## SICH-180B



## Process for converting a horizontal discharge into a vertical discharge (SICH-076, 090, 150B units)

- 1- Remove the fastening screws from the side covers ref. 1 and 2 of the upper unit.
- 2- Remove the side covers ref. 1 and 2.
- 3- Loosen the screws that fasten the fan motor to its base, and remove the transmission belt.
- 4- Through the side accesses, unscrew panels ref. 3 and 4,

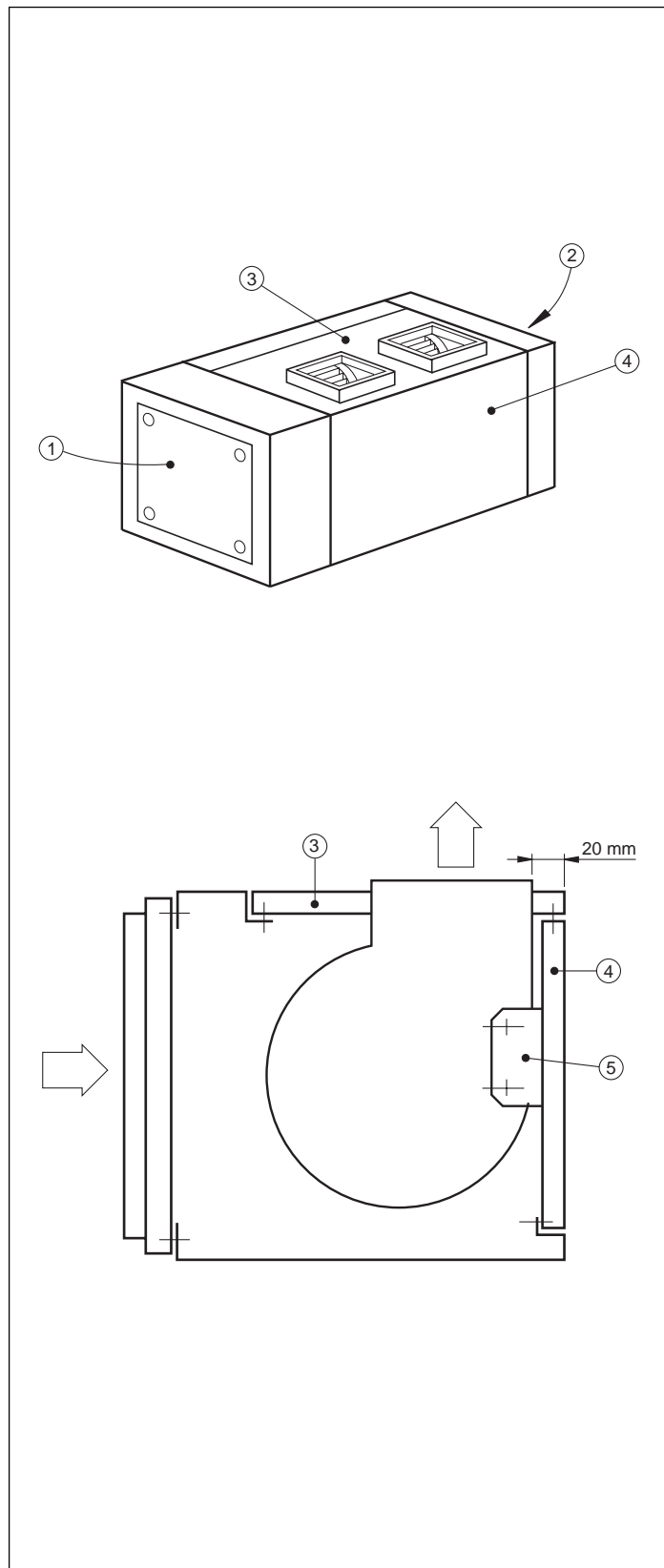
### Standard orientation



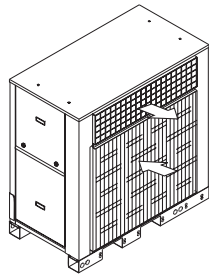
as indicated in the standard orientation figure.

- 5- Unscrew the fastener of the fan to its support ref. 5.
- 6- Place panel ref. 3 in the previous position of panel ref. 4, and place panel ref. 4 in the previous position of panel ref. 3.
- 7- Tighten the screws of these panels and the fan on support ref. 5.
- 8- Replace the transmission belt and fasten the motor to its base.
- 9- Screw on side covers ref. 1 and 2.

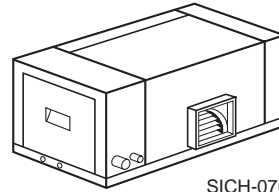
### Orientation variable at job site



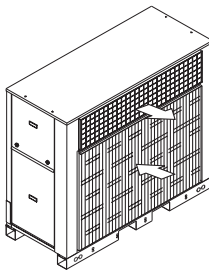
# Variant chart



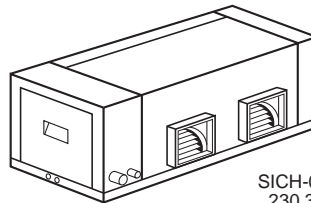
SCOC-076 H(C)  
230.3.50  
400.3.50



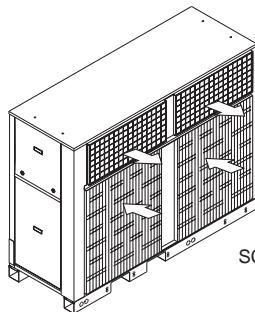
SICH-076B  
230.3.50  
400.3.50



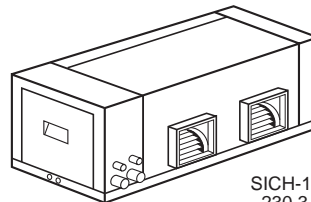
SCOC-090 H(C)  
230.3.50  
400.3.50



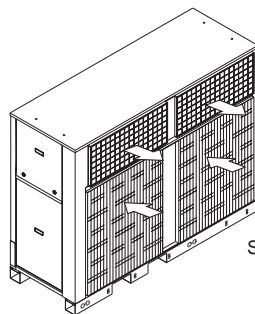
SICH-090B  
230.3.50  
400.3.50



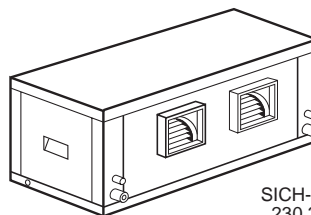
SCOC-150 H(C)  
230.3.50  
400.3.50



SICH-150B  
230.3.50  
400.3.50



SCOC-180 H(C)  
230.3.50  
400.3.50



SICH-180B  
230.3.50  
400.3.50

## Nominal characteristics

Outdoor unit	Indoor unit	Cooling capacity W	Consumption W	Available pressure, indoor fan Pa
<b>SCOC-076 H(C)</b>	<b>SICH-070/076B</b>	22 500	9 500	62
<b>SCOC-090 H(C)</b>	<b>SICH-090/120B</b>	30 000	11 000	75
<b>SCOC-150 H(C)</b>	<b>SICH-150B</b>	44 000	16 500	75
<b>SCOC-180 H(C)</b>	<b>SICH-180B</b>	50 000	24 400	80

## Correcting factors

### Correcting factors of the cooling capacities

Correcting factors for flows that vary from the nominal flows in the indoor coil.

Flow %	80	90	100	110	120	130
Total capacity	0.960	0.980	1	1.016	1.032	1.046
Sensible capacity	0.945	0.973	1	1.038	1.075	1.118
Comp.absorbed power	0.980	0.990	1	1.009	1.017	1.025

Correction of the real temperature of the air intake to the outdoor coil for flows that vary from the nominal flows.

Flow %	70	80	90	100	110	120	130
Correction in °C on real temperature of air intake to the outdoor coil	5	3	1.5	0	-1	-2	-2.5

Correction of the real temperature of the air intake to the outdoor coil for flows that vary from the nominal flows.

Flow %	70	80	90	100	110	120	130
Correction in °C on real temperature of air intake to the outdoor coil	-2	-1.5	-0.5	0	0.5	1	1.2



## Sensible cooling capacities

Model	Dry outdoor air temperature °C (DB)	Humid air intake temperature °C (WB)	Total capacity	Sensible capacity (W)				Compressor absorbed power
				Dry air intake temperature to the coil °C (DB)				
				22	24	27	29	
W	W	W	W	W	kW			
<b>SCOC-076 H(C)/SICH-076B</b>	25	22	25 440	7 792	10 590	14 787	17 590	6.59
		19.5	22 896	11 273	14 071	18 268	21 071	6.91
		17	21 200	15 000	17 798	21 200	21 200	7.22
	35	22	23 532	7 136	9 934	14 132	16 930	7.46
		19.5	21 200	10 637	13 436	17 633	20 431	7.85
		17	19 504	13 484	16 282	19 504	19 504	8.24
	45	22	21 200	6 408	9 206	13 403	16 201	8.64
		19.5	19 080	9 913	12 711	16 908	19 080	9.03
		17	17 384	13 448	16 246	17 384	17 384	9.42
<b>SCOC-090 H(C)/SICH-090B</b>	25	22	36 360	10 866	15 763	23 109	28 013	6.89
		19.5	32 724	17 006	21 904	29 250	32 724	7.22
		17	30 300	23 487	28 384	30 300	30 300	7.54
	35	22	33 633	9 965	14 863	22 209	27 107	7.79
		19.5	30 300	16 130	21 028	28 374	30 300	8.20
		17	27 876	21 161	26 059	27 876	27 876	8.61
	45	22	30 300	8 961	13 859	21 205	26 103	9.02
		19.5	27 270	15 128	20 026	27 270	27 270	9.43
		17	24 846	21 337	24 846	24 846	24 846	9.84
<b>SCOC-150 H(C)/SICH-150B</b>	25	22	5 3280	16 107	22 606	32 355	38 863	10.68
		19.5	47 952	24 229	30 728	40 477	46 986	11.19
		17	44 400	32 856	39 355	44 400	44 400	11.70
	35	22	49 284	14 763	21 262	31 011	37 510	12.08
		19.5	44 400	22 923	29 422	39 171	44 400	12.72
		17	40 848	29 421	35 921	40 848	40 848	13.36
	45	22	44 400	13 267	19 766	29 515	36 014	13.99
		19.5	39 960	21 433	27 932	37 680	39 960	14.63
		17	36 408	29 659	36 158	36 408	36 408	15.26
<b>SCOC-180 H(C)/SICH-180B</b>	25	22	65 280	19 650	27 905	40 288	48 554	15.54
		19.5	58 752	29 980	38 235	50 617	58 752	16.28
		17	54 400	40 925	49 180	54 400	54 400	17.02
	35	22	60 384	18 015	26 270	38 625	46 907	17.58
		19.5	54 400	28 390	36 645	49 027	54 400	18.50
		17	50 048	36 713	44 968	50 048	50 048	19.43
	45	22	54 400	16 193	24 448	36 831	45 086	20.35
		19.5	48 960	26 574	34 829	47 212	48 960	21.28
		17	44 608	37 029	44 608	44 608	44 608	22.00

## Test conditions

Voltage	Length interconnecting tubing	Outdoor temp. °C		Indoor temp. °C	
		DB	WB	DB	WB
400	7.5 meters	35	24	27	19

## Nominal flows

The cooling capacities of the corresponding tables are valid for the following nominal flows. For other flows, apply the correcting factors from the corresponding table.

Model	Nominal flow		Indoor fan available pressure
	m <sup>3</sup> /h	m <sup>3</sup> /s	Pa
<b>SICH-076B</b>	4 530	1.26	62
<b>SICH-090B</b>	8 500	2.36	62
<b>SICH-150B</b>	10 700	2.97	75
<b>SICH-180B</b>	13 600	3.77	80

## Indoor fan features

Model	Static pressure available		Air flow		Absorbed power W
	mm WG <sup>(1)</sup>	Pa	m <sup>3</sup> /h	m <sup>3</sup> /s	
<b>SICH-070B</b>	14	137.2	3 200	0.89	605
	12	117.6	3 580	0.99	680
	10	98	3 930	1.09	735
	8	78.4	4 260	1.18	795
	6.3	61.7	4 530	1.26	860
	6	58.8	4 570	1.27	865
	4	39.2	4 860	1.35	935
	2	19.6	5 120	1.42	990
	0	0	5 360	1.49	1 035
<b>SICH-090B</b>	17	166.8	6 320	1.76	1 300
	16	157	6 590	1.83	1 340
	14	137	7 080	1.97	1 470
	12	118	7 500	2.08	1 570
	10	98	7 900	2.19	1 680
	7.6	75	8 300	2.31	1 770
	6.3	62	8 500	2.36	1 840
	4	39	8 800	2.44	1 935
	2	19.6	9 070	2.52	2 010
	0.0	0.0	9 270	2.58	2 075
<b>SICH-150B</b>	17.9	175.4	7 000	1.94	896
	17.1	167.6	7 500	2.08	970
	16.0	156.8	8 000	2.22	1 045
	14.8	137.2	8 500	2.36	1 100
	13.3	130.3	9 000	2.50	1 175
	12.1	118.6	9 500	2.64	1 275
	10.0	98.0	10 000	2.78	1 375
	8.5	83.3	10 500	2.92	1 450
	6.5	63.7	11 000	3.05	1 600
	4.3	42.1	11 500	3.19	1 700
	2.0	19.6	12 000	3.33	1 802
	0.0	0.0	12 500	3.47	1 970
<b>SICH-180B</b>	15.9	155.8	11 500	3.19	2 004
	14.2	139.1	12 000	3.33	2 139
	12.6	123.4	12 500	3.47	2 240
	11.0	107.8	13 000	3.61	2 408
	8.6	84.2	13 500	3.75	2 535
	6.5	63.7	14 000	3.89	2 732
	3.9	38.2	14 500	4.02	2 843
	1.3	12.7	15 000	4.16	3 000
	0.0	0.0	15 200	4.22	3 150

(1) Values calculated with humid coil, including filters.

