EN7300212-08

12 - 2023

ELECTRICAL CONNECTIONS

Instruction manual

CIAT

CONTENTS

Translation of the original document

GENERAL INFORMATION

Assembly, electrical connection and system start-up must only be performed by trained personnel

- The units are designed in accordance with the requirements of **European standard EN 60204-1.**
- All wiring must be connected in accordance with the regulations that apply to the installation site (e.g. NF C15100 in France).
- The voltage must remain within the range indicated ±10%.
- The phase unbalance must not exceed 10% for voltage.
- Wiring is to be sized by the installer to suit the characteristics of the installation site and comply with applicable site regulations. Once the size of the wires has been selected, the fitter must determine any changes needed on site to facilitate wiring
- Wiring must be carefully selected based on:
  - The current indicated in the electrical data table;
  - The distance between the unit and its power supply;
  - The protection to be placed at the power source;
  - the neutral operating conditions:

	TYPE OF UNIT		
Neutral system	Protection	Control with board	Controlled actuated by the chiller
TT	OK	OK	OK
TN-S	OK	OK	OK
TN-C	OK	Consult us	OK
IT	OK	Consult us	OK

  - the electrical connections (refer to the wiring diagram provided with the unit/cabinet).
- The electrical connections are to be made as follows:
  - connect the power circuit, after checking that phases L1/L2/L3 are in the right order
  - Connection of the protective conductor to the earth terminal.

CABINET OPTION

- In all cases, refer to the wiring diagrams provided with the unit.
- Connection to the disconnect switch and terminal strip XT1.
- The unit's power supply is connected at the bottom right of the electrical cabinet, with an opening allowing the power cables (Ø25mm, or larger if necessary) to be fed through.
- The cables to use for the power connection must be made from copper. If cables made from other materials, such as aluminium, are used, bimetallic terminals and connectors or intermediate terminals must be used.

POWER SUPPLY VIA FREQUENCY INVERTER FOR AC MOTOR

If a frequency inverter is installed, take the following recommendations into account:

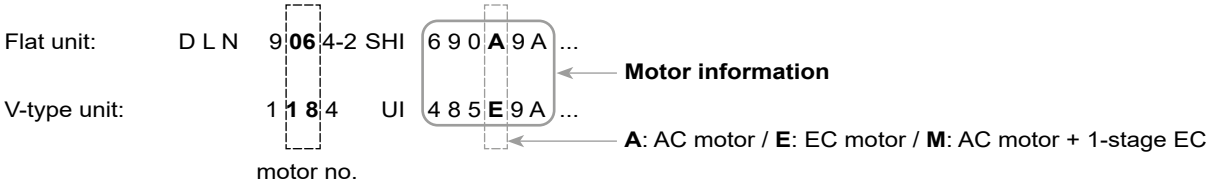
- Install a sinus filter between the 3 phases and the earth between the inverter and the fans
- Minimum operating frequency, see value in the table in paragraph 1
- U/F inverter output = Constant
- The fan fault contact must be connected to the inverter
- Check that the cumulative length of the motor cables is less than the maximum length recommended by the inverter manufacturer.

INSTALLATION WITH LEAKAGE CURRENT CIRCUIT BREAKER AND EC FAN

If leakage current circuit breakers are used, please note that they must be "sensitive to all currents" (Type B). In accordance with EN 50 178, art. 5.2, the use of other leakage current circuit breakers is forbidden. To guarantee the highest possible level of safety during use, we recommend a trip current of 300 mA when a leakage current circuit breaker is used.

1 - UNIT WITHOUT ELECTRICAL CABINET

To mark the type of motor on the specification or on the nameplate:
Example of unit designation:



Electrical data: Current at +/- 10% at 20°C -

In: Nominal (value shown on the fan) - Imax: Fan maximum - Id: Fan start-up

Power supply		Motor reference	motor type	Min. frequency*	Per motor			Connection diagram		
Voltage (V)	F(Hz)				In	I(max)	Id	Motor	Switch	Terminal
3-ph 400V	50	1270A9B	AC	20Hz	9	7,7	32	Fig. 1	Fig 7	Fig 8
		980A9B	AC	20Hz	5,2	4,8	10	Fig 2	Fig 7	Fig 8
		900A9A	AC	5Hz	5,15	5,3	18,6	Fig. 1	Fig 7	Fig 8
		690A9A	AC	5Hz	2,9	3	6,2	Fig 2	Fig 7	Fig 8
		890A9C	AC	5Hz	3,83	3,9	13	Fig. 1	Fig 7	Fig 8
		680A9C	AC	5Hz	2,22	2,3	7	Fig 2	Fig 7	Fig 8
		890A9D	AC	20Hz	7,6	7,7	32	Fig. 1	Fig 7	Fig 8
		700A9D	AC	20Hz	4,4	5	9,5	Fig 2	Fig 7	Fig 8
		900A8A	AC	5Hz	3,9	3,65	13	Fig. 1	Fig 7	Fig 8
		700A8A	AC	5Hz	2,23	2,26	7	Fig 2	Fig 7	Fig 8
		690A8B	AC	5Hz	2,1	2,1	13	Fig. 1	Fig 7	Fig 8
		560A8B	AC	5Hz	1,05	1,05	7	Fig 2	Fig 7	Fig 8
		440A8C	AC	20Hz	0,78	0,98	1,8	Fig. 1	Fig 7	Fig 8
		330A8C	AC	20Hz	0,38	0,48	0,6	Fig 2	Fig 7	Fig 8
3-ph 380V -480V	50/60	1000...235E9A	EC		4,4	4,4		Fig. 3	Fig 7 & Fig 3	Fig 8
		1100...220E9B	EC		5,2	4,83		Fig 6	Fig 7 & Fig 6	Fig 8
		740...220E8A	EC		1,4	1,4		Fig 4	Fig 7 & Fig 4	Fig 8
		510...250E8B	EC		0,5	0,49		Fig 5	Fig 7 & Fig 5	Fig 8
		700...140E8C	EC		1,5	1,41		Fig 6	Fig 7 & Fig 6	Fig 8
3-ph 400V-480V	60	1100B9A	AC	5Hz	5,1	5,65	20	Fig 2	Fig 7	Fig 8
		1000B9B	AC	5Hz	3,9	4,25	14	Fig 2	Fig 7	Fig 8
		800B9C	AC	5Hz	2,8	2,9	11,5	Fig 2	Fig 7	Fig 8
		1100B8A	AC	5Hz	3,6	3,75	14	Fig 2	Fig 7	Fig 8
		1050B8B	AC	5Hz	3,8	4,7	14	Fig 2	Fig 7	Fig 8
		840B8C	AC	5Hz	2,1	2,1	6,2	Fig 2	Fig 7	Fig 8
		520B8D	AC	5Hz	1,2	1,2	2,2	Fig 2	Fig 7	Fig 8
3-ph 400V	50	900M9A	EC		4,4	4,4		Fig. 3	Fig 7 & Fig 3	Fig 8
			AC		5,15	5,3	18,6	Fig. 1	Fig 7	Fig 8
		690M9A	EC		4,4	4,4		Fig. 3	Fig 7 & Fig 3	Fig 8
			AC		2,9	3	6,2	Fig 2	Fig 7	Fig 8
		890M9C	EC		4,4	4,4		Fig. 3	Fig 7 & Fig 3	Fig 8
			AC		3,83	3,9	13	Fig. 1	Fig 7	Fig 8
		680M9C	EC		4,4	4,4		Fig. 3	Fig 7 & Fig 3	Fig 8
			AC		2,22	2,3	7	Fig 2	Fig 7	Fig 8
		690M8B	EC		1,4	1,4		Fig 4	Fig 7 & Fig 4	Fig 8
			AC		2,1	2,1	13	Fig. 1	Fig 7	Fig 8
		560M8B	EC		1,4	1,4		Fig 4	Fig 7 & Fig 4	Fig 8
			AC		1,05	1,05	7	Fig 2	Fig 7	Fig 8

* if frequency inverter

1 - UNIT WITHOUT ELECTRICAL CABINET

AC motor connection - triangle coupling

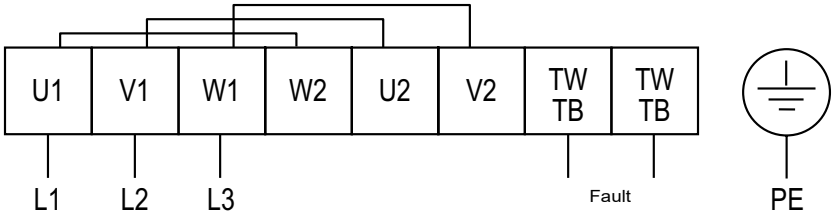


Fig 1

AC motor connection - star coupling

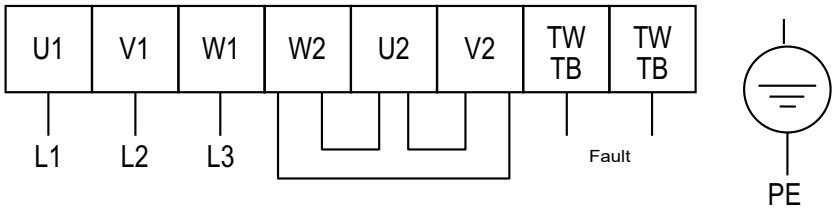


Fig 2

EC motor connection

	Fig. 3	Fig 4	Fig 5	Fig 6
3-ph 380-480V - 50/60 Hz power supply	L1, L2, L3	L1, L2, L3	L1, L2, L3	L1, L2, L3
Fault dry contact (2A, max. 250 VAC min. 10 mA, AC1)	NO/COM/NC	NO/COM/NC	NC - COM	11 - 14
RS485 connection bus; MODBUS RTU	RSA RSB	RSA RSB	RSA RSB	NA
0-10 V analogue input; Ri = 100kOhm	Ain1 U	0-10 V	0-10 V	E1
Voltage 10 VDC; + 10 V +/-3%	+ 10V	+ 10V	+ 10V	+ 10V
4-20 mA analogue input; Ri = 100 Ohm	Ain1	4-20ma	NA	NA
Ground reference	GND	GND	GND	GND