## Outdoor fan features

Model	Static pressure available		Air flow		Absorbed power W
	mm WG	Pa	m <sup>3</sup> /h	m <sup>3</sup> /s	
<b>SCOC-076 H(C)</b>	18	177	3 380	0.94	730
	16	157	4 050	1.13	830
	12	118	5 050	1.40	970
	8	78	5 820	1.62	1 050
	5.1	50	6 300	1.75	1 130
	4	39	6 470	1.80	1 160
	0	0	7 010	1.95	1 270
<b>SCOC-090 H(C)</b>	18	177	8 200	2.28	1 690
	14	137	9 750	2.71	1 900
	12	118	10 230	2.84	2 020
	10	98	10 700	2.47	2 130
	8	78	11 100	3.08	2 230
	6	59	11 500	3.19	2 330
	5.1	50	11 650	3.24	2 380
	4	39	11 800	3.28	2 430
	2	19.6	12 200	3.39	2 540
	0.0	0.0	12 500	3.47	2 600
<b>SCOC-150 H(C)</b>	20	196	9 200	2.56	2 430
	16	157	10 300	2.86	2 710
	12	118	11 200	3.11	2 920
	10	98	11 600	3.22	3 040
	8	78	12 000	3.33	3 180
	6	59	12 400	3.44	3 290
	5.1	50	12 600	3.50	3 360
	4	39	12 900	3.58	3 430
	2	19.6	13 300	3.69	3 430
	0.0	0.0	13 700	3.81	3 550
<b>SCOC-180 H(C)</b>	20	196	14 000	3.89	3 630
	16	157	15 100	4.19	3 760
	14	137	15 700	4.36	4 100
	10	98	16 800	4.67	4 300
	8	78	17 300	4.81	4 820
	5.1	50	18 100	5.03	5 070
	2	19.6	18 800	5.22	5 350
	0.0	0.0	19 300	5.36	5 500

## Electrical characteristics

### Outdoor units

Model	Power supply V.ph.Hz.		Consumption A				Power supply cable section (2) mm <sup>2</sup>	Automatic switch (K curve)(1) A
	Compressor	Fan	Compressor		Fan			
			Start	Nominal	Start	Nominal		
	<b>SCOC-076 H(C)</b>	230.3.50	230.3.50	210	31.2	23	4.9	10
400.3.50		400.3.50	116	17.9	10	2.8	4	25
<b>SCOC-090 H(C)</b>	230.3.50	230.3.50	224	31.5	53	8.5	16	63
	400.3.50	400.3.50	127	18.1	31	4.9	6	32
<b>SCOC-150 H(C)</b>	400.3.50	400.3.50	2 x 94	2 x 14.6	2 x 17	2 x 3.9	10	50
<b>SCOC-180 H(C)</b>	400.3.50	400.3.50	2 x 127	2 x 16.9	2 x 30	2 x 4.3	16	63

**Important:** The dimensioning of the automatic switch and power supply line sections are orientative and should be corrected in accordance with job site conditions, length between units and legislation in force.

**Notes:** 1.- K curve (DIN, VDE 0660-104). 2.- Based on copper conductors.

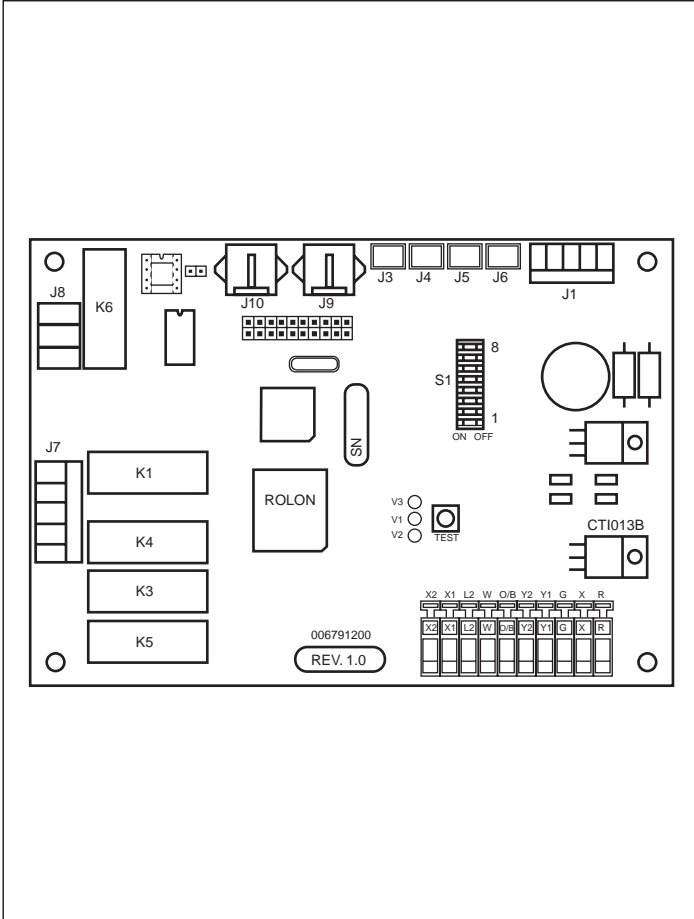
### Indoor units

Model	Power supply V.ph.Hz.	Consumption A		Power supply cable section mm <sup>2</sup>
	Fan	Fan		
		Start	Nominal	
<b>SICH-076B</b>	230.3.50	14	3.2	4 x 1.5
	400.3.50	8	1.8	4 x 1.5
<b>SICH-090B</b>	230.3.50	30	5.5	4 x 1.5
	400.3.50	17	3.2	4 x 1.5
<b>SICH-150B</b>	400.3.50	17	3.4	4 x 1.5
<b>SICH-180B</b>	400.3.50	34	6.3	4 x 1.5

**Important:** The dimensioning of the automatic switch and power supply line sections are orientative and should be corrected in accordance with job site conditions, length between units and legislation in force.

## Operation

The control board of these units is common to both the cool only as well as the heat pump units. By connecting an additional module, two-compressor equipment can be controlled. Equipment control is carried out by means of software that is resident in the board. System operation is carried out in accordance with the position of the microswitches in the main board. There are also variations in the control algorithm, depending upon the accessories the board detects installed in the equipment.



## Indoor fan

Operation can be continuous or automatic. For continuous operation, select said operation on the thermostat.

If the internal probe (optional accessory) is installed, and the operating mode is heat, the fan will not start until the indoor coil has reached 35°C, and will stop when this temperature drops to below 30°C. Whenever the electric heating starts, the indoor fan will also start.

## Outdoor fan

The outdoor fan starts 5 seconds before the compressor. And stops after the compressor stops.

## Four-way valve (heat pump only)

When SW6 of the control board is set to ON, the four-way valve activates when the thermostat requests heat. When a defrost cycle is carried out, this valve operates inversely; that is to say, in cool.

## Compressor

When signal Y1 is present, the board commands the outdoor fan to become operative, and then the compressor. The compressor, along with the outdoor fan, does not start until after

a minimum off time, so as to avoid consecutive start-ups. This period of time can be set by means of microswitches SW4; ON = 2' and OFF = 5'.

In two-stage equipment, the first compressor to start up will be the one that has been less hours in operation.

The second compressor will start if a Y2 signal is received from the thermostat.

Whenever one of the compressors is to turn off, it will be the one that has been most hours in operation.

## Defrost (heat pump only)

The defrost cycle is possible only in heat pump operation. In two-stage units, simultaneous defrost of both stages is not allowed, one remaining in standby until the other one has finished.

## Start-up

The following conditions should apply:

- 1) The compressor is on.
- 2) The liquid probe temperature is below -3°C for 3'.
- 3) If outdoor temperature is below 0°C, after compressor start-up 5' are timed before activating the defrost cycle.

When the defrost cycle is started, the board carries out the following operations:

- 1) Sets the 4-way valve to cool mode.
- 2) Turns the outdoor fan off.
- 3) Activates the following heat-generating phase, if the thermostat requires heat.
- 4) Turns the indoor fan off if there is no next heat stage.
- 5) Does not turn off the compressor that is defrosting, even if indicated by the thermostat.

## End

This operation will last until one of the following conditions is completed:

- a) Liquid temperature above 13°C during 2'.
- b) Liquid temperature above 5°C during 30'.
- c) Timing period after defrost start-up over 10'.
- d) Failure signal from high pressure switch.

Once defrost is over:

- 1) Sets four-way valve to heat.
- 2) Turns outdoor fan on.
- 3) Starts indoor fan if no next heat stage exists.
- 4) Turns off heat generating phase that started due to the defrost cycle.

## Test button and LEDs

Pressing the Test button shortens certain timings, resets the unit after any failure detected and also acts as a LonWorks service pin.

There are three signalling led diodes:

- a) The green led indicates correct operation of the equipment and incidents. If the equipment is operating correctly, this led flashes at a frequency of 1.6 Hz.
- b) The red led indicates failures. If no failure is present, this led remains off.
- c) The yellow led is the LonWorks service led, and also indicates, by flashing, that the operating compressor is timed.

## Configuration

Each time the electronic board is powered, system configuration will be checked, with the exception of the accessories. Below we can see how the different options are configured.

## Microswitches

They are read after power supply connection, and the board will act in accordance with their position. SW1 and SW2 set to OFF indicates that the configuration is carried out by remote control, and the parameters stored in the EEPROM memory are use.

## Configuration of switches

The microswitches establish the following configurations:

Number	State	Meaning
1/2	OFF/OFF	Ignore SW, programmed via communications
	ON/OFF	Defrost period 30'
	OFF/ON	Defrost period 60'
	ON/ON	Defrost period 90'
3	ON	Indoor fan ON during defrost
	OFF	Indoor fan OFF during defrost
4	ON	Compressor delay 2'
	OFF	Compressor delay 5'
5	ON	Cool mode
	OFF	Heat pump mode
6	ON	4-way valve active in heat
	OFF	4-way valve active in cool
7	ON	Receives signal B from thermostat (active in heat)
	OFF	Receives signal O from thermostat (active in cool)
8	ON	NA
	OFF	NA

## Configuration of accessories

To carry out an accessory search and configuration, the test button should be pressed for over two seconds, until the red led goes on. Once the search and configuration process begins, the red led on the board goes on, and stays on until the operation is concluded. Once off, the board uses the accessories found.

Said search will also detect which optional probes are connected to the board. A incident will be give if one of the optional probes detected in the configuration process does not give valid values.

The following table shows the probe configuration.

Probe	Cool only	
	Obligatory	Optional
Discharge	X	
Liquid		X
Outdoor		X
Suction	X	

## Installation of accessories

The accessories are used to support extended functions of the unit.

Said accessories can be either factory mounted or installed by the client. Power supply to the unit should always be disconnected. The accessory, along with the necessary elements, will then be assembled, and the power supply connected once again.

Once the search and configuration sequence is carried out, the new elements will be recognised and they will begin to operate.

The function of the different accessories is defined below.

### Tray heater (heat pump only)

A cable heater is used, mounted between the lower area of the outdoor coil and the tray, where the defrost water is collected. Its function is to avoid freezing of the water in the tray and ice in the lower area of the coil.

This heater should be activated in the winter cycle, while the compressor is operative, and when the liquid temperature is below -2°C; and disactivated when the temperature is above 2°C.

### Electric heating

In the case of the heaters, the relay is used to switch the power contactor on and off, as well as the thermal switch with safety automatic reset.

In one-stage equipment, the response to a demand for first stage from the thermostat starts the compressor stage, and the second starts the electric heating.

In the case of a failure in the compressor stage, the electric heating would be activated as the first stage.

Whenever the electric heating is on, the indoor fan will also be operative.

### Indoor coil probe (heat pump only)

The probe in the indoor coil, depending upon the temperature, carries out the following operations:

- 1) If in heat operating mode, and the electric heater is not activated, the fan will not start until the indoor coil reaches 35°C. If the electric heating is not activated, the indoor fan will turn off if the temperature drops below 30°C. If once the compressor is operating in heat mode for 2' the indoor temperature does not reach over 35°C, an unrecoverable heat temperature incidence is indicated.
- 2) If in cool operating mode, and the probe temperature is below -25°C, or the compressor is in operation for over 5' and the temperature is below -4°C, the compressor and outdoor fan go off. After the timed period, the compressor starts again. If this is repeated 3 times in 35 minutes, a failure of repeated start-up in cool is indicated, and the compressor will not restart.

## Malfunctions

There are two different types of malfunctions: incidents that do not turn the unit off, and failures or lockouts, that inactivate the unit.

### Indoor fan thermal switch

Its activation turns the entire unit off, and an indoor fan thermal switch failure is indicated.

### High and low pressure switches

Its activation turns the compressor and outdoor fan off. A

high or low pressure failure of the switch is indicated.

### Electric heating thermal switch (accessory)

Activation turns the electric heating off and indicates an incident. If this error occurs more than 3 times in an hour, an electric heater thermal switch incident is indicated, it is inhibited, and the electric heater is turned off.

### Thermostat errors

If signal Y is given without signal G, it acts as if signal G were active. An incident of signal Y1 without signal G is indicated. If signal W is given without signal G, it acts as if signal G were active. An incident of signal W without signal G is given. If signal W is given without signal B/O, it acts as if signal B/O were indicating heat mode. An incident of signal W without signal B/O is given.

### Protection for defrost cycles (heat pump only)

If 3 consecutive defrost cycles are carried out and ended in compliance with the 10' timer, an incident of repeated defrosts is indicated. This incident is deleted when a defrost cycle is ended in compliance with another condition that is not the maximum timer period.

### Protection for temperature

- If the outdoor temperature is below -20°C, the compressor turns off. An incident of low outdoor temperature (only in heat mode) is indicated.
- If the discharge temperature is above 130°C, the compressor and outdoor fan turn off. An excessive discharge temperature failure is indicated.
- If while the compressor is on for 5', the discharge temperature does not rise above 50°C, in cool mode, or 35°C in heat mode, a low discharge temperature incident is indicated.
- If the suction temperature is very low, the compressor and outdoor fan turn off. If this is repeated 3 times in 35 minutes, a failure is indicated.
- If, in heat mode, the liquid temperature is below -30°C, the compressor and outdoor fan turn off, and a failure is indicated.

### Open or short circuit of the outdoor or indoor liquid probe

An incident of the corresponding probe is indicated if the value read is below -40°C, or above 100°C. If this incident takes place in heat mode in the liquid probe, repeated defrost cycles are carried out with a maximum duration of 30 seconds.

### Open or short circuit of discharge probe

An incident of the discharge probe is indicated if its value is below -20°C, or above 150°C. If the probe is short circuited, a failure is indicated.

### Signalling

Malfunction signalling is carried out at two levels. One for incidents and another for failures.

### Incidents

Incidents do not turn the unit off, and are indicated by the green led on the electronic board. If there is no failure present, this led flashes at a frequency of 1 Hz.

When an incident occurs, the led flashes in three sequences. The first indicates the compressor involved: one flash for stage 1, and two for stage 2, followed by a short pause. The second

indicates the type of incident. Another short pause. The third indicates the incident detected, followed by a long pause, and the sequence is repeated again as long as the incident lasts.

The incidents reset when the cause disappears. In the case of more than once incident at the same time, only the first one detected and not reset is indicated. As they reset, the other existing incidents not reset will be indicated.

The following table shows the possible errors:

Type	Flashes		Incident
	2nd	3rd	
Probes	1	1	Discharge probe open or >150°C
	1	2	Liquid probe open or short circuited
	1	3	Outdoor probe open or short circuited
	1	4	Indoor probe open or short circuited
	1	5	Outdoor temperature too low
Thermostat	2	1	Signal Y1 or Y2 without signal G
	2	2	Signal W without signal B
	2	3	Signal W without signal G
	2	4	Signal Y2 without signal Y1
Electric heater	3	1	Electric heater thermal switch AUX1
	3	2	Electric heater thermal switch AUX2
	3	3	Electric heater thermal switch EM1
	3	4	Electric heater thermal switch EM2
Temperature	4	1	Repeated defrost cycles
	4	2	Discharge temperature does not recover
	4	4	Temperature in heat does not recover
Others	5	1	ID of transceiver unknown
	5	2	Accessory disappeared

### Failures (lockouts)

Failures or lockouts turn the unit off.

They are indicated by the red led on the board, and by means of the thermostat (depending upon the model). Relay K6 of the board is also activated with a 24 VAC signal between terminals LED2 and B of J2. If no failure is present, this led remains off. When a failure takes place, this led flashes in two sequences. The first indicates the compressor involved: one flash for stage 1 and two for stage 2, followed by a short pause. Then the detected failure is indicated, followed by a long pause and the sequence is repeated.

Should more than one alarm take place, only the first one detected and not reset is indicated.



The following table shows the possible failures:

Flashes	Meaning
1	Discharge temperature surpassed or probe short circuited
2	High pressure switch, outdoor fan thermal switch or compressor mode thermal switch
3	Low pressure switch
4	Indoor fan thermal switch
5	Repeated start-ups in cool, or suction temperature <-25°C
6	Low liquid temperature <-30°C

## Reset

The incidents, with a few exceptions, do not need to be reset. They reset automatically once the cause has disappeared. The following incidents require resetting, and are reset in the same way as the alarms:

- a) Accessory disappeared.
- b) Repeated defrost cycles (also reset if a defrost cycle ends under normal conditions).
- c) Electric heating thermal switch.

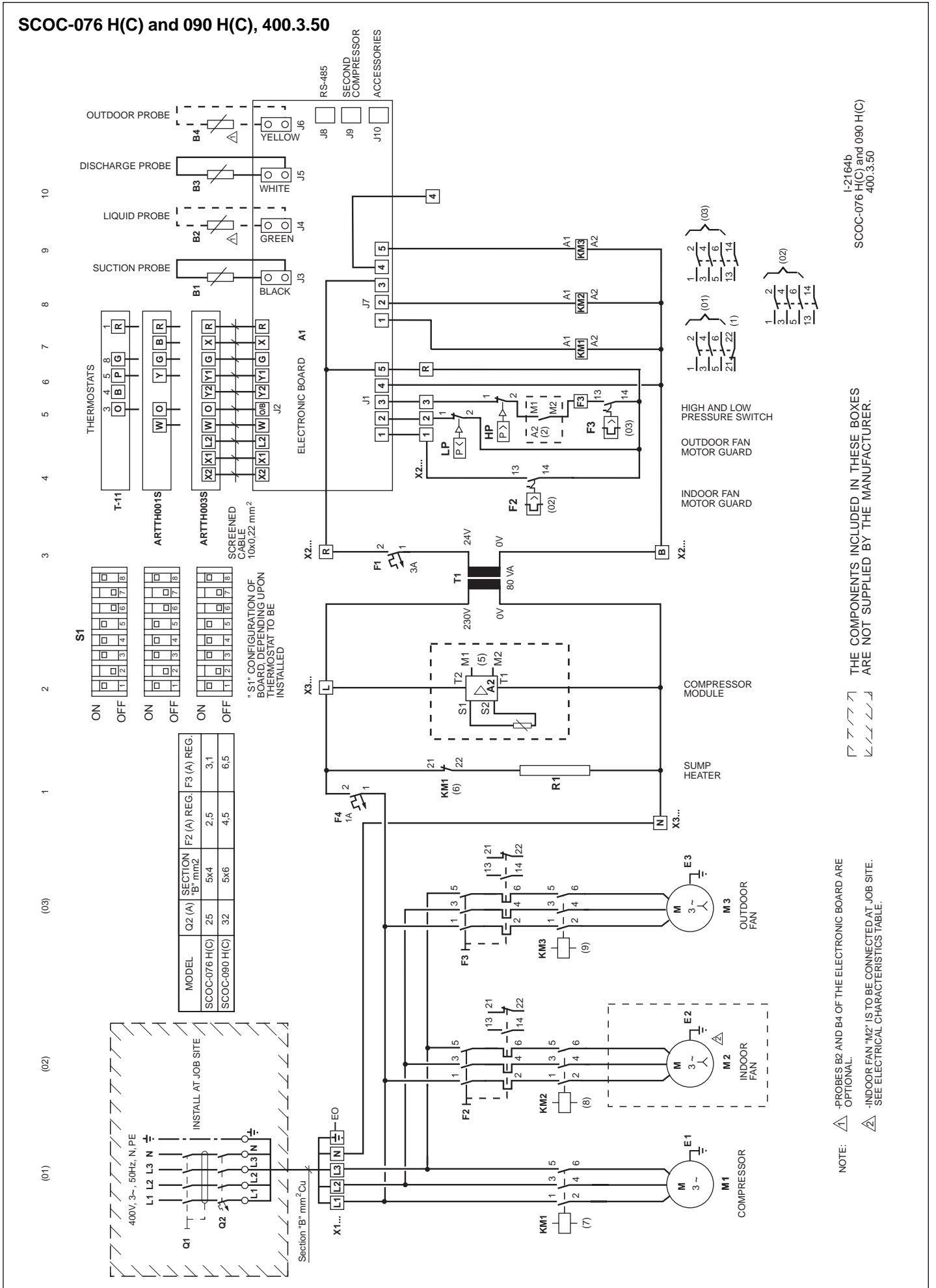
These alarms can be reset as follows:

- 1) Setting the thermostat to OFF, if communication with the thermostat has been implemented.
- 2) Pressing the reset button on the electronic board.
- 3) Disconnecting and reconnecting power supply to the electronic board.
- 4) By means of the communications trunk.

It is worth pointing out that, with a reset by means of setting the thermostat to OFF, the board cannot be reset more than 3 times a day.

# Wiring diagram

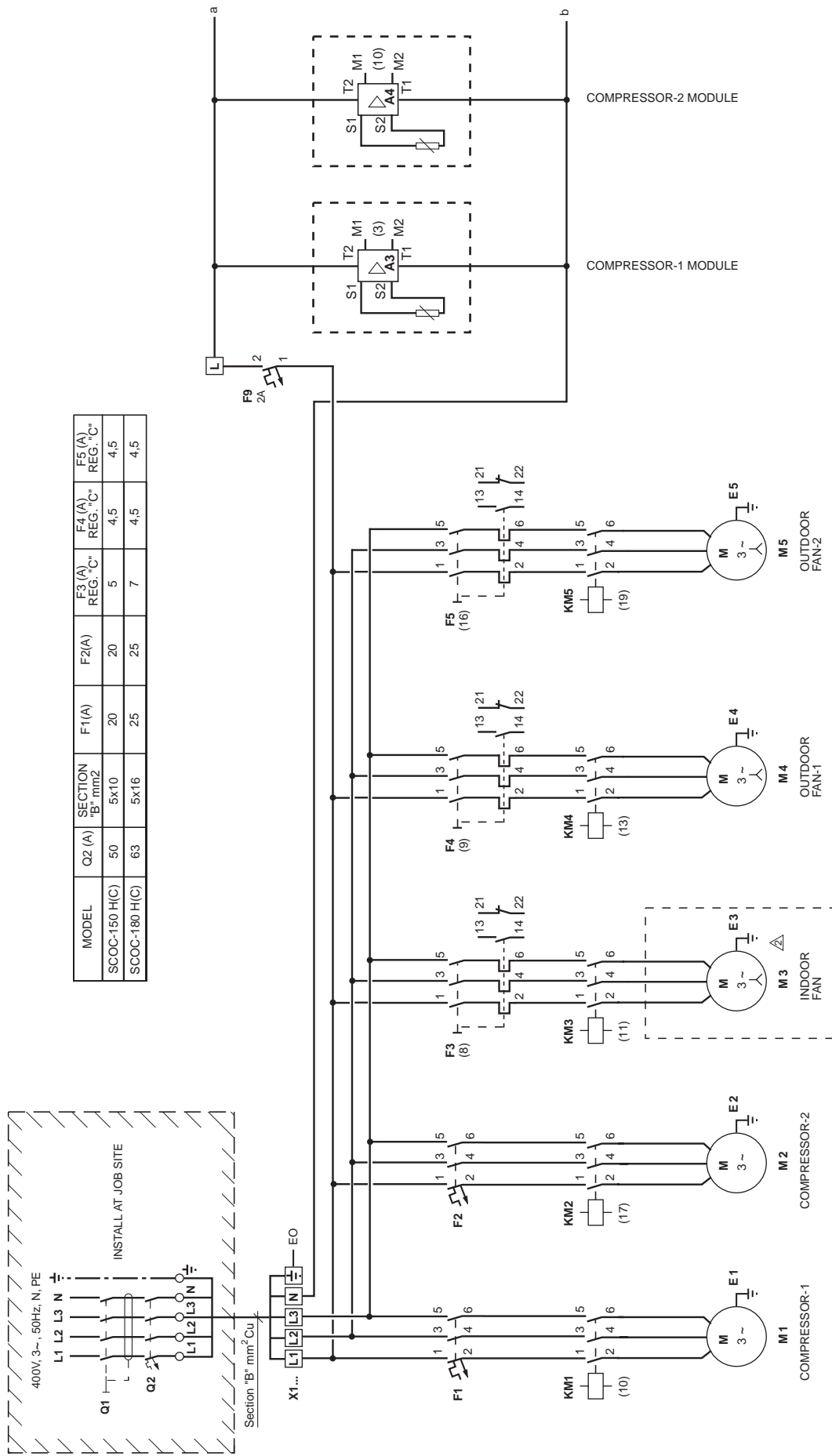
## SCOC-076 H(C) and 090 H(C), 400.3.50



# Wiring diagram

## SCOC-150 H(C) and 180 H(C), 400.3.50

(01) (02) (03) (04) (05) 1 2 3 4



MODEL	Q2 (A)	SECTION "B" mm <sup>2</sup>	F1 (A)	F2 (A)	F3 (A) REG. °C°	F4 (A) REG. °C°	F5 (A) REG. °C°
SCOC-150 H(C)	50	5x10	20	20	5	4,5	4,5
SCOC-180 H(C)	63	5x16	25	25	7	4,5	4,5

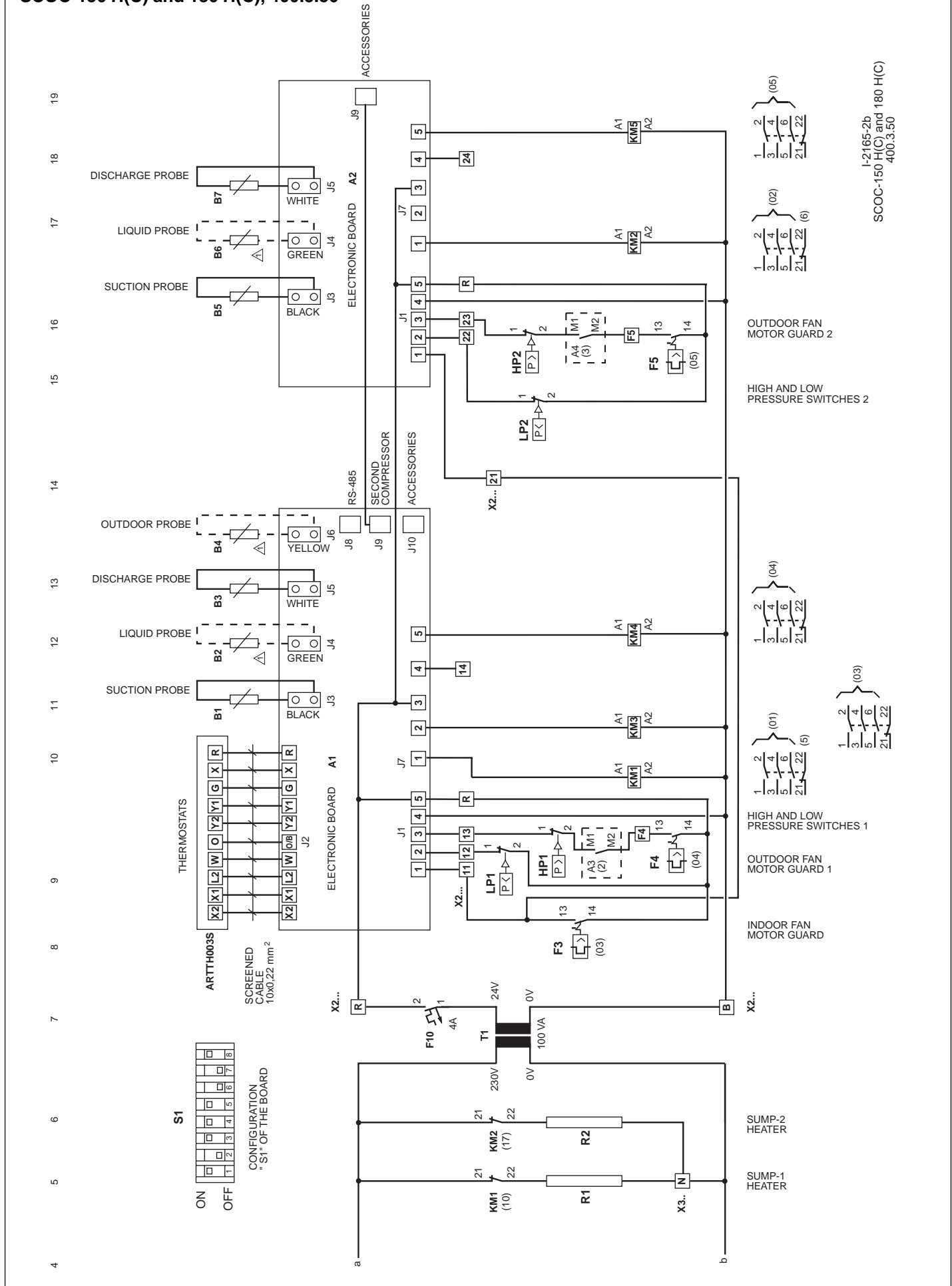
NOTE: - PROBES B2, B4 AND B6 OF THE ELECTRONIC BOARD ARE OPTIONAL.  
 - INDOOR FAN "M3" IS TO BE CONNECTED AT JOB SITE. SEE ELECTRICAL CHARACTERISTICS TABLE.