Fig. 3

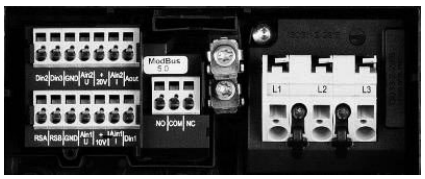


Fig 4

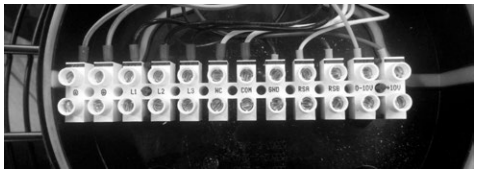


Fig 5

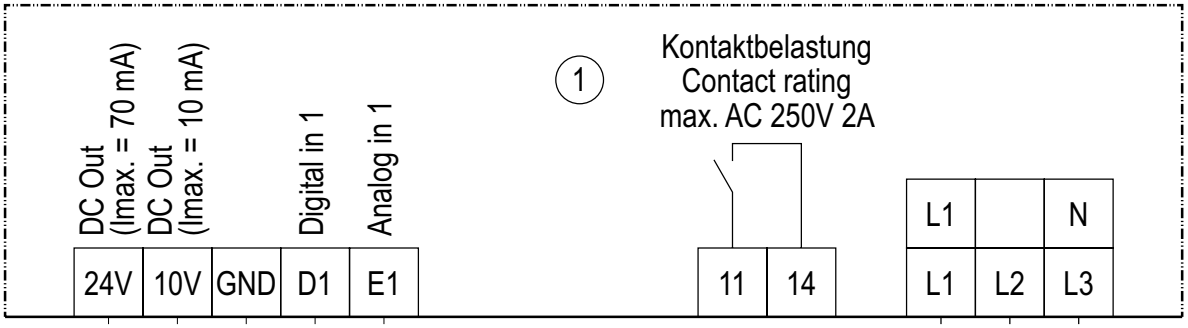
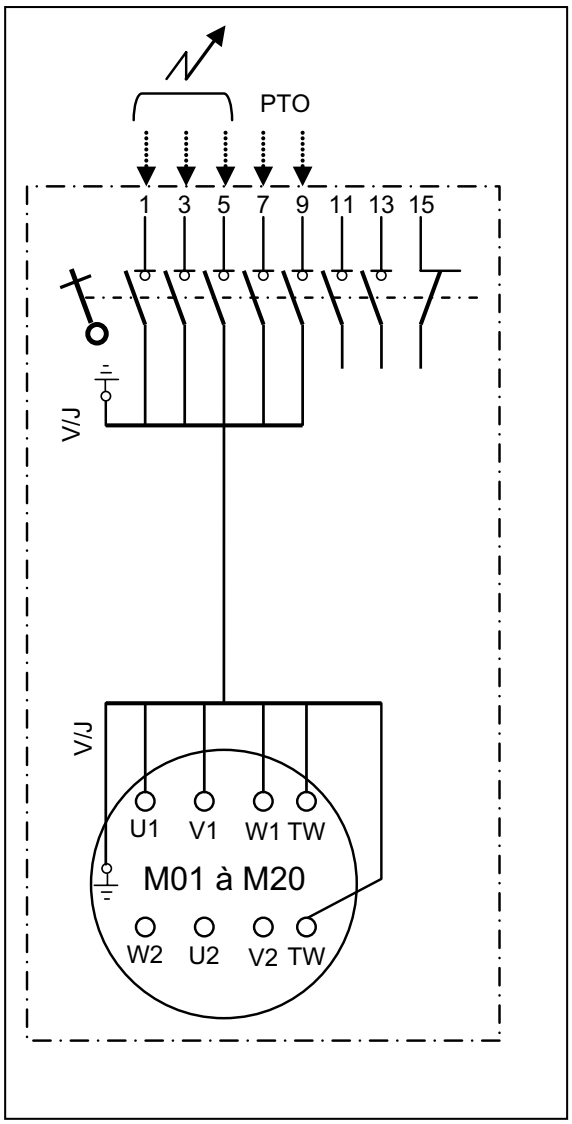


Fig 6

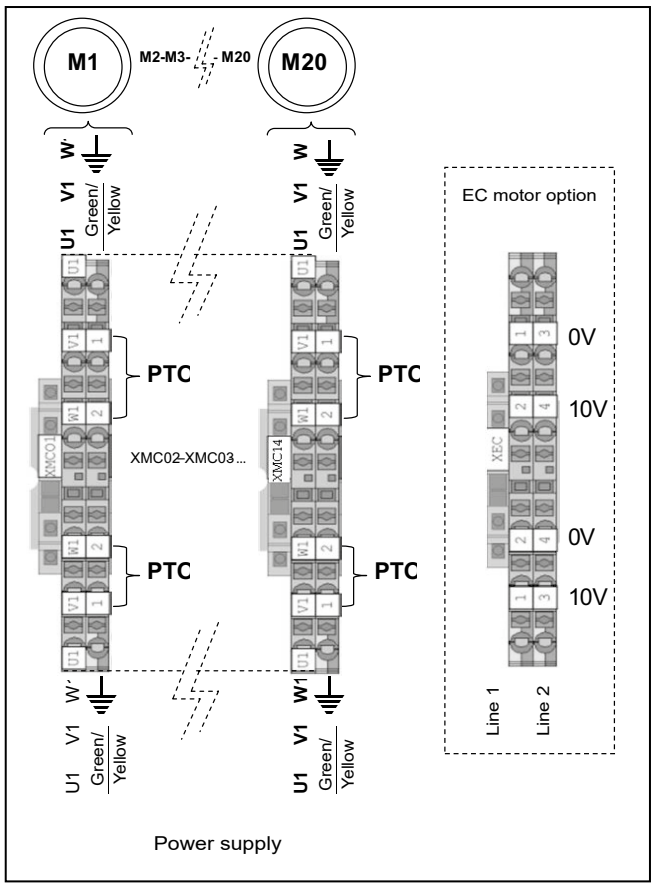
1 - UNIT WITHOUT ELECTRICAL CABINET

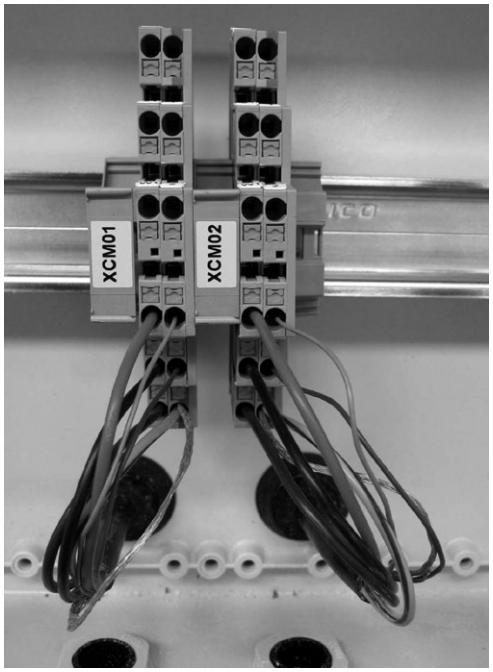
Connection on switch Fig 7



Section Section	Couple Torque
1 - 2,5 mm²	1 Nm

Connection on terminal unit Fig 8

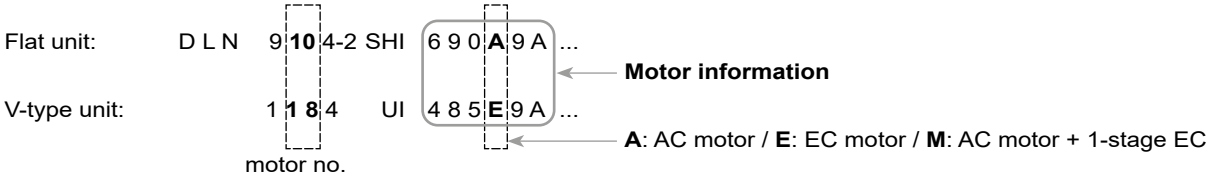




For 2 line machines, a single common value of 0/10 V must be connected on the two terminal strips provided for this purpose.

2 - UNIT CURRENT WITH ELECTRICAL CABINET

To mark the type of motor on the specification or on the nameplate:
Example of unit designation:



2.1 - Protection cabinet - AC motors

2.1.1 - 3-PH 400 V - 50 HZ POWER SUPPLY

Electrical data: Current at +/- 10% at 20°C -

Imax: maximum current - Id: starting current

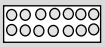
Voltage (V)	F (Hz)	Motor code	OPTION	NO. OF MOTORS									
				1		2		3		4		5	
				Imax	Id	Imax	Id	Imax	Id	Imax	Id	Imax	Id
3-ph 400V	50	1270A9B	WITHOUT	7,7	32	15,4	64	23,1	96	30,8	128	38,5	160
			WITH	8,7	33	17,4	65	24,1	97	31,8	129	39,5	161
		980A9B	WITHOUT	4,8	10	9,6	20	14,4	30	19,2	40	24	50
			WITH	5,8	11	10,6	21	15,4	31	20,2	41	25	51
		900A9A	WITHOUT	5,3	18,6	10,6	37,2	15,9	55,8	21,2	74,4	26,5	93
			WITH	6,3	19,6	11,6	38,2	16,9	56,8	22,2	75,4	27,5	94
		690A9A	WITHOUT	3	6,2	6	12,4	9	18,6	12	24,8	15	31
			WITH	4	7,2	7	13,4	10	19,6	13	25,8	16	32
		890A9C	WITHOUT	3,9	13	7,8	26	11,7	39	15,6	52	19,5	65
			WITH	4,9	14	8,8	27	12,7	40	16,6	53	20,5	66
		680A9C	WITHOUT	2,3	7	4,6	14	6,9	21	9,2	28	11,5	35
			WITH	3,3	8	5,6	15	7,9	22	10,2	29	12,5	36
		890A9D	WITHOUT	7,7	32	15,4	64	23,1	96	30,8	128	38,5	160
			WITH	8,7	33	16,4	65	24,1	97	31,8	129	39,5	161
		700A9D	WITHOUT	5	9,5	10	19	15	28,5	20	38	25	47,5
			WITH	6	10,5	11	20	16	29,5	21	39	26	48,5
		900A8A	WITHOUT	3,65	13	7,3	26	10,95	39	14,6	52	18,25	65
			WITH	4,65	14	8,3	27	11,95	40	15,6	53	19,25	66
		700A8A	WITHOUT	2,26	7	4,52	14	6,78	21	9,04	28	11,3	35
			WITH	3,26	8	5,52	15	7,78	22	10,04	29	12,3	36
		690A8B	WITHOUT	2,1	13	4,2	26	6,3	39	8,4	52	10,5	65
			WITH	3,1	14	5,2	27	7,3	40	9,4	53	11,5	66
		560A8B	WITHOUT	1,1	7	2,2	14	3,3	21	4,4	28	5,5	35
			WITH	2,1	8	3,2	15	4,3	22	5,4	29	6,5	36
		440A8C	WITHOUT	0,98	1,8	1,96	3,6	2,94	5,4	3,92	7,2	4,9	9
			WITH	1,98	2,8	2,96	4,6	3,94	6,4	4,92	8,2	5,9	10
		330A8C	WITHOUT	0,48	0,6	0,96	1,2	1,44	1,8	1,92	2,4	2,4	3
			WITH	1,48	1,6	1,96	2,2	2,44	2,8	2,92	3,4	3,4	4

* Electrical box option: ventilation/heating/tropical climate with or without transformer
Note: Values excluding misting unit consumption

2 - UNIT CURRENT WITH ELECTRICAL CABINET

Electrical data: Current at =/- 10% at 20°C -

Imax: maximum current - Id: starting current

Voltage (V)	F (Hz)	Motor code	OPTION	NO. OF MOTORS									
				6		8		10		12		14	
													
				Imax	Id	Imax	Id	Imax	Id	Imax	Id	Imax	Id
3-ph 400V	50	1270A9B	WITHOUT	46,2	192	61,6	256	77	320	92,4	384	107,8	448
			WITH	47,2	193	62,6	257	78	321	93,4	385	108,8	449
		980A9B	WITHOUT	28,8	60	38,4	80	48	100	57,6	120	67,2	140
			WITH	29,8	61	39,4	81	49	101	58,6	121	68,2	141
		900A9A	WITHOUT	31,8	111,6	42,4	148,8	53	186	63,6	223,2	74,2	260,4
			WITH	32,8	112,6	43,4	149,8	54	187	64,6	224,2	75,2	261,4
		690A9A	WITHOUT	18	37,2	24	49,6	30	62	36	74,4	42	86,8
			WITH	19	38,2	25	50,6	31	63	37	75,4	43	87,8
		890A9C	WITHOUT	23,4	78	31,2	104	39	130	46,8	156	54,6	182
			WITH	24,4	79	32,2	105	40	131	47,8	157	55,6	183
		680A9C	WITHOUT	13,8	42	18,4	56	23	70	27,6	84	32,2	98
			WITH	14,8	43	19,4	57	24	71	28,6	85	33,2	99
		890A9D	WITHOUT	46,2	192	61,6	256	77	320	92,4	384	107,8	448
			WITH	47,2	193	62,6	257	78	321	93,4	385	108,8	449
		700A9D	WITHOUT	30	57	40	76	50	95	60	114	70	133
			WITH	31	58	41	77	51	96	61	115	71	134
		900A8A	WITHOUT	21,9	78	29,2	104	36,5	130	43,8	156	51,1	182
			WITH	22,9	79	30,2	105	37,5	131	44,8	157	52,1	183
		700A8A	WITHOUT	13,56	42	18,08	56	22,6	70	27,12	84	31,64	98
			WITH	14,56	43	19,08	57	23,6	71	28,12	85	32,64	99
		690A8B	WITHOUT	12,6	78	16,8	104	21	130	25,2	156	29,4	182
			WITH	13,6	79	17,8	105	22	131	26,2	157	30,4	183
		560A8B	WITHOUT	6,6	42	8,8	56	11	70	13,2	84	15,4	98
			WITH	7,6	43	9,8	57	12	71	14,2	85	16,4	99
		440A8C	WITHOUT	5,88	10,8	7,84	14,4	9,8	18	11,76	21,6	13,72	25,2
			WITH	6,88	11,8	8,84	15,4	10,8	19	12,76	22,6	14,72	26,2
		330A8C	WITHOUT	2,88	3,6	3,84	4,8	4,8	6	5,76	7,2	6,72	8,4
			WITH	3,88	4,6	4,84	5,8	5,8	7	6,76	8,2	7,72	9,4

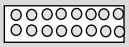
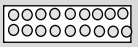
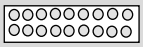
* Electrical box option: ventilation/heating/tropical climate with or without transformer

Note: Values excluding misting unit consumption

2 - UNIT CURRENT WITH ELECTRICAL CABINET

Electrical data: Current at/- 10% at 20°C -

Imax: maximum current - Id: starting current

Voltage (V)	F (Hz)	Motor code	OPTION*	NO. OF MOTORS					
				16		18		20	
									
				Imax	Id	Imax	Id	Imax	Id
3-ph 400V	50	1270A9B	WITHOUT	123,2	512	138,6	576	154	640
			WITH	124,2	513	139,6	577	155	641
		980A9B	WITHOUT	76,8	160	86,4	180	96	200
			WITH	77,8	161	87,4	181	97	201
		900A9A	WITHOUT	84,8	297,6	95,4	334,8	106	372
			WITH	85,8	298,6	96,4	335,8	107	373
		690A9A	WITHOUT	48	99,2	54	111,6	60	124
			WITH	49	100,2	55	112,6	61	125
		890A9C	WITHOUT	62,4	208	70,2	234	78	260
			WITH	63,4	209	71,2	235	79	261
		680A9C	WITHOUT	36,8	112	41,4	126	46	140
			WITH	37,8	113	42,4	127	47	141
		890A9D	WITHOUT	123,2	512	138,6	576	154	640
			WITH	124,2	513	139,6	577	155	641
		700A9D	WITHOUT	80	152	90	171	100	190
			WITH	81	153	91	172	101	191
		900A8A	WITHOUT	58,4	208	65,7	234	73	260
			WITH	59,4	209	66,7	235	74	261
		700A8A	WITHOUT	36,16	112	40,68	126	45,2	140
			WITH	37,16	113	41,68	127	46,2	141
		690A8B	WITHOUT	33,6	208	37,8	234	42	260
			WITH	34,6	209	38,8	235	43	261
		560A8B	WITHOUT	17,6	112	19,8	126	22	140
			WITH	18,6	113	20,8	127	23	141
		440A8C	WITHOUT	15,68	28,8	17,64	32,4	19,6	36
			WITH	16,68	29,8	18,64	33,4	20,6	37
		330A8C	WITHOUT	7,68	9,6	8,64	10,8	9,6	12
			WITH	8,68	10,6	9,64	11,8	10,6	13

* Electrical box option: ventilation/heating/tropical climate with or without transformer

Note: Values excluding misting unit consumption.

2.1.2 - 3-PH 400/480 V - 60 HZ POWER SUPPLY

Electrical data: Current at +/- 10% at 20°C -

Imax: maximum current - Id: starting current

Voltage (V)	F (Hz)	Motor code	NO. OF MOTORS									
			1		2		3		4		5	
			Imax	Id	Imax	Id	Imax	Id	Imax	Id	Imax	Id
3-ph 400 V-480 V	60	**1100B9A**	5,65	20	11,3	40	16,95	60	22,6	80	28,25	100
		1000B9B	4,25	14	8,5	28	12,75	42	17	56	21,25	70
		800B9C	2,9	11,5	5,8	23	8,7	34,5	11,6	46	14,5	57,5
		1100B8A	3,75	14	7,5	28	11,25	42	15	56	18,75	70
		1050B8B	4,7	14	9,4	28	14,1	42	18,8	56	23,5	70
		840B8C	2,1	6,2	4,2	12,4	6,3	18,6	8,4	24,8	10,5	31
		520B8D	1,2	2,2	2,4	4,4	3,6	6,6	4,8	8,8	6	11

Voltage (V)	F (Hz)	Motor code	NO. OF MOTORS									
			6		8		10		12		14	
			Imax	Id	Imax	Id	Imax	Id	Imax	Id	Imax	Id
3-ph 400 V-480 V	60	**1100B9A**	33,9	120	45,2	160	56,5	200	67,8	240	79,1	280
		1000B9B	25,5	84	34	112	42,5	140	51	168	59,5	196
		800B9C	17,4	69	23,2	92	29	115	34,8	138	40,6	161
		1100B8A	22,5	84	30	112	37,5	140	45	168	52,5	196
		1050B8B	28,2	84	37,6	112	47	140	56,4	168	65,8	196
		840B8C	12,6	37,2	16,8	49,6	21	62	25,2	74,4	29,4	86,8
		520B8D	7,2	13,2	9,6	17,6	12	22	14,4	26,4	16,8	30,8

Voltage (V)	F (Hz)	Motor code	NO. OF MOTORS					
			16		18		20	
			Imax	Id	Imax	Id	Imax	Id
3-ph 400 V-480 V	60	**1100B9A**	90,4	320	101,7	360	113	400
		1000B9B	68	224	76,5	252	85	280
		800B9C	46,4	184	52,2	207	58	230
		1100B8A	60	224	67,5	252	75	280
		1050B8B	75,2	224	84,6	252	94	280
		840B8C	33,6	99,6	37,8	111,6	42	124
		520B8D	19,2	35,2	21,6	39,6	24	44

2.2 - Protection cabinet - EC motors

Electrical data: Current at +/- 10% at 20°C -

Imax: maximum current - Id: starting current

Voltage (V)	F (Hz)	Motor code	OPTION	NO. OF MOTORS									
				1		2		3		4		5	
				Imax	Id	Imax	Id	Imax	Id	Imax	Id	Imax	Id
3-ph 380V - 480V	50/60	1000...235E9A	WITHOUT	4,4		8,8		13,2		17,6		22	
			WITH	5,4		9,8		14,2		18,6		23	
		1100...220E9B	WITHOUT	4,83		9,66		14,49		19,32		24,15	
			WITH	5,83		10,66		15,49		20,32		25,15	
		740...220E8A	WITHOUT	1,4		2,8		4,2		5,6		7	
			WITH	2,4		3,8		5,2		6,6		8	
		510...250E8B	WITHOUT	0,49		0,98		1,47		1,96		2,45	
			WITH	1,49		1,98		2,47		2,96		3,45	
		700...140E8C	WITHOUT	1,41		2,82		4,23		5,64		7,05	
			WITH	2,41		3,82		5,23		6,64		8,05	

Voltage (V)	F (Hz)	Motor code	OPTION	NO. OF MOTORS									
				6		8		10		12		14	
				Imax	Id	Imax	Id	Imax	Id	Imax	Id	Imax	Id
3-ph 380V - 480V	50/60	1000...235E9A	WITHOUT	26,4		35,2		44		52,8		61,6	
			WITH	27,4		36,2		45		53,8		62,6	
		1100...220E9B	WITHOUT	28,98		38,64		48,3		57,96		67,62	
			WITH	29,98		39,64		49,3		58,96		68,62	
		740...220E8A	WITHOUT	8,4		11,2		14		16,8		19,6	
			WITH	9,4		12,2		15		17,8		20,6	
		510...250E8B	WITHOUT	2,94		3,92		4,9		5,88		6,86	
			WITH	3,94		4,92		5,9		6,88		7,86	
		700...140E8C	WITHOUT	8,46		11,28		14,1		16,92		19,74	
			WITH	9,46		12,28		15,1		17,92		20,74	