THE COMPONENTS INCLUDED IN THESE BOXES ARE NOT SUPPLIED BY THE MANUFACTURER.

I-2165-1b  
 SCOC-150 H(C) and 180 H(C)  
 400.3.50

# Wiring diagram

## SCOC-150 H(C) and 180 H(C), 400.3.50

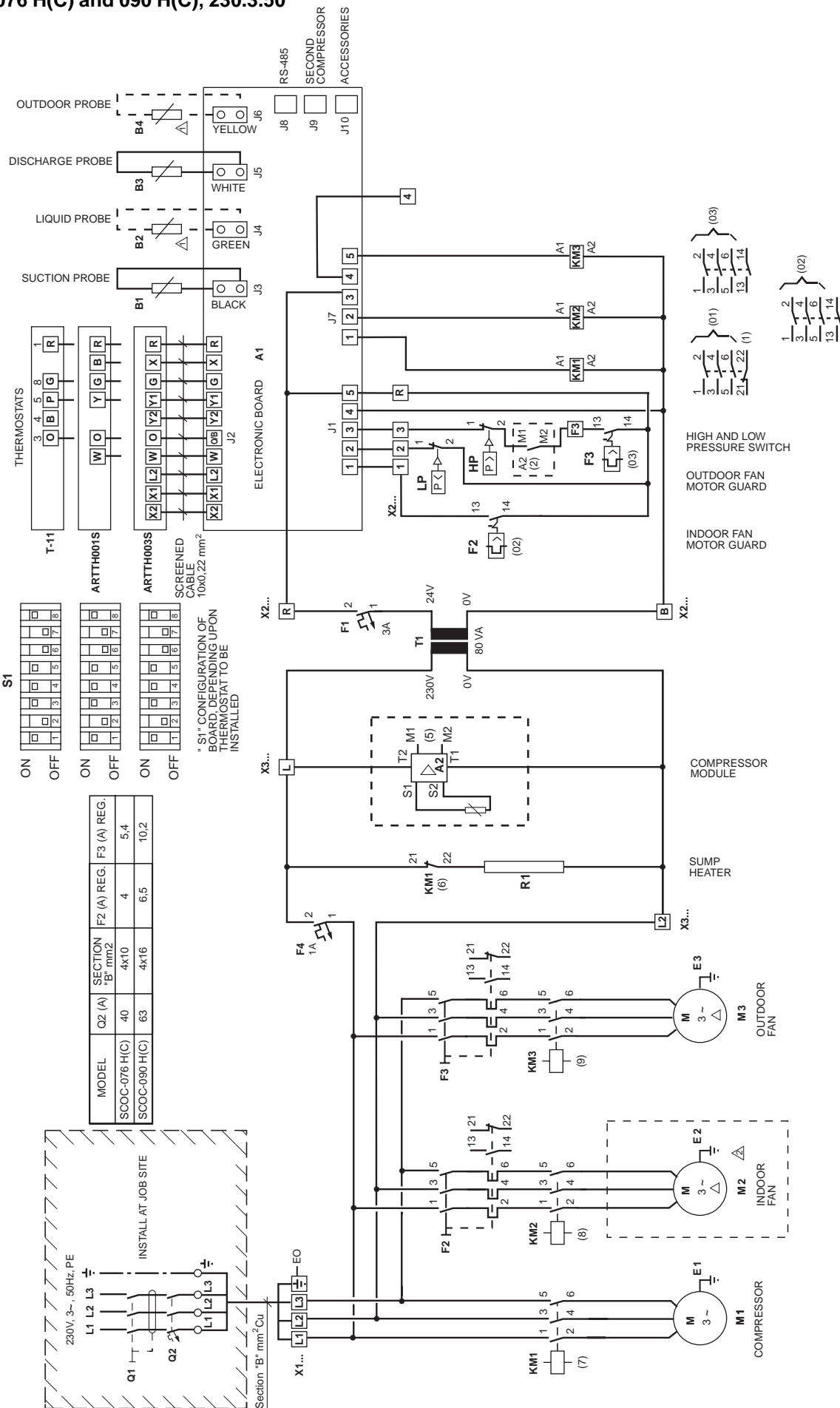


I-2165-2b  
SCOC-150 H(C) and 180 H(C)  
400.3.50

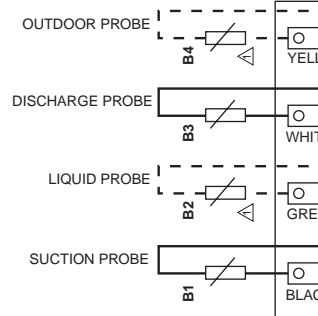
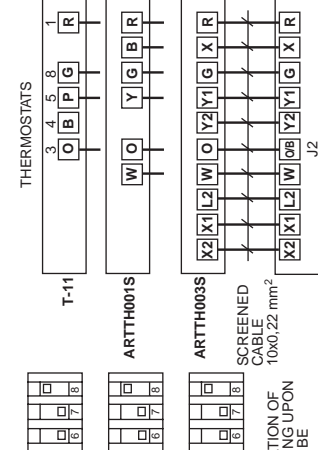
# Wiring diagram

## SCOC-076 H(C) and 090 H(C), 230.3.50

(01) (02) (03) 1 2 3 4 5 6 7 8 9 10



MODEL	Q2 (A)	SECTION "B" mm <sup>2</sup>	F2 (A) REG.	F3 (A) REG.
SCOC-076 H(C)	40	4x10	4	5.4
SCOC-090 H(C)	63	4x16	6.5	10.2



NOTE: PROBES B2 AND B4 OF THE ELECTRONIC BOARD ARE OPTIONAL.  
 INDOOR FAN "M2" IS TO BE CONNECTED AT JOB SITE.  
 SEE ELECTRICAL CHARACTERISTICS TABLE.

THE COMPONENTS INCLUDED IN THESE BOXES ARE NOT SUPPLIED BY THE MANUFACTURER.

I-2166a  
SCOC-076 H(C) and 090 H(C)  
230.3.50

# Accessories

## Standard accessories

Accessory	Model SICH				
		076B	090B	150B	180B
Internal electric heater	<b>SICH-076B</b>	10 kW	X		
Internal electric heater	<b>SICH-076B</b>	15 kW	X		
Internal electric heater	<b>SICH-090B</b>	10 kW		X	
Internal electric heater	<b>SICH-090B</b>	20 kW		X	
Internal electric heater	<b>SICH-150B</b>	15 kW			X
Internal electric heater	<b>SICH-150B</b>	30 kW			X
Internal electric heater	<b>SICH-180B</b>	15 kW			X
Internal electric heater	<b>SICH-180B</b>	30 kW			X
Duct electric heater	<b>SICH-076B</b>	10 kW	X		
Duct electric heater	<b>SICH-076B</b>	15 kW	X		
Duct electric heater	<b>SICH-090-180B</b>	20 kW		X	X
Duct electric heater	<b>SICH-090-180B</b>	30 kW		X	X
Water coil for model	<b>SICH-076B</b>		X		
Water coil for model	<b>SICH-090B</b>			X	
Water coil for model	<b>SICH-150B</b>				X
Vertical transformation kit for model	<b>SICH-180B</b>				X

Accessory	Model SCOC			
	076 H(C)	090 H(C)	150 H(C)	180 H(C)
Vertical transformation kit SCOC	X	X	X	X

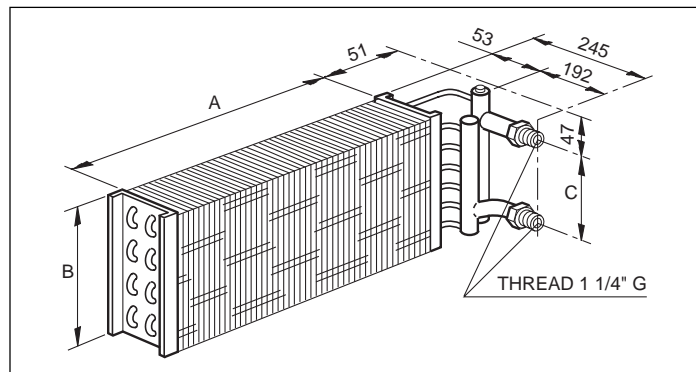
## Hot water coil for SICH-076, 090 and 150 B

Made of copper tubes and aluminium fins.

Designed to be fitted inside the conditioner, on galvanised steel supports.

Equipped with an 1/8" air purger.

### General dimensions mm



For model	A	B	C
<b>SICH-076B</b>	1 069	458	340
<b>SICH-090B</b>	1 312	534	416
<b>SICH-150B</b>	1 750	534	416

### Physical data

For model	SICH-070-076B	SICH-090-120B	SICH-150B
Tube depth	2	2	2
Tube height	16	19	19
Fins/inch	12	12	12
Front area	m <sup>2</sup> 0.49	0.70	0.93
Tubing diameter	3/8"	3/8"	3/8"
Inlet/outlet GAS male threaded connections	1 1/4"	1 1/4"	1 1/4"

### Heating capacity

For model	Nominal flow-rate		Heating capacity (*)	Air circuit pressure drop	
	m <sup>3</sup> /h	m <sup>3</sup> /s		mm WG	Pa
<b>SICH-076B</b>	4 615	1.28	40.7	3.9	38.2
<b>SICH-090B</b>	7 940	2.20	59.3	4.4	43.0
<b>SICH-150B</b>	10 000	2.97	79.1	4.4	43.0

\* The heating capacities given in this table are valid for water intake temperatures of 90°C, outlet 80°C, and air intake at 13°C. For different conditions, apply the correction factor appearing in the corresponding table.

### Correction factors for heating capacities of the hot water coil

These correction factors are for water intake and outlet and air intake temperatures other than nominal.

Air temperature	Water intake/outlet temperature ° C					
	75/65	85/75	90/80	85/70	90/75	90/70
-10	1.03	1.23	1.33	1.13	1.24	1.14
-5	0.97	1.16	1.28	1.07	1.17	1.08
0	0.91	1.09	1.19	1.00	1.10	1.01
5	0.85	1.02	1.12	0.94	1.03	0.95
10	0.79	0.95	1.04	0.88	0.96	0.89
13	0.75	0.91	1.00	0.84	0.92	0.85
15	0.73	0.88	0.97	0.82	0.90	0.83
20	0.68	0.82	0.90	0.76	0.83	0.77
25	0.60	0.74	0.83	0.68	0.75	0.69

### Pressure drop in the water circuit of the hot water coil

		Hot water flow-rate												
		m <sup>3</sup> /h	1.00	1.30	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00	6.00	7.00
		l/s	0.28	0.36	0.42	0.56	0.69	0.83	0.97	1.11	1.25	1.39	1.67	1.94
For model <b>SICH-076B</b>	m WG		0.08	0.10	0.17	0.24	0.33	0.42	0.48					
	kPa		0.78	0.98	1.66	2.35	3.23	4.11	4.70					
For model <b>SICH-090B</b>	m WG				0.13	0.20	0.27	0.36	0.46	0.54	0.66			
	kPa				1.27	1.96	2.64	3.52	4.50	5.28	6.46			
For model <b>SICH-150B</b>	m WG					0.25	0.34	0.45	0.57	0.68	0.82	1.17	1.50	
	kPa					2.44	3.33	4.40	5.58	6.66	8.03	11.45	14.68	

## Internal electric heaters for SICH-076 to 180 B

These internal electric heaters are designed to provide backup or complementary heat for the SICH units. On and off cycles are governed by the air conditioning equipment control system. They should be fitted to the internal supports of the indoor unit.

### Technical specifications

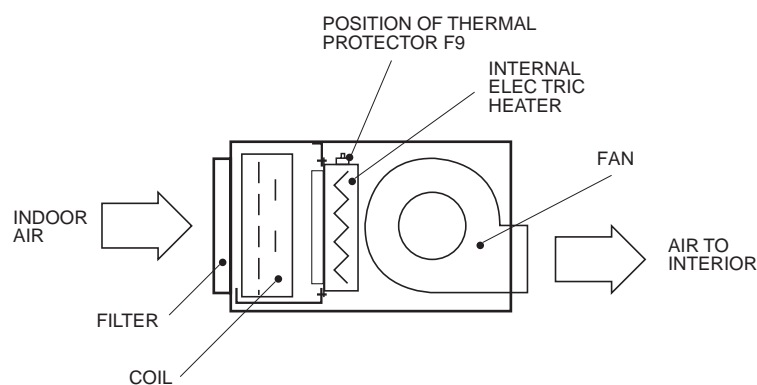
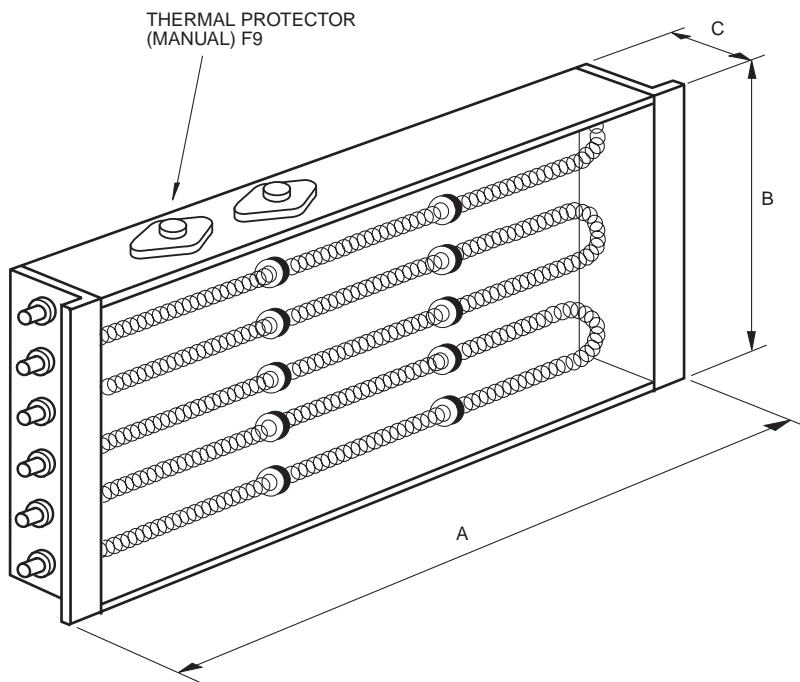
These internal electric heaters include the following components:

- Galvanised sheet casing and supports.
- Exposed nickel-chrome wire electric resistances mounted

on steatite supports.

- Power supply contactor with a 400 V coil.
- Two thermal protectors located at the top of the heater. The first, with automatic reset, disconnects the heater when a temperature of 77°C is reached. The second, accessible internally and with manual reset, disconnects the heater when reaching a temperature of 138°C. Two-stage heaters contain four thermal protectors; two for each stage.
- Interlock with the heat relay of the indoor fan. The control system of the unit does not let the heater operate if the indoor fan heat relay has failed.
- Plug-in connector for interconnecting the control panel of the air conditioning unit and the heater.
- Self-threading screws for fastening this accessory.

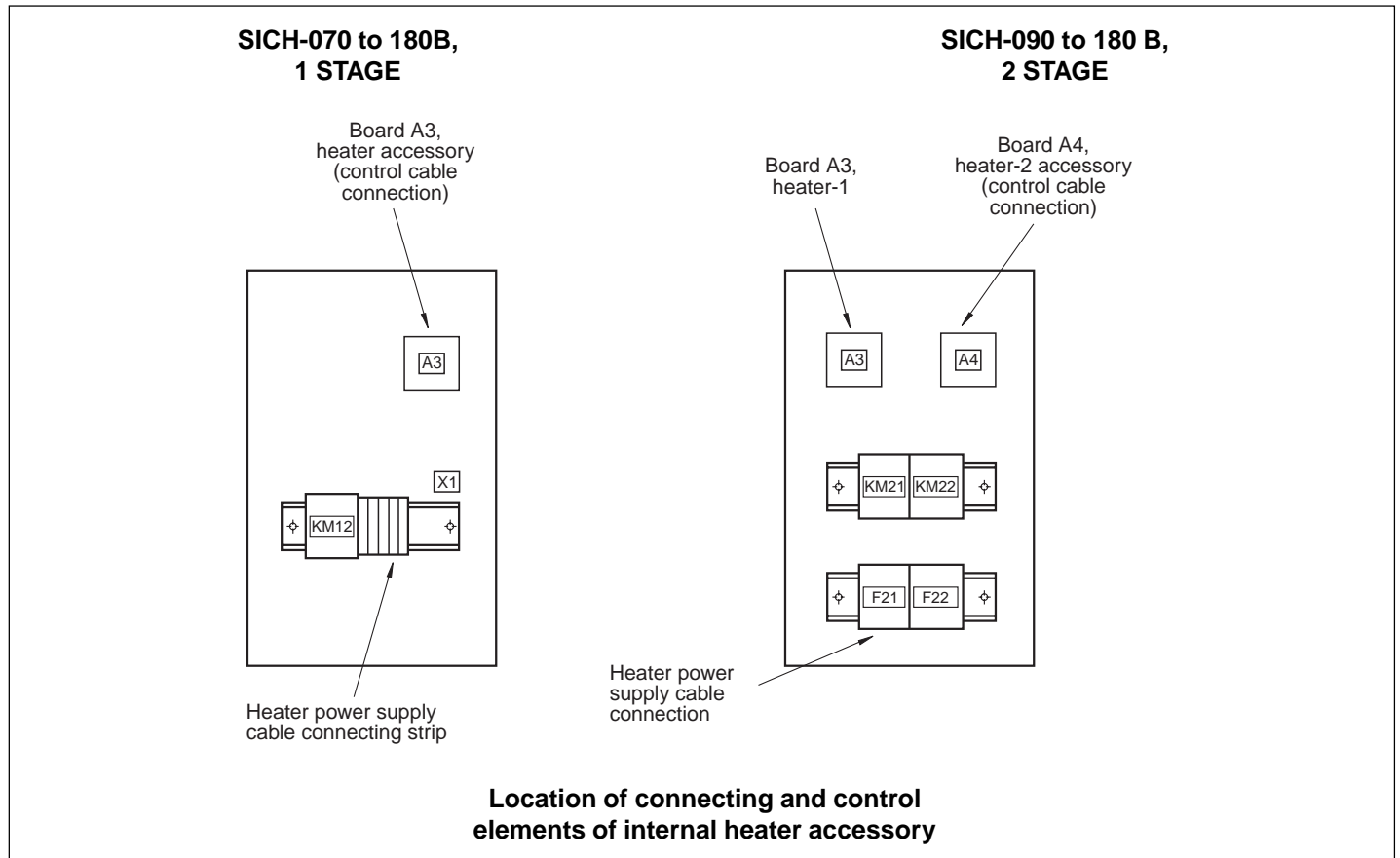
### Assembly and general dimensions mm



For mounting on	A	B	C
<b>SICH-076B</b>	1 103	480	48
<b>SICH-090B</b>	1 339	550	48
<b>SICH-150B</b>	1 740	550	48
<b>SICH-180B</b>	1 930	470	80



## Assembly and general dimensions mm



## General characteristics

Heater model	Power supply	Power	Consumption	Stages	Automatic switch (1) Q1	Power supply cable section (2)	Front surface	Pressure drop (3)
	V.ph.Hz	kW	A		A	mm <sup>2</sup>	m <sup>2</sup>	Pa
<b>SICH-076B</b>	400.3.50	10	15	1	20	2.5	0.53	2.9
<b>SICH-076B</b>	400.3.50	15	22	1	25	4	0.53	2.9
<b>SICH-090B</b>	400.3.50	10	15	1	20	2.5	0.74	4.9
<b>SICH-090B</b>	400.3.50	20	30	2	40	6	0.74	4.9
<b>SICH-150B</b>	400.3.50	15	22	1	25	4	0.98	7.1
<b>SICH-150B</b>	400.3.50	30	46	2	50	10	0.98	7.1
<b>SICH-180B</b>	400.3.50	15	22	1	25	4	0.98	7.1
<b>SICH-180B</b>	400.3.50	30	46	2	50	10	0.98	7.1

**Notes:** 1.- K curve (DIN, VDE 0660-104). 2.- Based on copper conductors. 3.- Considered the nominal air flow of the indoor section.

## Dimensions with packing and weights

Heater model	Dimensions with packing mm.			Weight kgs.
	Height	Width	Depth	
<b>SICH-076B</b>	620	1 300	110	7
<b>SICH-090B</b>	620	1 520	110	8
<b>SICH-150B</b>	620	1 920	110	9
<b>SICH-180B</b>	510	2 405	165	10

## Installation

Install the electric heater in the SICH unit as follows:

- 1) In all cases, the **established national regulations** should be followed.
- 2) Disconnect the power supply to the air conditioning unit.
- 3) Install the magnetothermal and differential switches for the heater in accordance with the indications appearing in the table of General Characteristics and Wiring Diagrams.
- 4) Remove the access covers to the controls of the SCOC, SCOH, SOC or SOH/SICH units.
- 5) Unpack the accessory, opening the top of the box. Make sure the heater assembly has not been damaged during transportation. Check the ceramic insulation and that the heater wires are not in contact with any metal parts.
- 6) Remove the side covers of the SICH unit and place the electric heater on the two vertical supports of the coil, making the tab coincide with the drilled hole. Check to make sure that the reset push button of the F9 thermal switch (F9 and F11 in 2-stage units) is accessible and at the top. See *Assembly and general dimensions*.
- 7) Mount the control support on the side of the machine, or inside the electrical box, depending upon the SICH unit, and fasten with the screws supplied.
- 8) Connect the power supply cables to connecting strip X1 (or automatic switch F21 in 2-stage). Connect the control cable included between connector J1 of the A3 auxiliary heater board (A4 in 2-stage units) and connector J10 of the A1 control board of the air conditioning unit.
- 9) The installer should complete the electric circuit of the heater by fitting an air flow control F14 (F14 and F15 in 2-stage) at the most convenient point of the ducts so as

to make sure the heater operates only when there is sufficient air flow.

- 10) Connect power supply to the SCOC or SCOH/SICH unit and to the heater.
- 11) To configure the accessory, press the test button of control board A1 for over 2 seconds, until the red led on the board goes on. Configuration will be complete once said led goes off.
- 12) Check operation of the heater by selecting the Emergency Heat mode at the ambient thermostat of the air conditioning unit.
- 13) Replace the covers of the SCOC or SCOH/SICH units.

**Note:** Should an incorrect response of the system take place, see the Operation section of the SCOC or SCOH/SICH Installation Instructions. There you will find the control functions of the A1 electronic board on the heater, as well as its configuration, incidents identification, etc.

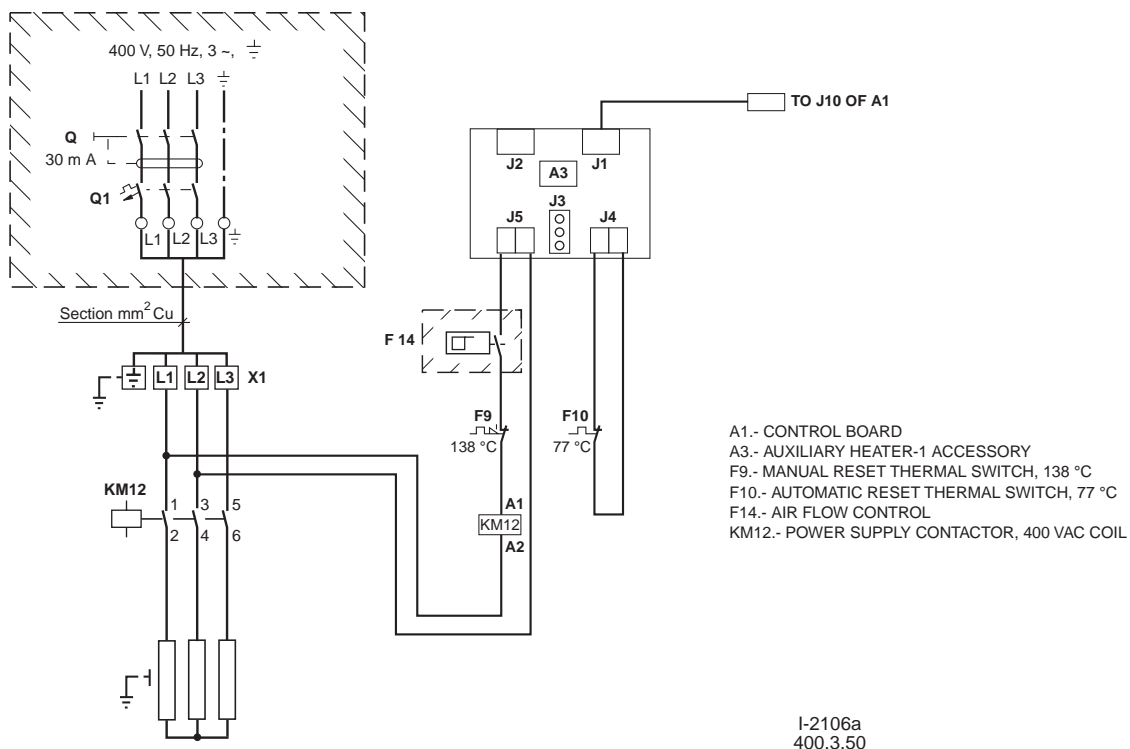


Loose cables can cause overheating of the terminals or incorrect operation of the unit. Fire hazards may also arise. Therefore, make sure all cables are connected tightly.

# Wiring diagram

**Heater 10, 15kW, 400.3.50**  
**SICH-076 to 180B**

POWER SUPPLY kW	AUTOMATIC SWITCH Q1	MINIMUM SECTION CABLES mm <sup>2</sup>
10	20	2,5
15	25	4



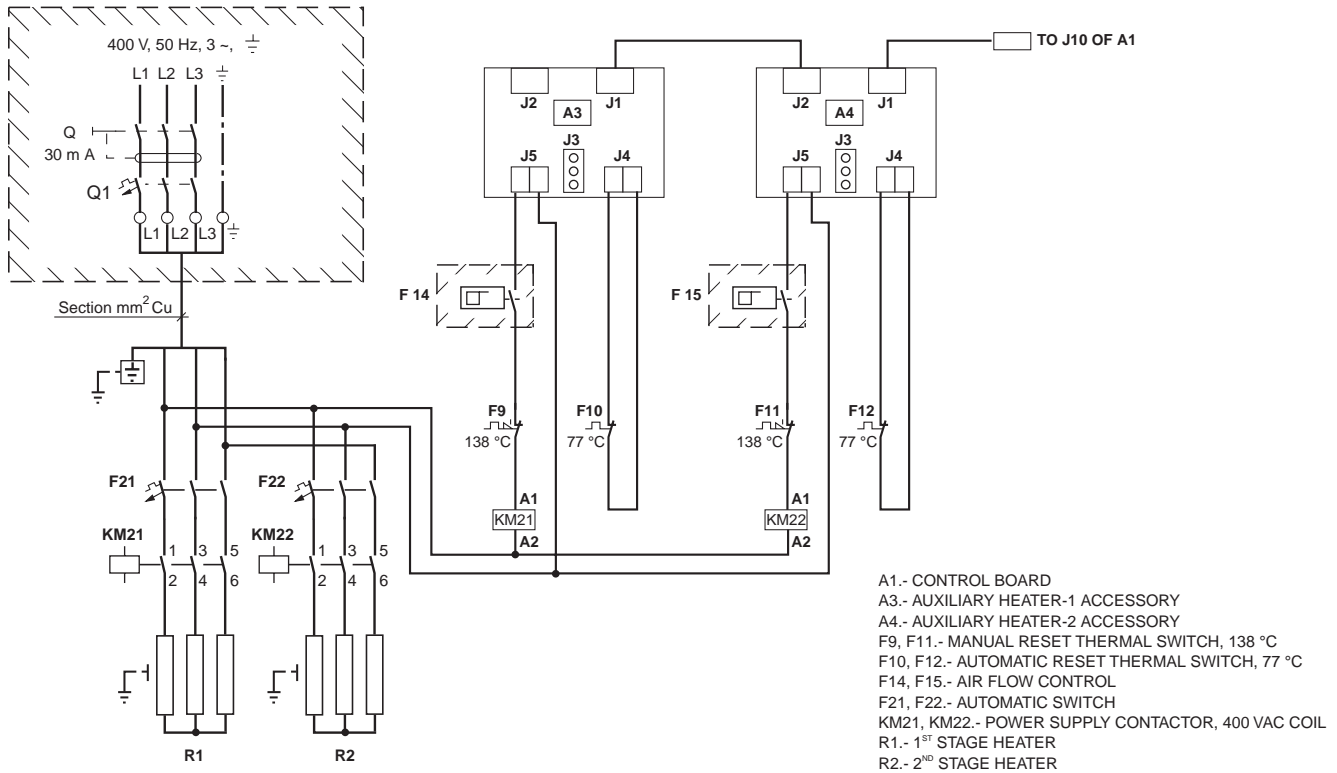
▧ ▧ ▧ ▧ THE COMPONENTS INCLUDED IN THESE BOXES  
 ▨ ▨ ▨ ▨ ARE NOT SUPPLIED BY THE MANUFACTURER.