Voltage (V)	F (Hz)	Motor code	OPTION	NO. OF MOTORS					
				16		18		20	
				Imax	Id	Imax	Id	Imax	Id
3-ph 380V - 480V	50/60	1000...235E9A	WITHOUT	70,4		79,2		88	
			WITH	71,4		80,2		89	
		1100...220E9B	WITHOUT	77,28		86,94		96,6	
			WITH	78,28		87,94		97,6	
		740...220E8A	WITHOUT	22,4		25,2		28	
			WITH	23,4		26,2		29	
		510...250E8B	WITHOUT	7,84		8,82		9,8	
			WITH	8,84		9,82		10,8	
		700...140E8C	WITHOUT	22,56		25,38		28,2	
			WITH	23,56		26,38		29,2	

* Electrical box option: ventilation/heating/tropical climate with or without transformer

Note: Values excluding misting unit consumption

2.3 - Control cabinet

2.3.1 - AC MOTOR

Electrical data: Current at +/- 10% at 20°C -

Imax: maximum current - Id: starting current

Voltage (V)	F (Hz)	Motor code	OPTION	NO. OF MOTORS									
				1		2		3		4		4	
				Imax	Id	Imax	Id	Imax	Id	Imax	Id	Imax	Id
3-ph 400V	50	1270A9B	WITHOUT	8,2	32,5	15,9	41,5	23,6	50,5	31,3	59,5	31,3	82,5
			WITH	9,2	33,5	16,9	42,5	24,6	51,5	32,3	60,5	32,3	83,5
		980A9B	WITHOUT	5,3	10,5	10,1	16,4	14,9	22,3	19,7	28,2	19,7	32,3
			WITH	6,3	11,5	11,1	17,4	15,9	23,3	20,7	29,2	20,7	33,3
		900A9A	WITHOUT	5,8	19,1	11,1	24,4	16,4	29,7	21,7	35	21,7	48,3
			WITH	6,8	20,1	12,1	25,4	17,4	30,7	22,7	36	22,7	49,3
		690A9A	WITHOUT	3,5	6,7	6,5	9,7	9,5	12,7	12,5	15,7	12,5	18,9
			WITH	4,5	7,7	7,5	10,7	10,5	13,7	13,5	16,7	13,5	19,9
		890A9C	WITHOUT	4,4	13,5	8,3	17,4	12,2	21,3	16,1	25,2	16,1	34,3
			WITH	5,4	14,5	9,3	18,4	13,2	22,3	17,1	26,2	17,1	43,1
		680A9C	WITHOUT	2,8	7,5	5,1	9,8	7,4	12,1	9,7	14,4	9,7	19,1
			WITH	3,8	8,5	6,1	10,8	8,4	13,1	10,7	15,4	10,7	20,1
		890A9D	WITHOUT	8,2	32,5	15,9	40,2	23,6	47,9	31,3	55,6	31,3	79,9
			WITH	9,2	33,5	16,9	41,2	24,6	48,9	32,3	56,6	32,3	80,9
		700A9D	WITHOUT	5,5	10	10,5	15	15,5	20	20,5	25	20,5	29,5
			WITH	6,5	11	11,5	16	16,5	21	21,5	26	21,5	30,5
		900A8A	WITHOUT	4,15	13,5	7,8	17,15	11,45	20,8	15,1	24,45	15,1	33,8
			WITH	5,15	14,5	8,8	18,15	12,45	21,8	16,1	25,45	16,1	34,8
		700A8A	WITHOUT	2,76	7,5	5,02	9,76	7,28	12,02	9,54	14,28	9,54	19,02
			WITH	3,76	8,5	6,02	10,76	8,28	13,02	10,54	15,28	10,54	20,02
		690A8B	WITHOUT	2,6	13,5	4,7	15,6	6,8	17,7	8,9	19,8	8,9	30,7
			WITH	3,6	14,5	5,7	16,6	7,8	18,7	9,9	20,8	9,9	31,7
		560A8B	WITHOUT	1,55	7,5	2,6	8,55	3,65	9,6	4,7	10,65	4,7	16,6
			WITH	2,55	8,5	3,6	9,55	4,65	10,6	5,7	11,65	5,7	17,6
		440A8C	WITHOUT	1,48	2,3	2,46	3,28	3,44	4,26	4,42	5,24	4,42	6,06
			WITH	2,48	3,3	3,46	4,28	4,44	5,26	5,42	6,24	5,42	7,06
		330A8C	WITHOUT	0,98	1,1	1,46	1,58	1,94	2,06	2,42	2,54	2,42	2,66
			WITH	1,98	2,1	2,46	2,58	2,94	3,06	3,42	3,54	3,42	3,66

* Electrical box option: ventilation/heating/tropical climate with or without transformer

Note: Values excluding misting unit consumption

2 - UNIT CURRENT WITH ELECTRICAL CABINET

Electrical data: Current at +/- 10% at 20°C -

Imax: maximum current - Id: starting current

Voltage (V)	F (Hz)	Motor code	OPTION	NO. OF MOTORS									
				5		6		6		8		10	
													
				Imax	Id	Imax	Id	Imax	Id	Imax	Id	Imax	Id
3-ph 400V	50	1270A9B	WITHOUT	39	68,5	46,7	77,5	46,7	100,5	62,1	118,5	77,5	136,5
			WITH	40	69,5	47,7	78,5	47,7	101,5	63,1	119,5	78,5	137,5
		980A9B	WITHOUT	24,5	34,1	29,3	40	29,3	44,1	38,9	55,9	48,5	67,7
			WITH	25,5	35,1	30,3	41	30,3	45,1	39,9	56,9	49,5	68,7
		900A9A	WITHOUT	27	40,3	32,3	45,6	32,3	58,9	42,9	69,5	53,5	80,1
			WITH	28	41,3	33,3	46,6	33,3	59,9	43,9	70,5	54,5	81,1
		690A9A	WITHOUT	15,5	18,7	18,5	21,7	18,5	24,9	24,5	30,9	30,5	36,9
			WITH	16,5	19,7	19,5	22,7	19,5	25,9	25,5	31,9	31,5	37,9
		890A9C	WITHOUT	20	29,1	23,9	33	23,9	42,1	31,7	49,9	39,5	57,7
			WITH	21	30,1	24,9	34	24,9	43,1	32,7	50,9	40,5	58,7
		680A9C	WITHOUT	12	16,7	14,3	19	14,3	23,7	18,9	28,3	23,5	32,9
			WITH	13	17,7	15,3	20	15,3	24,7	19,9	29,3	24,5	33,9
		890A9D	WITHOUT	39	63,3	46,7	71	46,7	95,3	62,1	110,7	77,5	126,1
			WITH	40	64,3	47,7	72	47,7	96,3	63,1	111,7	78,5	127,1
		700A9D	WITHOUT	25,5	30	30,5	35	30,5	39,5	40,5	49,5	50,5	59,5
			WITH	26,5	31	31,5	36	31,5	40,5	41,5	50,5	51,5	60,5
		900A8A	WITHOUT	18,75	28,1	22,4	31,75	22,4	41,1	29,7	48,4	37	55,7
			WITH	19,75	29,1	23,4	32,75	23,4	42,1	30,7	49,4	38	56,7
		700A8A	WITHOUT	11,8	16,54	14,06	18,8	14,06	23,54	18,58	28,06	23,1	32,58
			WITH	12,8	17,54	15,06	19,8	15,06	24,54	19,58	29,06	24,1	33,58
		690A8B	WITHOUT	11	21,9	13,1	24	13,1	34,9	17,3	39,1	21,5	43,3
			WITH	12	22,9	14,1	25	14,1	35,9	18,3	40,1	22,5	44,3
		560A8B	WITHOUT	5,75	11,7	6,8	12,75	6,8	18,7	8,9	20,8	11	22,9
			WITH	6,75	12,7	7,8	13,75	7,8	19,7	9,9	21,8	12	23,9
		440A8C	WITHOUT	5,4	6,22	6,38	7,2	6,38	8,02	8,34	9,98	10,3	11,94
			WITH	6,4	7,22	7,38	8,2	7,38	9,02	9,34	10,98	11,3	12,94
		330A8C	WITHOUT	2,9	3,02	3,38	3,5	3,38	3,62	4,34	4,58	5,3	5,54
			WITH	3,9	4,02	4,38	4,5	4,38	4,62	5,34	5,58	6,3	6,54

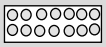
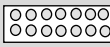
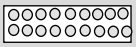
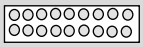
* Electrical box option: ventilation/heating/tropical climate with or without transformer

Note: Values excluding misting unit consumption

2 - UNIT CURRENT WITH ELECTRICAL CABINET

Electrical data: Current at +/- 10% at 20°C -

Imax: maximum current - Id: starting current

Voltage (V)	F (Hz)	Motor code	OPTION	NO. OF MOTORS									
				12		14		16		18		20	
													
				Imax	Id	Imax	Id	Imax	Id	Imax	Id	Imax	Id
3-ph 400V	50	1270A9B	WITHOUT	92,9	154,5	108,3	172,5	123,7	236,5	139,1	254,5	154,5	272,5
			WITH	93,9	155,5	109,3	173,5	124,7	237,5	140,1	255,5	155,5	273,5
		980A9B	WITHOUT	58,1	79,5	67,7	91,3	77,3	111,3	86,9	123,1	96,5	134,9
			WITH	59,1	80,5	68,7	92,3	78,3	112,3	87,9	124,1	97,5	135,9
		900A9A	WITHOUT	64,1	90,7	74,7	101,3	85,3	138,5	95,9	149,1	106,5	159,7
			WITH	65,1	91,7	75,7	102,3	86,3	139,5	96,9	150,1	107,5	160,7
		690A9A	WITHOUT	36,5	42,9	42,5	48,9	48,5	61,3	54,5	67,3	60,5	73,3
			WITH	37,5	43,9	43,5	49,9	49,5	62,3	55,5	68,3	61,5	74,3
		890A9C	WITHOUT	47,3	65,5	55,1	73,3	62,9	99,3	70,7	107,1	78,5	114,9
			WITH	48,3	66,5	56,1	74,3	63,9	100,3	71,7	108,1	79,5	115,9
		680A9C	WITHOUT	28,1	37,5	32,7	42,1	37,3	56,1	41,9	60,7	46,5	65,3
			WITH	29,1	38,5	33,7	43,1	38,3	57,1	42,9	61,7	47,5	66,3
		890A9D	WITHOUT	92,9	141,5	108,3	156,9	123,7	220,9	139,1	236,3	154,5	251,7
			WITH	93,9	142,5	109,3	157,9	124,7	221,9	140,1	237,3	155,5	252,7
		700A9D	WITHOUT	60,5	69,5	70,5	79,5	80,5	98,5	90,5	108,5	100,5	118,5
			WITH	61,5	70,5	71,5	80,5	81,5	99,5	91,5	109,5	101,5	119,5
		900A8A	WITHOUT	44,3	63	51,6	70,3	58,9	96,3	66,2	103,6	73,5	110,9
			WITH	45,3	64	52,6	71,3	59,9	97,3	67,2	104,6	74,5	111,9
		700A8A	WITHOUT	27,62	37,1	32,14	41,62	36,66	55,62	41,18	60,14	45,7	64,66
			WITH	28,62	38,1	33,14	42,62	37,66	56,62	42,18	61,14	46,7	65,66
		690A8B	WITHOUT	25,7	47,5	29,9	51,7	34,1	77,7	38,3	81,9	42,5	86,1
			WITH	26,7	48,5	30,9	52,7	35,1	78,7	39,3	82,9	43,5	87,1
		560A8B	WITHOUT	13,1	25	15,2	27,1	17,3	41,1	19,4	43,2	21,5	45,3
			WITH	14,1	26	16,2	28,1	18,3	42,1	20,4	44,2	22,5	46,3
		440A8C	WITHOUT	12,26	13,9	14,22	15,86	16,18	19,46	18,14	21,42	20,1	23,38
			WITH	13,26	14,9	15,22	16,86	17,18	20,46	19,14	22,42	21,1	24,38
		330A8C	WITHOUT	6,26	6,5	7,22	7,46	8,18	8,66	9,14	9,62	10,1	10,58
			WITH	7,26	7,5	8,22	8,46	9,18	9,66	10,14	10,62	11,1	11,58

* Electrical box option: ventilation/heating/tropical climate with or without transformer

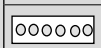
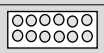
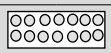
Note: Values excluding misting unit consumption

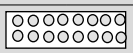
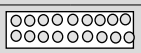
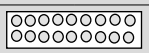
2.3.2 - EC MOTOR

Electrical data: Current at +/- 10% at 20°C -

Imax: maximum current - Id: starting current

Voltage (V)	F (Hz)	Motor code	OPTION	NO. OF MOTORS									
				1		2		3		4		5	
													
				Imax	Id	Imax	Id	Imax	Id	Imax	Id	Imax	Id
3-ph 380V - 480V	50/60	1000...235E9A	WITHOUT	4,9		9,3		13,7		18,1		22,5	
			WITH	5,9		10,3		14,7		19,1		23,5	
		1100...220E9B	WITHOUT	5,33		10,16		14,99		19,82		24,65	
			WITH	6,33		11,16		15,99		20,82		25,65	
		740...220E8A	WITHOUT	1,9		3,3		4,7		6,1		7,5	
			WITH	2,9		4,3		5,7		7,1		8,5	
		510...250E8B	WITHOUT	0,99		1,48		1,97		2,46		2,95	
			WITH	1,99		2,48		2,97		3,46		3,95	
		700...140E8C	WITHOUT	1,91		3,32		4,73		6,14		7,55	
			WITH	2,91		4,32		5,73		7,14		8,55	

Voltage (V)	F (Hz)	Motor code	OPTION	NO. OF MOTORS									
				6		8		10		12		14	
													
				Imax	Id	Imax	Id	Imax	Id	Imax	Id	Imax	Id
3-ph 380V - 480V	50/60	1000...235E9A	WITHOUT	26,9		35,7		44,5		53,3		62,1	
			WITH	27,9		36,7		45,5		54,3		63,1	
		1100...220E9B	WITHOUT	29,48		39,14		48,8		58,46		68,12	
			WITH	30,48		40,14		49,8		59,46		69,12	
		740...220E8A	WITHOUT	8,9		11,7		14,5		17,3		20,1	
			WITH	9,9		12,7		15,5		18,3		21,1	
		510...250E8B	WITHOUT	3,44		4,42		5,4		6,38		7,36	
			WITH	4,44		5,42		6,4		7,38		8,36	
		700...140E8C	WITHOUT	8,96		11,78		14,6		17,42		20,24	
			WITH	9,96		12,78		15,6		18,42		21,24	

Voltage (V)	F (Hz)	Motor code	OPTION	NO. OF MOTORS					
				16		18		20	
									
				Imax	Id	Imax	Id	Imax	Id
3-ph 380V - 480V	50/60	1000...235E9A	WITHOUT	70,9		79,7		88,5	
			WITH	71,9		80,7		89,5	
		1100...220E9B	WITHOUT	77,78		87,44		97,1	
			WITH	78,78		88,44		98,1	
		740...220E8A	WITHOUT	22,9		25,7		28,5	
			WITH	23,9		26,7		29,5	
		510...250E8B	WITHOUT	8,34		9,32		10,3	
			WITH	9,34		10,32		11,3	
		700...140E8C	WITHOUT	23,06		25,88		28,7	
			WITH	24,06		26,88		29,7	

* Electrical box option: ventilation/heating/tropical climate with or without transformer

Note: Values excluding misting unit consumption

2.3.3 - COMBINATION MOTOR: AC + 1-STAGE EC

Electrical data: Current at +/- 10% at 20°C -

Imax: maximum current - Id: starting current

Voltage (V)	F (Hz)	Motor code	OPTION	NO. OF MOTORS									
				2		3		4		4		5	
				Imax	Id	Imax	Id	Imax	Id	Imax	Id	Imax	Id
3-ph 400V	50	900M9A	WITHOUT	10,2	23,5	15,5	28,8	20,8	34,1	19,9	46,5	26,1	39,4
			WITH	11,2	24,5	16,5	29,8	21,8	35,1	20,9	47,5	27,1	40,4
		690M9A	WITHOUT	7,9	11,1	10,9	14,1	13,9	17,1	15,3	21,7	16,9	20,1
			WITH	8,9	12,1	11,9	15,1	14,9	18,1	16,3	22,7	17,9	21,1
		890M9C	WITHOUT	8,8	17,9	12,7	21,8	16,6	25,7	17,1	35,3	20,5	29,6
			WITH	9,8	18,9	13,7	22,8	17,6	26,7	18,1	36,3	21,5	30,6
		680M9C	WITHOUT	7,2	11,9	9,5	14,2	11,8	16,5	13,9	23,3	14,1	18,8
			WITH	8,2	12,9	10,5	15,2	12,8	17,5	14,9	24,3	15,1	19,8
		690M8C	WITHOUT	4	14,9	6,1	17	8,2	19,1	7,5	29,3	10,3	21,2
			WITH	5	15,9	7,1	18	9,2	20,1	8,5	30,3	11,3	22,2
		560M8B	WITHOUT	2,95	8,9	4	9,95	5,05	11	5,4	17,3	6,1	12,05
			WITH	3,95	9,9	5	10,95	6,05	12	6,4	18,3	7,1	13,05

Voltage (V)	F (Hz)	Motor code	OPTION	NO. OF MOTORS									
				6		6		8		10		12	
				Imax	Id	Imax	Id	Imax	Id	Imax	Id	Imax	Id
3-ph 400V	50	900M9A	WITHOUT	31,4	44,7	30,5	57,1	41,1	67,7	51,7	78,3	62,3	88,9
			WITH	32,4	45,7	31,5	58,1	42,1	68,7	52,7	79,3	63,3	89,9
		690M9A	WITHOUT	19,9	23,1	21,3	27,7	27,3	33,7	33,3	39,7	39,3	45,7
			WITH	20,9	24,1	22,3	28,7	28,3	34,7	34,3	40,7	40,3	46,7
		890M9C	WITHOUT	24,4	33,5	24,9	43,1	32,7	50,9	40,5	58,7	48,3	66,5
			WITH	25,4	34,5	25,9	44,1	33,7	51,9	41,5	59,7	49,3	67,5
		680M9C	WITHOUT	16,4	21,1	18,5	27,9	23,1	32,5	27,7	37,1	32,3	41,7
			WITH	17,4	22,1	19,5	28,9	24,1	33,5	28,7	38,1	33,3	42,7
		690M8B	WITHOUT	12,4	23,3	11,7	33,5	15,9	37,7	20,1	41,9	24,3	46,1
			WITH	13,4	24,3	12,7	34,5	16,9	38,7	21,1	42,9	25,3	47,1
		560M8B	WITHOUT	7,15	13,1	7,5	19,4	9,6	21,5	11,7	23,6	13,8	25,7
			WITH	8,15	14,1	8,5	20,4	10,6	22,5	12,7	24,6	14,8	26,7

Voltage (V)	F (Hz)	Motor code	OPTION	NO. OF MOTORS							
				14		16		18		20	
				Imax	Id	Imax	Id	Imax	Id	Imax	Id
3-ph 400V	50	900M9A	WITHOUT	72,9	99,5	83,5	136,7	94,1	147,3	104,7	157,9
			WITH	73,9	100,5	84,5	137,7	95,1	148,3	105,7	158,9
		690M9A	WITHOUT	45,3	51,7	51,3	64,1	57,3	70,1	63,3	76,1
			WITH	46,3	52,7	52,3	65,1	58,3	71,1	64,3	77,1
		890M9C	WITHOUT	56,1	74,3	63,9	100,3	71,7	108,1	79,5	115,9
			WITH	57,1	75,3	64,9	101,3	72,7	109,1	80,5	116,9
		680M9C	WITHOUT	36,9	46,3	41,5	60,3	46,1	64,9	50,7	69,5
			WITH	37,9	47,3	42,5	61,3	47,1	65,9	51,7	70,5
		690M8B	WITHOUT	28,5	50,3	32,7	76,3	36,9	80,5	41,1	84,7
			WITH	29,5	51,3	33,7	77,3	37,9	81,5	42,1	85,7
		560M8B	WITHOUT	15,9	27,8	18	41,8	20,1	43,9	22,2	46
			WITH	16,9	28,8	19	42,8	21,1	44,9	23,2	47

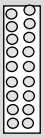
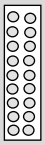
* Electrical box option: ventilation/heating/tropical climate with or without transformer

Note: Values excluding misting unit consumption

3 - UNIT CONNECTIONS WITH ELECTRICAL CABINET

3.1 - Protection cabinet

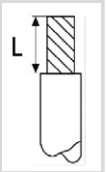
3.1.1 - Disconnect switch rating

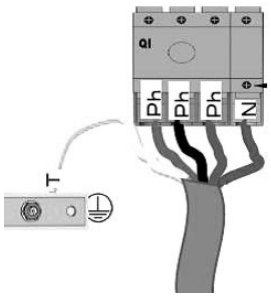
Voltage (V)	F (Hz)	Reference	NO. OF MOTORS												
			1	2	3	4	5	6	8	10	12	14	16	18	20
															