IMPORTANT: THE SIZE OF THE CIRCUIT BREAKER AND THE CROSS-SECTION OF THE SUPPLY AND CONTROL LINES ARE ONLY AS A GUIDE AND SHOULD BE CORRECTED IN ACCORDANCE WITH THE CONDITIONS AT THE JOBSITE, DISTANCE BETWEEN UNITS, AND CURRENT LEGISLATION.

# Wiring diagram

**Heater 20, 30kW, 400.3.50**  
**SICH-090 to 180**

POWER SUPPLY kW	AUTOMATIC SWITCH Q1	AUTOMATIC SWITCH		MINIMUM SECTION CABLES mm <sup>2</sup>
		F21	F22	
20	40	20	20	6
30	50	25	25	10



I-2107a  
 400.3.50

$\square$   $\square$   $\square$   $\square$  THE COMPONENTS INCLUDED IN THESE BOXES  
 $\square$   $\square$   $\square$   $\square$  ARE NOT SUPPLIED BY THE MANUFACTURER.

IMPORTANT: THE SIZE OF THE CIRCUIT BREAKER AND THE CROSS-SECTION OF THE SUPPLY AND CONTROL LINES ARE ONLY AS A GUIDE AND SHOULD BE CORRECTED IN ACCORDANCE WITH THE CONDITIONS AT THE JOBSITE, DISTANCE BETWEEN UNITS, AND CURRENT LEGISLATION.

## Duct electric heaters for SICH-076 to 180B

These duct electric heaters are designed to provide backup heat in heat pump units, and complementary heat in cool only units. On and off cycles are governed by the air conditioning equipment control system. These should be fitted directly to the impulse outlet of the indoor section of the unit.

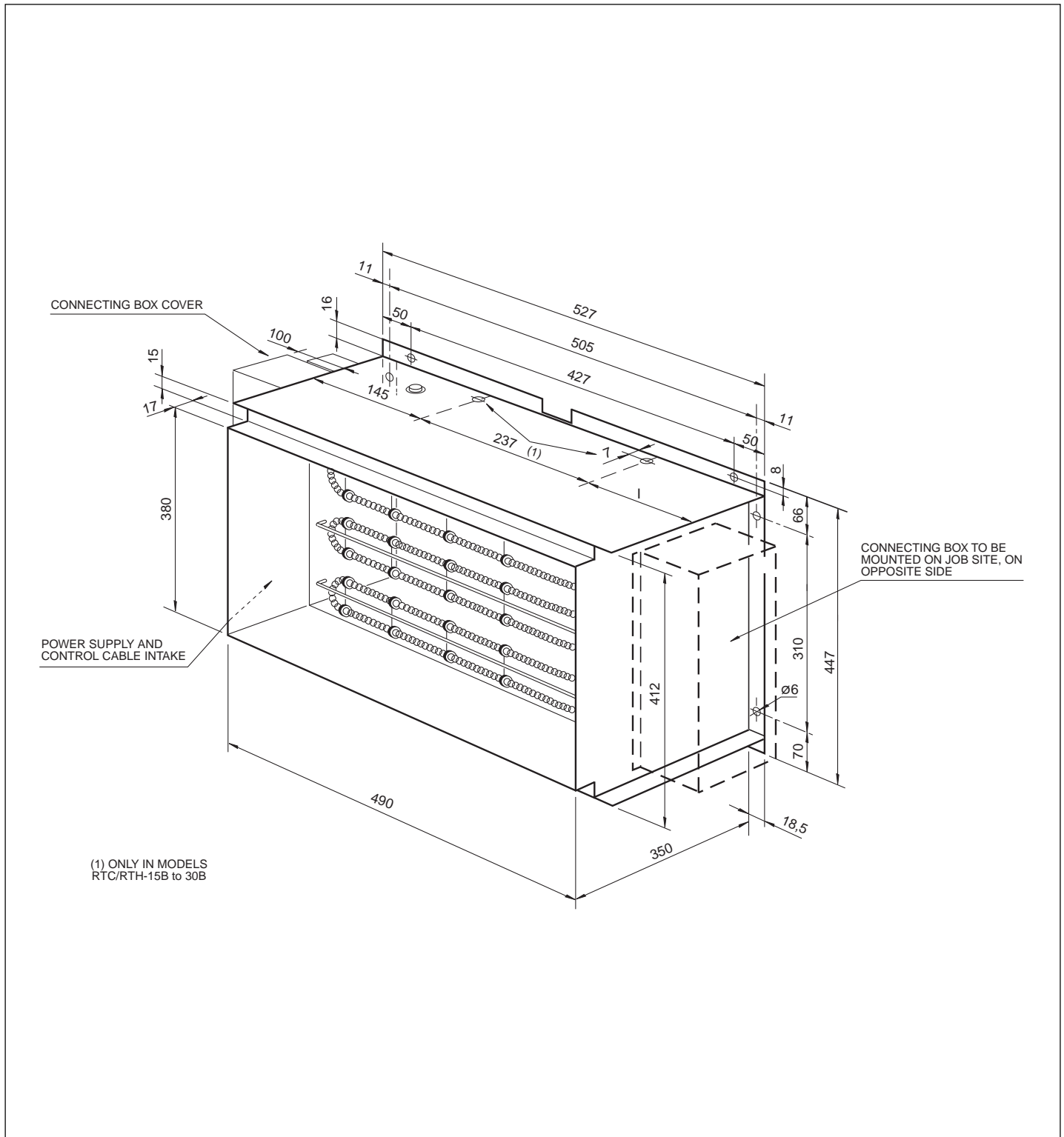
### Technical specifications

These duct electric heaters include the following components:

- Galvanised sheet casing, covers and supports.
- Exposed nickel-chrome wire electric resistance mounted on steatite supports.
- Power supply contactor with a 400 V coil.

- Two thermal switches located at the top of the heater. The first, with automatic reset, disconnects the heater when a temperature of 77°C is reached. The second, accessible externally and with manual reset, disconnects the heater when a temperature of 138°C is reached. With 2-stage heaters, there are four thermal protectors, 2 for each stage.
- Interlock with the indoor fan thermal relay. The control system of the unit does not allow operation of the heater when the indoor fan thermal relay fails.
- Plug-in connector for interconnection between the control panel of the air conditioning unit and the heater.
- PVC gasket for heater-air conditioner joint and self-threading screws for fastening the accessory.

### General dimensions mm



## General characteristics

Heater model	Power supply	Power	Consumption	Stages	Automatic switch (1) Q1	Power supply cable section (2)	Front surface	Pressure drop (3)
	V.ph.Hz	kW	A		A	mm <sup>2</sup>	m <sup>2</sup>	Pa
<b>SICH-076B</b>	400.3.50	10	15	1	20	2.5	0.19	6
<b>SICH-076B</b>	400.3.50	15	22	1	25	4	0.19	6
<b>SICH-090 to 180B</b>	400.3.50	20	30	2	40	6	0.19	15
<b>SICH-090 to 180B</b>	400.3.50	30	46	2	50	10	0.19	15

**Notes:** 1.- K curve (DIN, VDE 0660-104). 2.- Based on copper conductors. 3.- Considered the nominal air flow of the indoor section.

## Dimensions with packing and weights

Heater model	Dimensions with packing mm.			Weight kg
	Height	Width	Depth	
<b>SICH-076B</b>	440	640	370	20
<b>SICH-090 to 180B</b>	880	640	370	40

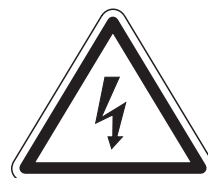
## Installation

Install the electric heater in the SICH unit as follows:

- 1) In all cases, the **established national regulations** should be followed.
- 2) Disconnect the power supply to the air conditioning unit.
- 3) Install the magnetothermal and differential switches for the heater in accordance with the indications appearing in the table of General Characteristics and Wiring Diagrams.
- 4) Remove the access covers to the controls of the SCOC, SCOH, SOC or SOH/SICH units.
- 5) Unpack the accessory, opening the top of the box. Make sure the heater assembly has not been damaged during transportation. Check the ceramic insulation and that the heater wires are not in contact with any metal parts.
- 6) Fit the electric heater in the mouth of the indoor fan panel housing and drill eight 3 diameter holes for fastening. Check to make sure that the reset push button of the F9 thermal switch (F9 and F11 in 2 stages) is accessible and at the top. See Heater Location diagram.
- 7) Fasten the PVC gasket supplied with the accessory, to the frame surface of the heater adjacent to the indoor fan panel.
- 8) Fasten the heater to the panel with the screws supplied.
- 9) Remove the electrical connections cover of the heater and connect the power supply cables to connecting strip X1 (or automatic switch F21 in 2 stages). Connect the control cable supplied, between connector J1 of the A3 Auxiliary Resistance board (A4 in 2 stages) and connector J10 of the A1 control board of the air conditioning unit.
- 10) The installer should complete the electric circuit of the heater by fitting an air flow control F14 (F14 and F15 in 2 stages) at the most convenient point of the ducts so as to make sure the heater operates only when there is sufficient air flow.

- 11) Connect power supply to the SCOC, SCOH, SOC or SOH/SICH unit and the heater.
- 12) To configure the accessory, press the test button of control board A1 for over 2 seconds, until the red led on the board goes on. Configuration will be complete when said led goes off.
- 13) Check operation of the heater by selecting the Emergency Heat mode at the ambient thermostat of the air conditioning unit.
- 14) Assemble the electrical box covers of the heater and the SCOC, SCOH, SOC or SOH/SICH unit.

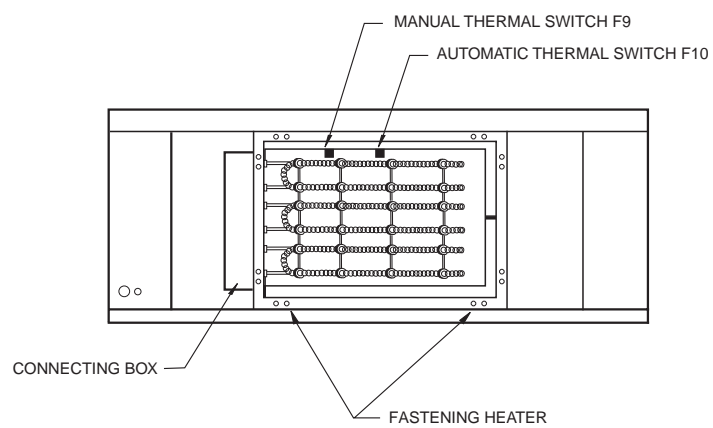
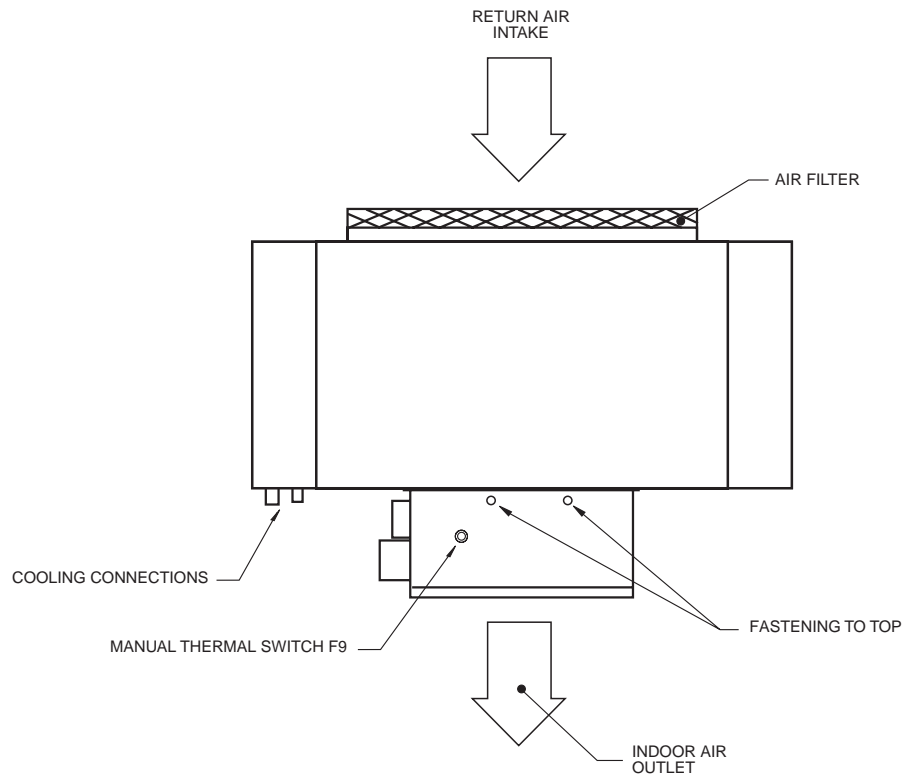
**Note:** Should an incorrect response of the system take place, see the Operation section of the SCOC or SCOH, SOC or SOH/SICH Installation Instructions. There you will find the control functions of the A1 electronic board on the heater, as well as its configuration, incidents identification, etc.