3-ph 400V	50	**1270A9B**	16	25	25	63	63	63	100	100	100	125	160	160	250
		980A9B	16	16	16	25	32	32	63	63	63	100	100	100	125
		900A9A	16	16	25	25	32	63	63	63	100	100	100	125	125
		690A9A	16	16	16	16	16	25	32	32	63	63	63	63	63
		890A9C	16	16	16	25	25	25	63	63	63	63	100	100	100
		680A9C	16	16	16	16	16	16	25	25	32	63	63	63	63
		890A9D	16	25	25	63	63	63	100	100	100	125	160	160	250
		700A9D	16	16	16	25	32	32	63	63	63	100	100	100	125
		900A8A	16	16	16	16	25	25	32	63	63	63	63	100	100
		700A8A	16	16	16	16	16	16	25	25	32	63	63	63	63
		690A8B	16	16	16	16	16	16	25	25	32	32	63	63	63
		560A8B	16	16	16	16	16	16	16	16	16	16	25	25	25
		440A8C	16	16	16	16	16	16	16	16	16	16	25	25	25
		330A8C	16	16	16	16	16	16	16	16	16	16	16	16	16
3-ph 400V - 480V	60	**1100B9A**	16	16	25	25	32	63	63	63	100	100	100	125	125
		1000B9B	16	16	16	25	25	32	63	63	63	63	100	100	100
		800B9C	16	16	16	16	16	25	25	32	63	63	63	63	63
		1100B8A	16	16	16	16	25	25	32	63	63	63	63	100	100
		1050B8B	16	16	16	25	25	32	63	63	63	100	100	100	100
		840B8C	16	16	16	16	16	16	25	25	32	32	63	63	63
		520B8D	16	16	16	16	16	16	16	16	16	25	25	25	32
3-ph 400V	50/60	**1000...235E9A**	16	16	16	25	25	32	63	63	63	100	100	100	100
		1100...220E9B	16	16	16	25	32	32	63	63	63	100	100	100	125
		740...220E8A	16	16	16	16	16	16	16	16	25	25	25	32	32
		510...140E8C	16	16	16	16	16	16	16	16	16	16	16	16	16
		700...140E8C	16	16	16	16	16	16	16	16	25	25	25	32	32

3.1.2 - Power connection

Main power supply under switch Q1

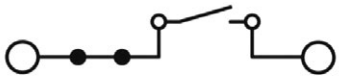
The Green/Yellow wire should be longer than the active conductors and installed so as to ensure it is the last to be pulled out.

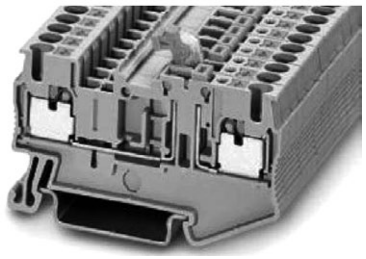
Disconnect/ isolator switch rating	upstream protection recommended	Max peak Icc	CONNECTION ON DISCONNECT/ISOLATOR SWITCH Q1				
			CABLE SECTION		CONNECTION		
			Solid or multifilament core	Flexible core with end fitting (max)	Screw type	Tightening torque	
(A)	(A)	(KA)	(mm^2)	(mm^2)		(Nm)	(mm)
16	20 aM	3	1,5.....6	4	M3,5 - PH2	1,5.....2	8,5
25	25 aM	3,5	1,5.....16	10	M4 - PZ2	2.....2,5	9,5
32	40 aM	4,5	1,5.....16	10	M4 - PZ2	2.....2,5	9,5
63	63 gG	6	1,5.....16	10	M4 - PZ2	2.....2,5	9,5
100	100 gG	10	4.....50	35	M6 - PZ2	2,5.....3	13,5
125	125 gG	10	4.....50	35	M6 - PZ2	2,5.....3	15
160	160 gG	15	10.....185	185	M12 - SW6	9,5.....10	15

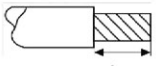


3.1.3 - Information terminal connection

Orange disconnect terminals

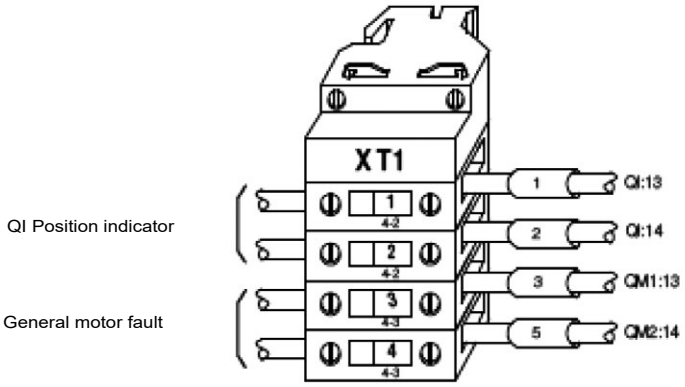




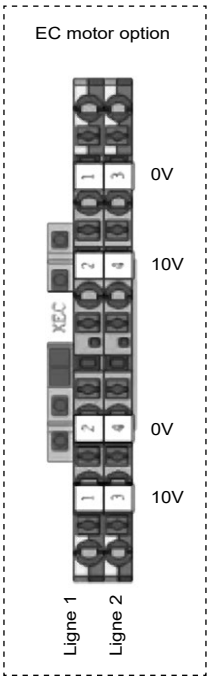
Terminal colour		Orange
Connection mode		Push-in
Connection in line with the standard		IEC 60947-7-1
Rigid conductor section	min.	0,14 mm²
	max.	4 mm²
Rigid AWG conductor	min	26
	max.	12
Conductor section flexible with end fitting	min.	0,14 mm²
	max.	2,5 mm²
AWG conductor flexible with end fitting	min	26
	max.	14
		8 to 10 mm

Potential-free (dry) contact
Max. current 2 A (charge AC1), min 5 mA.
Voltage of 12 to 230 V AC.

1-2: Open cabinet powered off
3-4: Open fault



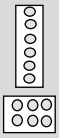
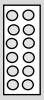
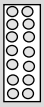
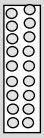
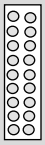
3.1.4 - 0/10 V control signal terminal connection



For 2 line machines, a single common value of 0/10 V must be connected on the two terminal strips provided for this purpose.

3.2 - control cabinet with auxiliary board

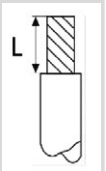
3.2.1 - Disconnect switch rating

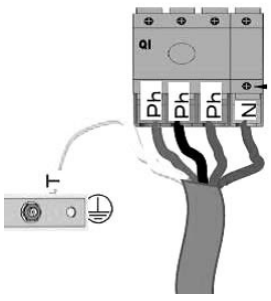
Voltage (V)	F (Hz)	Reference	NO. OF MOTORS												
			1	2	3	4	5	6	8	10	12	14	16	18	20
															
3-ph 400V	50	**1270A9B**	16	25	25	63	63	63	100	100	100	125	160	160	250
		980A9B	16	16	16	25	32	32	63	63	63	100	100	100	125
		900A9A	16	16	25	25	32	63	63	63	100	100	100	125	125
		690A9A	16	16	16	16	16	25	32	32	63	63	63	63	63
		890A9C	16	16	16	25	25	25	63	63	63	63	100	100	100
		680A9C	16	16	16	16	16	16	25	25	32	63	63	63	63
		890A9D	16	25	25	63	63	63	100	100	100	125	160	160	250
		700A9D	16	16	16	25	32	32	63	63	63	100	100	100	125
		900A8A	16	16	16	16	25	25	32	63	63	63	63	100	100
		700A8A	16	16	16	16	16	16	25	25	32	63	63	63	63
		690A8B	16	16	16	16	16	16	25	25	32	32	63	63	63
		560A8B	16	16	16	16	16	16	16	16	16	16	25	25	25
		440A8C	16	16	16	16	16	16	16	16	16	16	25	25	25
		330A8C	16	16	16	16	16	16	16	16	16	16	16	16	16
3-ph 400V	50/60	**1000...235E9A**	16	16	16	25	25	32	63	63	63	100	100	100	100
		1100...220E9B	16	16	16	25	32	32	63	63	63	100	100	100	125
		740...220E8A	16	16	16	16	16	16	16	16	25	25	25	32	32
		510...140E8C	16	16	16	16	16	16	16	16	16	16	16	16	16
		700...140E8C	16	16	16	16	16	16	16	16	25	25	25	32	32
3-ph 400V	50	**900M9A**		16	25	25	32	63	63	63	100	100	100	125	125
		690M9C		16	16	16	16	25	32	32	63	63	63	63	63
		890M9C		16	16	25	25	25	63	63	63	63	100	100	100
		680M9C		16	16	16	16	16	25	25	32	63	63	63	63
		690M8B		16	16	16	16	16	25	25	32	32	63	63	63
		560M8B		16	16	16	16	16	16	16	16	16	25	25	25

3.2.2 - Power connection

Main power supply under switch Q1

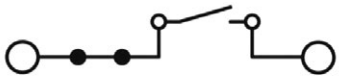
The Green/Yellow wire should be longer than the active conductors and installed so as to ensure it is the last to be pulled out.

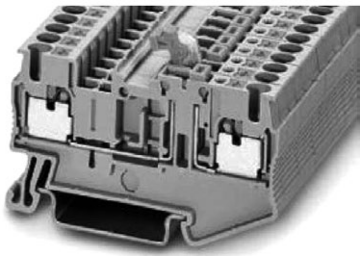
Disconnect/ isolator switch rating	upstream protection recommended	Max peak Icc	CONNECTION ON DISCONNECT/ISOLATOR SWITCH Q1				
			CABLE SECTION		CONNECTION		
			Solid or multifilament core	Flexible core with end fitting (max)	Screw type	Tightening torque	
(A)	(A)	(KA)	(mm^2)	(mm^2)		(Nm)	(mm)
16	20 aM	3	1,5.....6	4	M3,5 - PH2 ⊕	1,5.....2	8,5
25	25 aM	3,5	1,5.....16	10	M4 - PZ2 ⊕	2.....2,5	9,5
32	40 aM	4,5	1,5.....16	10	M4 - PZ2 ⊕	2.....2,5	9,5
63	63 gG	6	1,5.....16	10	M4 - PZ2 ⊕	2.....2,5	9,5
100	100 gG	10	4.....50	35	M6 - PZ2 ⊕	2,5.....3	13,5
125	125 gG	10	4.....50	35	M6 - PZ2 ⊕	2,5.....3	15
160	160 gG	15	10.....185	185	M12 - SW6 ⬡	9,5.....10	15

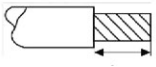


3.2.3 - Information terminal connection

Customer connection to disconnect spring terminals

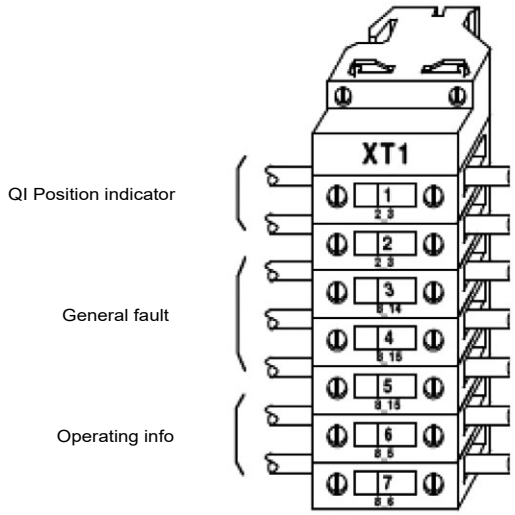




Terminal colour		Orange
Connection mode		Push-in
Connection in line with the standard		IEC 60947-7-1
Rigid conductor section	min.	0,14 mm²
	max.	4 mm²
Rigid AWG conductor	min	26
	max.	12
Conductor section flexible with end fitting	min.	0,14 mm²
	max.	2,5 mm²
AWG conductor flexible with end fitting	min	26
	max.	14
		8 to 10 mm

1-2: Open cabinet powered off
3-4: Open fault
6-7 : Dry coolers open when off

Potential-free (dry) contact
Max. current 2 A (charge AC1), min 5 mA.
Voltage of 12 to 230 V AC.

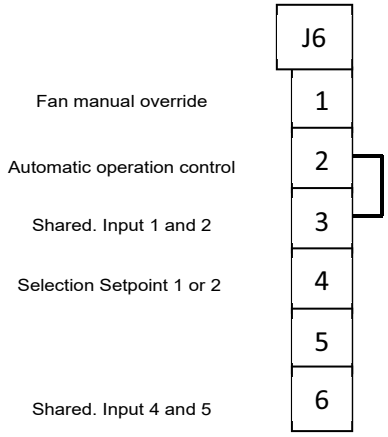


Note: Other information available via potential-free contacts with use of a relay board.
For communication with the CMS, refer to the electronic circuit board manual.

3.2.4 - Electronic circuit board terminal strip connection

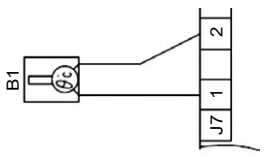
Terminal strip J6

Use potential-free contacts
1-3 Closed: Fan manual override
2-3 Open: Unit off
2-3 Closed: Unit authorised to operate
6-4 Open: Control on setpoint 1
6-4 Closed: Control on setpoint 2



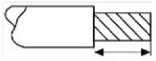
Terminal strip J7:

Outdoor temperature sensor B1



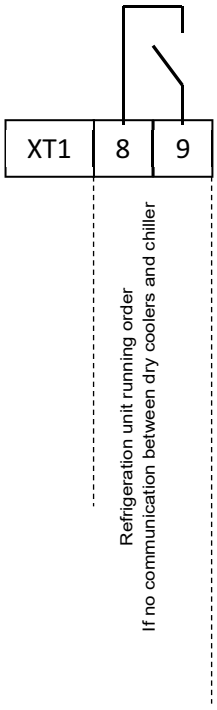
3.2.5 - Free cooling option terminal strip connection

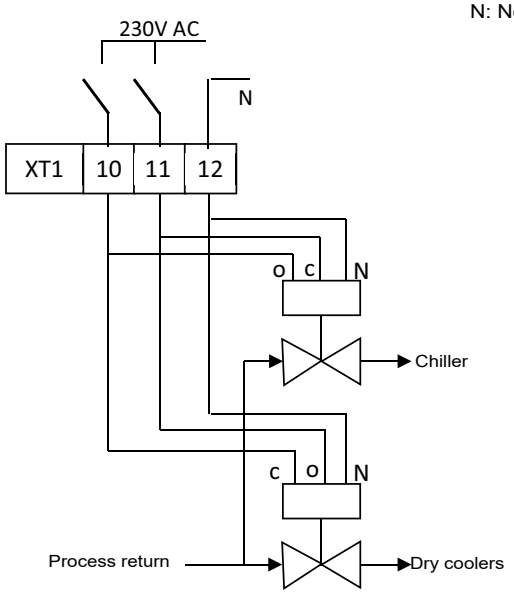
Orange disconnect terminals

Terminal colour		Grey
Connection mode		Push-in
Connection in line with the standard		IEC 60947-7-1
Rigid conductor section	min.	0,14 mm²
	max.	4 mm²
Rigid AWG conductor	min	26
	max.	12
Conductor section flexible with end fitting	min.	0,14 mm²
	max.	2,5 mm²
AWG conductor flexible with end fitting	min	26
	max.	14
		8 to 10 mm

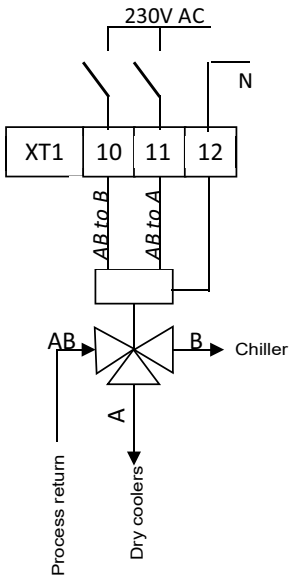
WIRING VARIANT
2 X 2-WAY VALVES

O: Open
C: Closed
N: Neutral

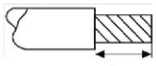


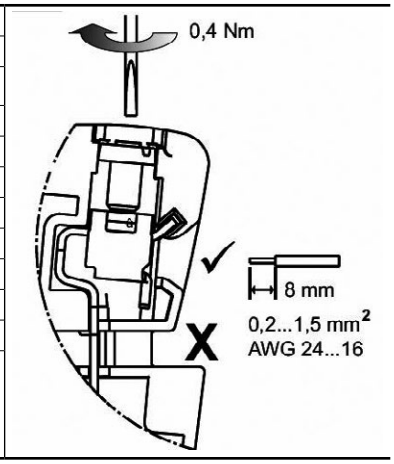


WIRING VARIANT
2 X 3-WAY VALVES

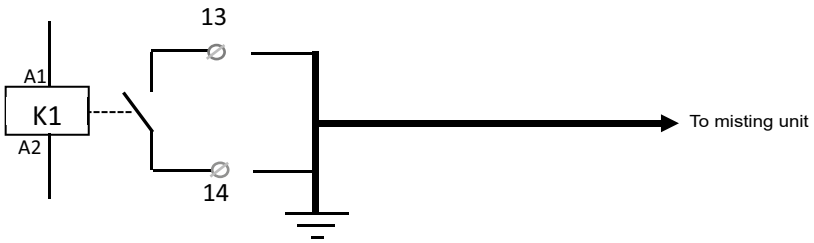


3.2.6 - Misting option terminal strip connection

Connection mode		Screwed PHO
Max tightening torque		0,4 Nm
Connection in line with the standard		IEC 609447-1
Rigid conductor section	min.	1 mm²
	max.	1,5 mm²
Rigid AWG conductor	min	17
	max.	16
Conductor section, flexible with end fitting	min.	1 mm²
	max.	1,5 mm²
AWG conductor, flexible with end fitting	min	17
	max.	16
		8 to 10 mm



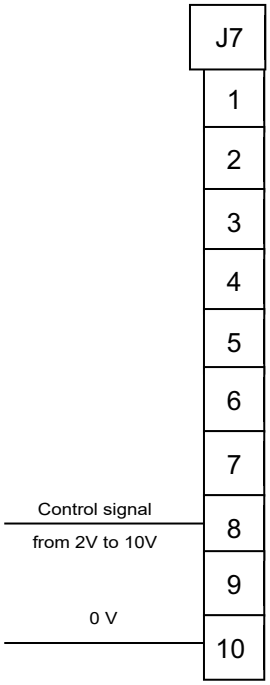
MISTING RUNNING ORDER



3.2.7 - EC fan max. speed setting connection

The maximum fan speed setting can be entered using parameter A114 or via a 2/10 V signal connected to terminals 8 & 10 on the control board The 2/10V signal takes priority over parameter A114.

To find out the Voltage/Speed correspondence, see chapter 4.



3.3 - Control cabinet actuated by the chiller

3.3.1 - Disconnect switch rating

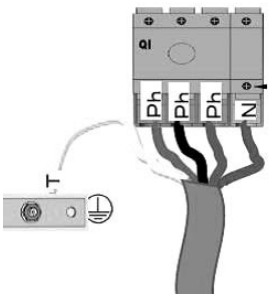
Voltage (V)	F (Hz)	Reference	NO. OF MOTORS												
			1	2	3	4	5	6	8	10	12	14	16	18	20
3-ph 400V	50	1270A9B	16	25	25	63	63	63	100	100	100	125	160	160	250
		980A9B	16	16	16	25	32	32	63	63	63	100	100	100	125
		900A9A	16	16	25	25	32	63	63	63	100	100	100	125	125
		690A9A	16	16	16	16	16	25	32	32	63	63	63	63	63
		890A9C	16	16	16	25	25	25	63	63	63	63	100	100	100
		680A9C	16	16	16	16	16	16	25	25	32	63	63	63	63
		890A9D	16	25	25	63	63	63	100	100	100	125	160	160	250
		700A9D	16	16	16	25	32	32	63	63	63	100	100	100	125
		900A8A	16	16	16	16	25	25	32	63	63	63	63	100	100
		700A8A	16	16	16	16	16	16	25	25	32	63	63	63	63
		690A8B	16	16	16	16	16	16	25	25	32	32	63	63	63
		560A8B	16	16	16	16	16	16	16	16	16	16	25	25	25
		440A8C	16	16	16	16	16	16	16	16	16	16	25	25	25
		330A8C	16	16	16	16	16	16	16	16	16	16	16	16	16
3-ph 400V	50/60	1000...235E9A	16	16	16	25	25	32	63	63	63	100	100	100	100
		1100...220E9B	16	16	16	25	32	32	63	63	63	100	100	100	125
		740...220E8A	16	16	16	16	16	16	16	16	25	25	25	32	32
		510...140E8C	16	16	16	16	16	16	16	16	16	16	16	16	16
		700...140E8C	16	16	16	16	16	16	16	16	25	25	25	32	32
3-ph 400V	50	900M9A		16	25	25	32	63	63	63	100	100	100	125	125
		690M9A		16	16	16	16	25	32	32	63	63	63	63	63
		890M9C		16	16	25	25	25	63	63	63	63	100	100	100
		680M9C		16	16	16	16	16	25	25	32	63	63	63	63
		690M8B		16	16	16	16	16	25	25	32	32	63	63	63
		560M8B		16	16	16	16	16	16	16	16	16	25	25	25

3.3.2 - Power connection

Main power supply under switch Q1

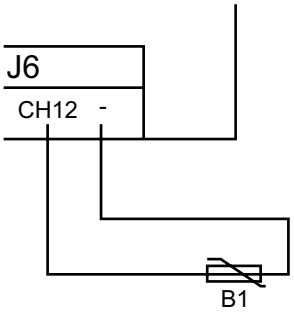
The Green/Yellow wire should be longer than the active conductors and installed so as to ensure it is the last to be pulled out.