Loose cables can cause overheating of the terminals or incorrect operation of the unit. Fire hazards may also arise. Therefore, make sure all cables are connected tightly.

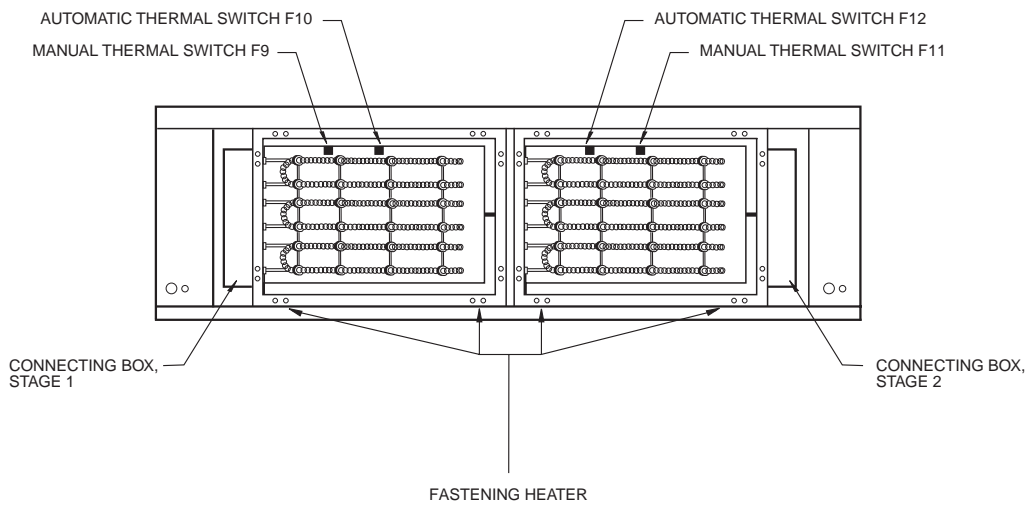
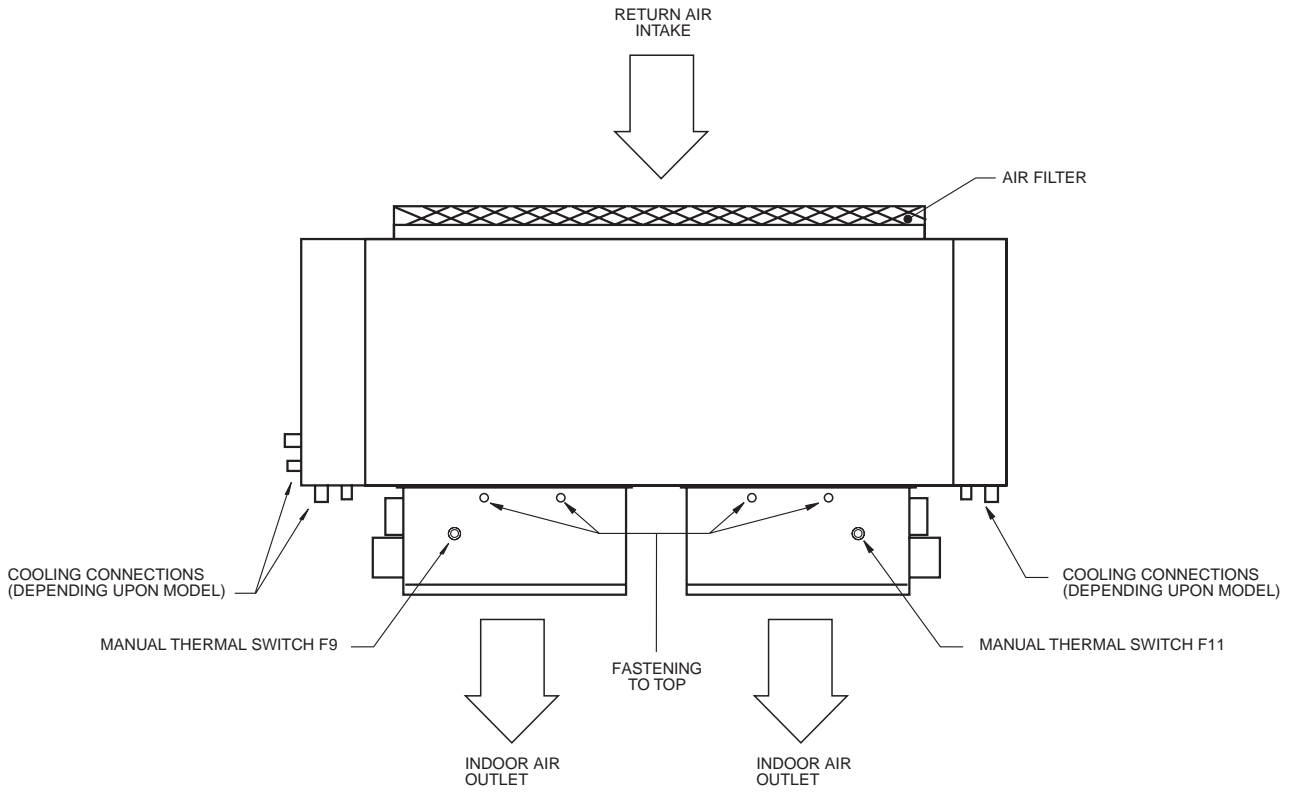
# Location of the heater

SICH-076B



# Location of the heater

SICH-090 to 180B



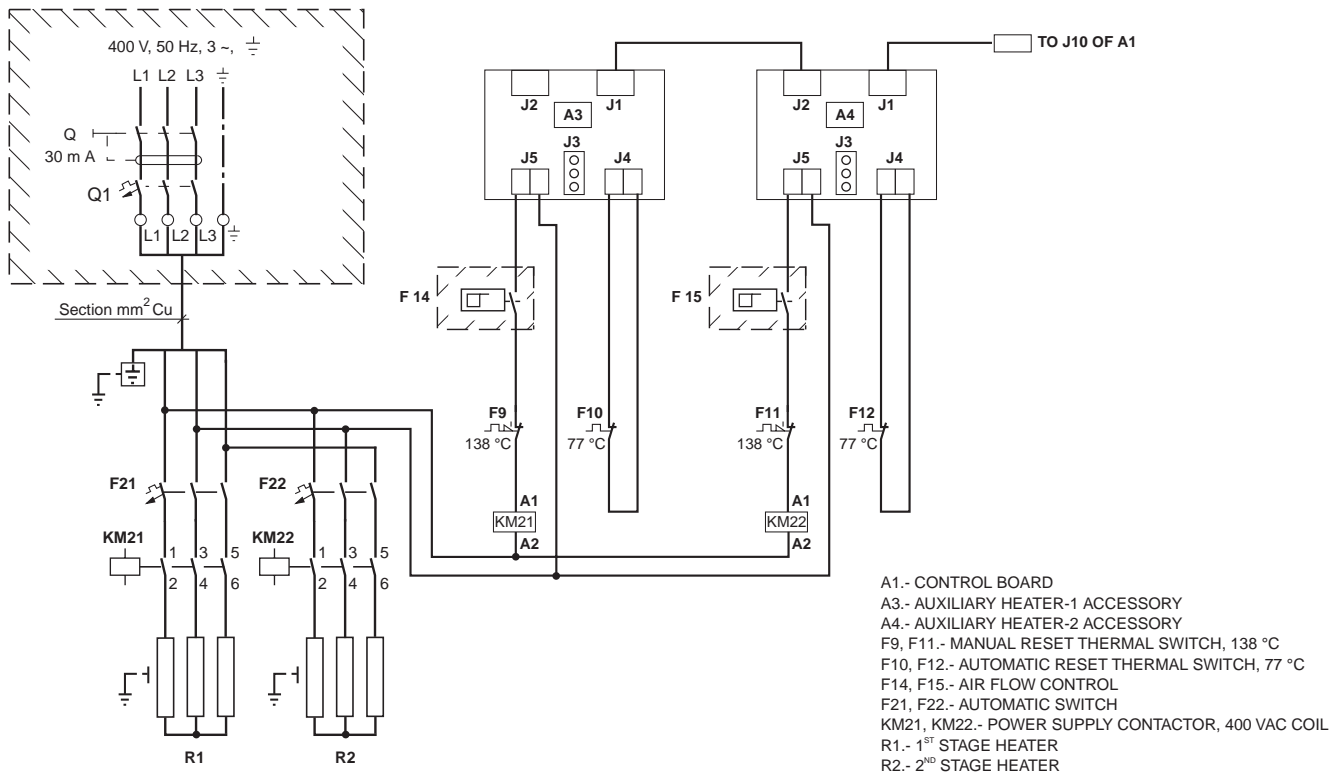




# Wiring diagram

Heater 20, 30kW, 400.3.50  
SICH-090 to 180B

POWER kW	AUTOMATIC SWITCH Q1	AUTOMATIC SWITCH F21 F22		MINIMUM CABLE SECTION mm <sup>2</sup>
20	40	20	20	6
30	50	25	25	10



I-2121a  
400.3.50

$\square$   $\square$   $\square$   $\square$  THE COMPONENTS INCLUDED IN THESE BOXES  
 $\nabla$   $\nabla$   $\nabla$   $\nabla$  ARE NOT SUPPLIED BY THE MANUFACTURER.

IMPORTANT: THE SIZE OF THE CIRCUIT BREAKER AND THE CROSS-SECTION OF THE SUPPLY AND CONTROL LINES ARE ONLY AS A GUIDE AND SHOULD BE CORRECTED IN ACCORDANCE WITH THE CONDITIONS AT THE JOBSITE, DISTANCE BETWEEN UNITS, AND CURRENT LEGISLATION.

## Vertical air discharge conversion kit for: SCOH-070 H(C) to 120 H(C) and SCOC-076B and 090B

This Kit allows converting the standard horizontal air discharge, in outdoor units SCOH/SCOC, version "V", to a vertical discharge. The conversion process is as follows:

- 1.- Remove and discard the upper panel ref. 1 and the grid ref. 2 (fig. 1).
- 2.- Remove the fan, standard motor assembly on support "A" (fig. 2).
- 3.- Change the motor to the proportioned and mounted support "B", making sure the pulleys are aligned (the centre

of the tensor will be at about 20 mm. from the face of the fan) (fig. 3).

- 4.- Fasten the fan to the wings "C" and supports "D" of the upper panel ref. 3, before or after mounting same on the machine, with the new self-drilling screws included in the Kit (fig. 3).
- 5.- Install the upper panel ref. 3 and the plenum cover ref. 4 (fig. 4).
- 6.- If the unit is to work without ducts, the protection grids included in the kit should be mounted on the fan intakes (self-threading screws are supplied for mounting).

## General dimensions mm

Fig.1

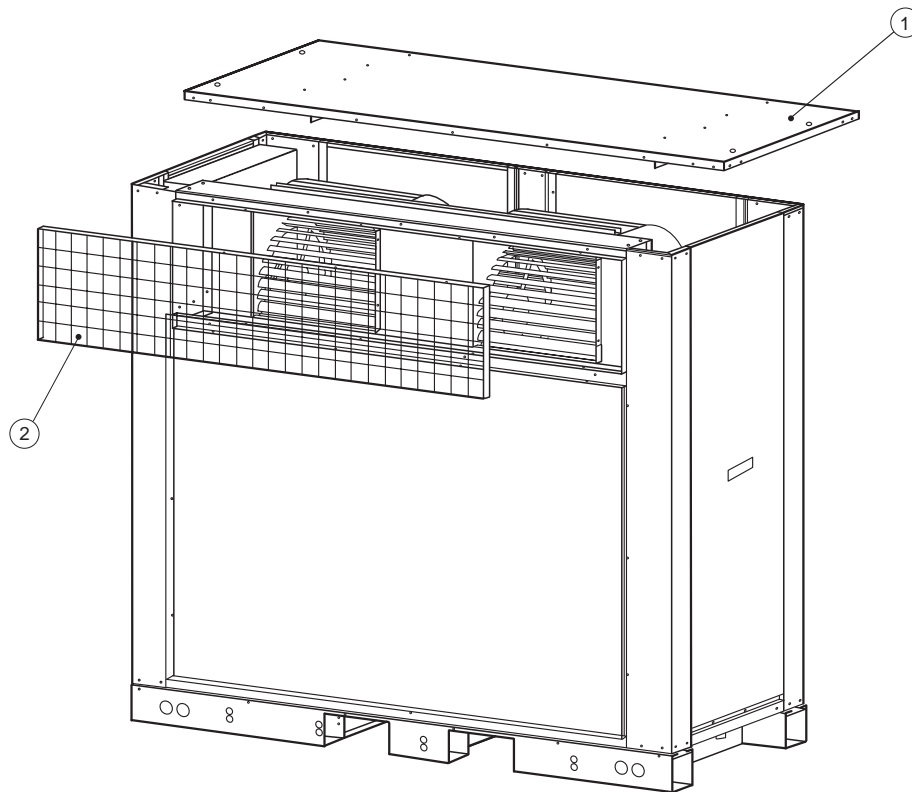


Fig.2

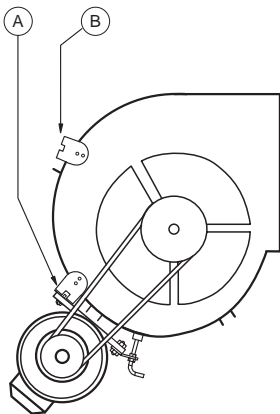
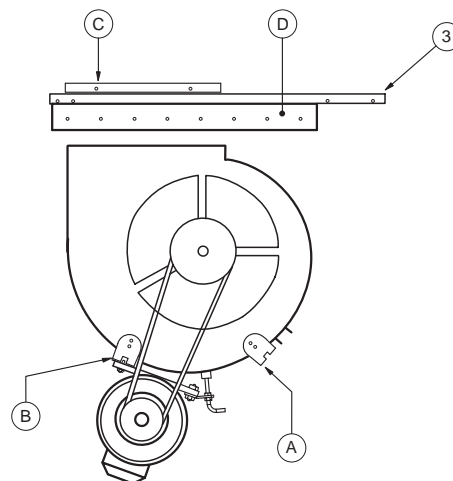
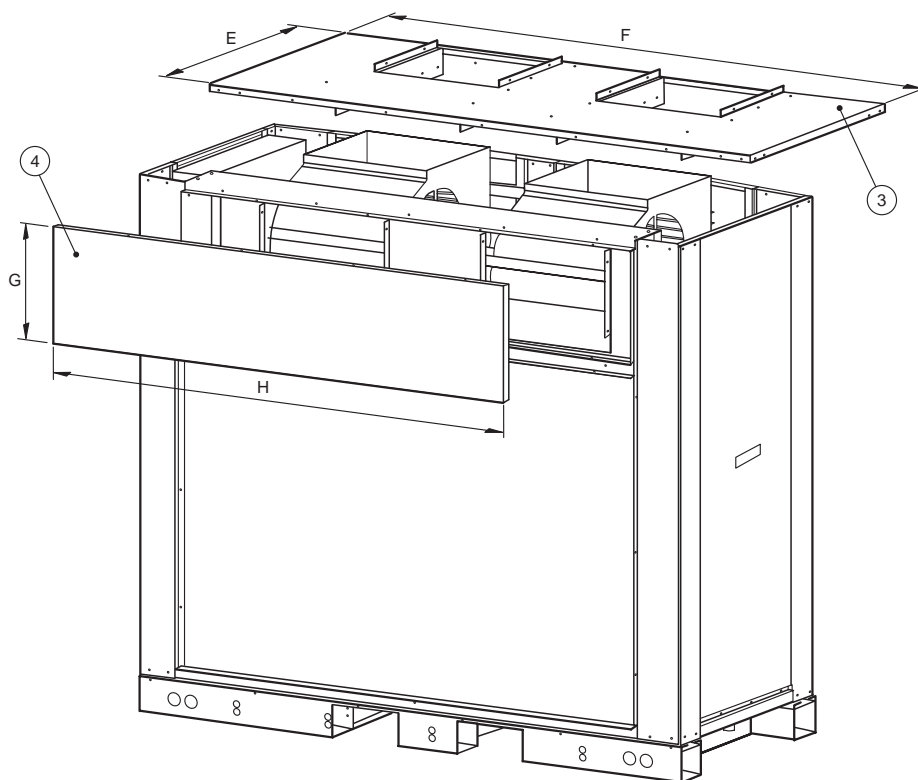


Fig.3



## General dimensions mm

Fig.4



Model	E	F	G	H
<b>SCOH-070 and 076 H(C)</b> <b>SCOC-076 H(C)</b>	730	1363	272	1075
<b>SCOH-090 and 120 H(C)</b> <b>SCOC-090 H(C)</b>	725	1738	332	1450

## Vertical air discharge conversion kit for: SCOH-150 H(C) to 300 H(C) and SCOC-150B and 180B

This Kit allows converting the standard horizontal air discharge, in outdoor units SCOH/SCOC, version "V", to a vertical discharge. The conversion process is as follows:

- 1.- Remove and discard the upper panel ref. 1 and the grid ref. 2 (fig. 1).
- 2.- Remove the fan, standard motor assembly on support "A" (fig. 2).
- 3.- Change the motor to the proportioned and mounted support "B", making sure the pulleys are aligned (the centre

of the tensor will be at about 20 mm. from the face of the fan) (fig. 3).

- 4.- Fasten the fan to the wings "C" and supports "D" of the upper panel ref. 3, before or after mounting same on the machine, with the new self-drilling screws included in the Kit (fig. 3).
- 5.- Install the upper panel ref. 3 and the plenum cover ref. 4 (fig. 4).
- 6.- If the unit is to work without ducts, the protection grids included in the kit should be mounted on the fan intakes (self-threading screws are supplied for mounting).

## General dimensions mm

Fig.1

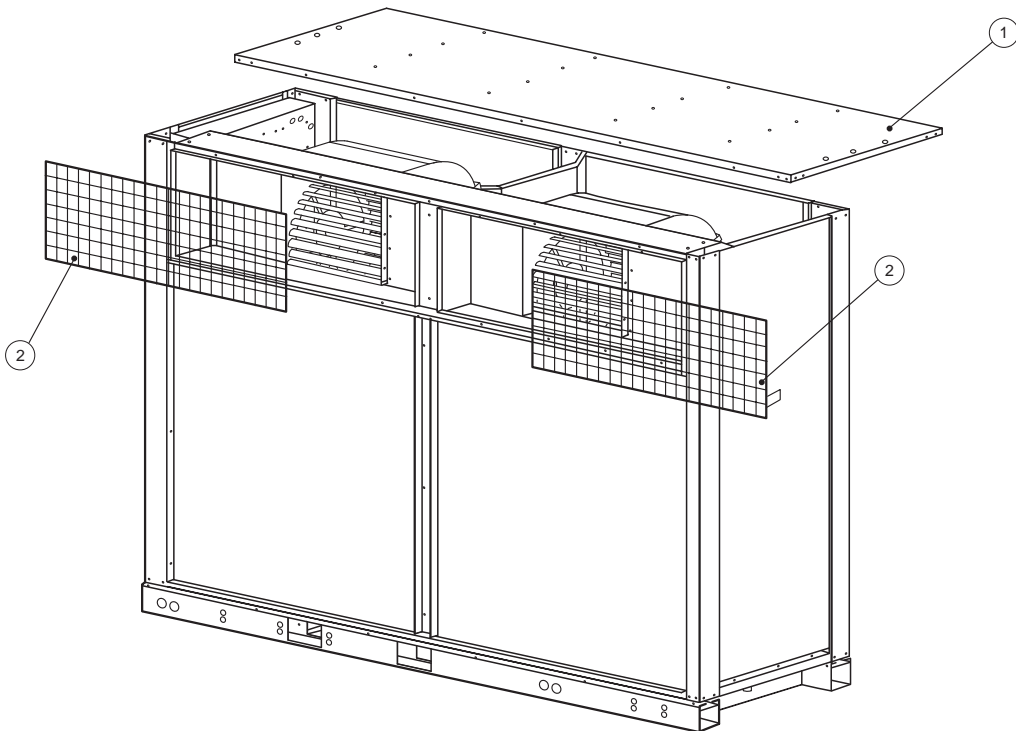


Fig.2

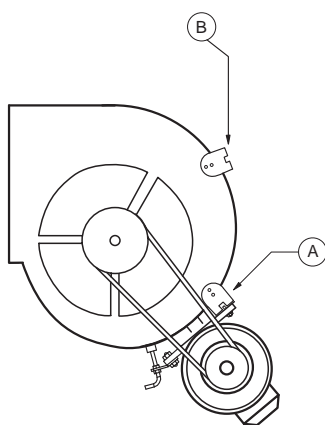
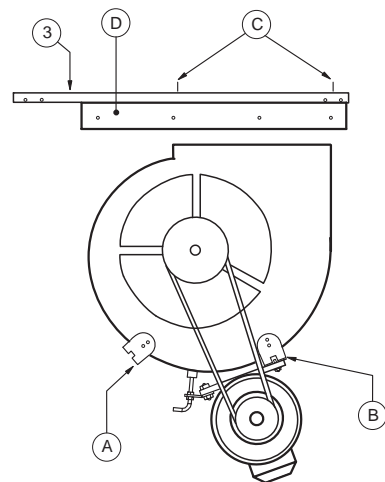
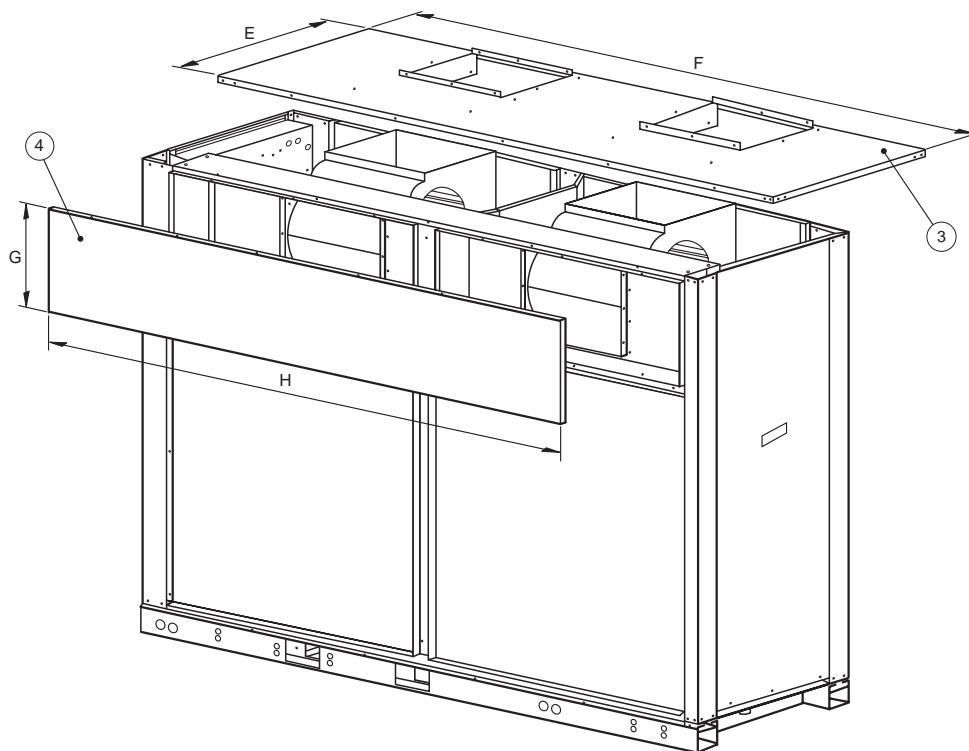


Fig.3



## General dimensions mm

Fig.4



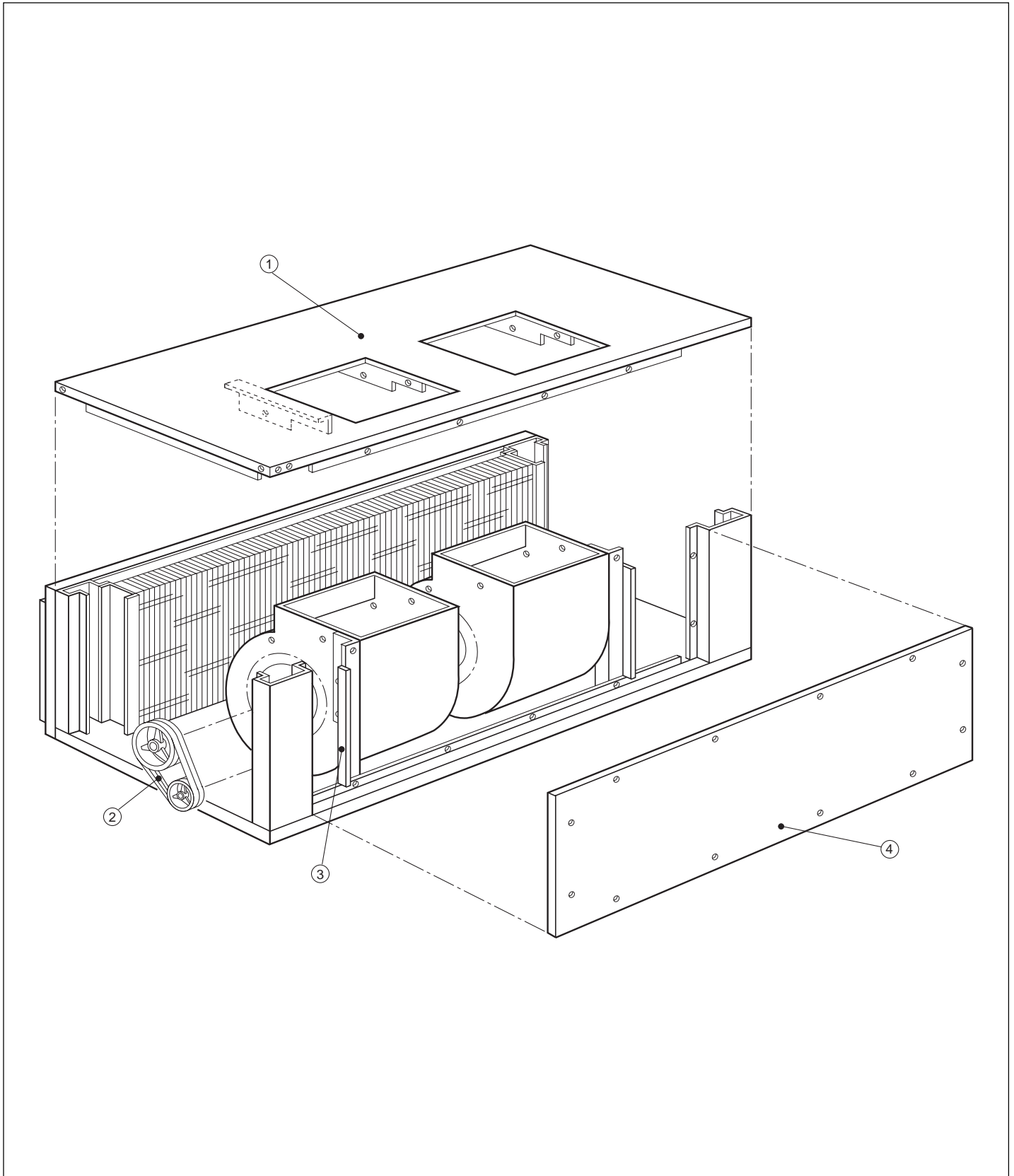
Model	E	F	G	H
<b>SCOH/SCOC-150 H(C)</b>	728	2038	393	1828
<b>SCOH/SCOC-180 H(C)</b>	777	2240	393	2030
<b>SCOH-240 and 300 H(C)</b>	857	2640	393	2430

## Vertical air discharge conversion kit for: **SICH-180B**

The SICH-180B unit require a conversion kit that includes: rear and top panels, belts, motor and fan pulleys.

1- Remove the standard top, rear and side panels, as well as the fans, and orient these as indicated in the drawing, fastening them to the upper panel included in the conversion kit.

- 2- Once the fans are assembled, fasten the top panel ref. 1 to the unit.
- 3- Fasten the left and right side fan angles ref. 3 to the unit.
- 4- Substitute motor and fan pulleys, and belts ref. 2, with those included in the kit.
- 5- Apply rear panel ref. 4.
- 6- Lastly, replace the standard side panels.



All data subject to change without notice.



Ref.: Y-R70055 0602