Disconnect/ isolator switch rating	upstream protection recommended	Max peak Icc	CONNECTION ON DISCONNECT/ISOLATOR SWITCH Q1				
			CABLE SECTION		CONNECTION		
			Solid or multifilament core	Flexible core with end fitting (max)	Screw type	Tightening torque	L
(A)	(A)	(KA)	(mm^2)	(mm^2)		(Nm)	(mm)
16	20 aM	3	1,5.....6	4	M3,5 - PH2	1,5.....2	8,5
25	25 aM	3,5	1,5.....16	10	M4 - PZ2	2.....2,5	9,5
32	40 aM	4,5	1,5.....16	10	M4 - PZ2	2.....2,5	9,5
63	63 gG	6	1,5.....16	10	M4 - PZ2	2.....2,5	9,5
100	100 gG	10	4.....50	35	M6 - PZ2	2,5.....3	13,5
125	125 gG	10	4.....50	35	M6 - PZ2	2,5.....3	15
160	160 gG	15	10.....185	185	M12 - SW6	9,5.....10	15



3.3.3 - External temperature sensor connection

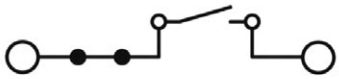
Terminal strip J6 : terminals CH12

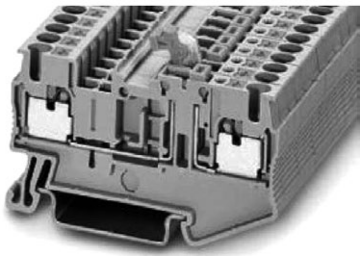


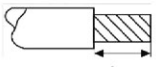
Sonde température extérieure
Outdoor temperature sensor
Außentemperaturfühler
Sonda de temperatura exterior
Sonda temperatura esterna

3.3.4 - Information terminal connection

Customer connection to disconnect spring terminals





Terminal colour		Orange
Connection mode		Push-in
Connection in line with the standard		IEC 60947-7-1
Rigid conductor section	min.	0,14 mm²
	max.	4 mm²
Rigid AWG conductor	min	26
	max.	12
Conductor section flexible with end fitting	min.	0,14 mm²
	max.	2,5 mm²
AWG conductor flexible with end fitting	min	26
	max.	14
		8 to 10 mm

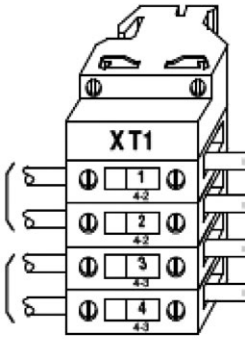
1-2: Open cabinet powered off
3-4: Open fault

Potential-free (dry) contact

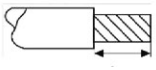
Max. current 2 A (charge AC1), min 5 mA. Voltage of 12 to 230 V AC.

QI Position indicator

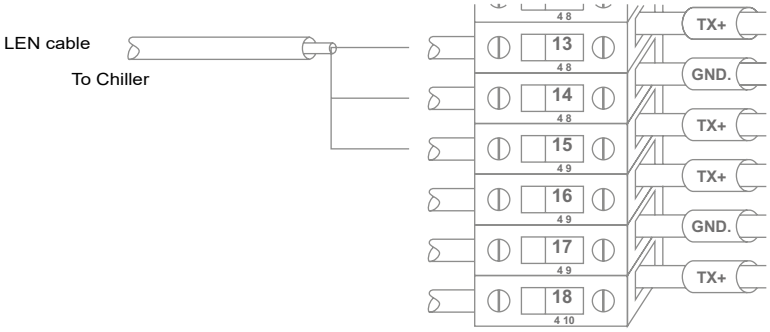
General motor fault



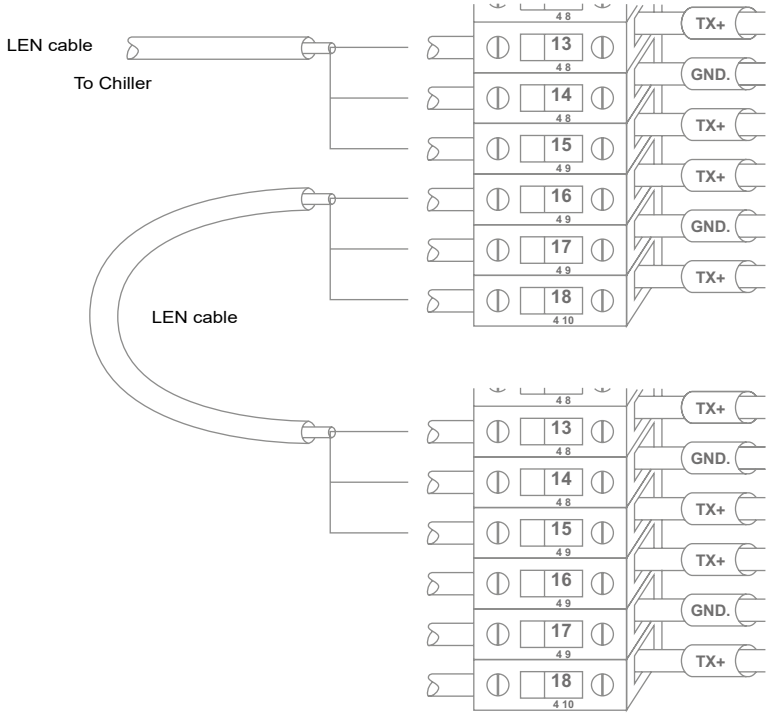
3.3.5 - Communication terminal connection with Chiller

Terminal colour		Grey
Connection mode		Push-in
Connection in line with the standard		IEC 60947-7-1
Rigid conductor section	min.	0,14 mm²
	max.	4 mm²
Rigid AWG conductor	min	26
	max.	12
Conductor section flexible with end fitting	min.	0,14 mm²
	max.	2,5 mm²
AWG conductor flexible with end fitting	min	26
	max.	14
		8 to 10 mm

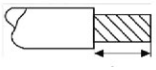
3.3.5.1 - Connection with one chiller only



3.3.5.2 - Connection with one chiller and 2 Dry coolers

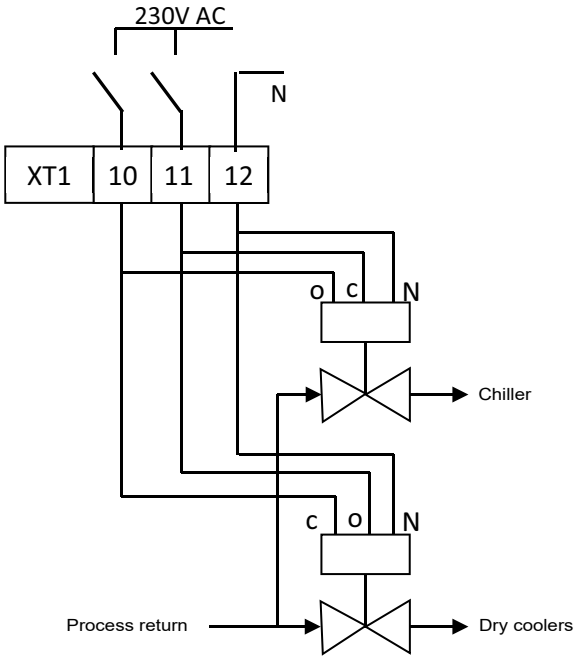


3.3.6 - Free cooling option terminal strip connection

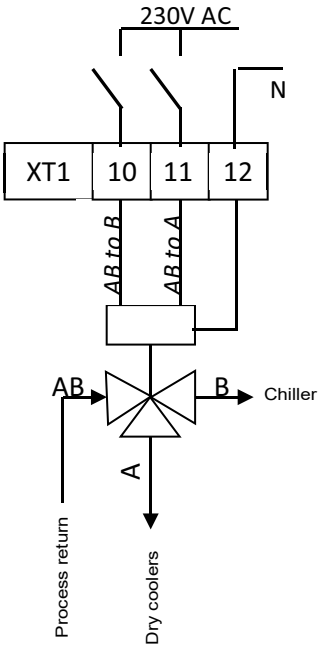
Terminal colour		Grey
Connection mode		Push-in
Connection in line with the standard		IEC 60947-7-1
Rigid conductor section	min.	0,14 mm²
	max.	4 mm²
Rigid AWG conductor	min	26
	max.	12
Conductor section flexible with end fitting	min.	0,14 mm²
	max.	2,5 mm²
AWG conductor flexible with end fitting	min	26
	max.	14
		8 to 10 mm

WIRING VARIANT
2 X 2-WAY VALVES

O: Open
C: Closed
N: Neutral



WIRING VARIANT
3-WAY VALVES



4 - EC FAN CONTROL SIGNAL-ROTATION SPEED CORRESPONDENCE

EC fan rotation speed based on the control signal (0/10V)					
Signal (volt)	N(rpm)+/- 10%				
	E9A	E9B	E8A	E8B	E8C
10	1000	1105	740	510	700
9	940	994	735	510	631
8	890	880	725	510	560
7	802	764	653	454	487
6	713	646	580	396	413
5	613	527	495	334	337
4	499	407	410	269	260
3	373	284	316	199	182
2	235	161	220	125	102

For units with control cabinet, the max speed of the fans can be set:

- Parameter A114: Setting from 2 to 10V in increments of 1
- Via 2/10V signal on J7 terminal 8 & 10

The quality management system of this product's assembly site has been certified in accordance with the requirements of the ISO 9001 standard (latest current version) after an assessment conducted by an authorized independent third party.
The environmental management system of this product's assembly site has been certified in accordance with the requirements of the ISO 14001 standard (latest current version) after an assessment conducted by an authorized independent third party.
The occupational health and safety management system of this product's assembly site has been certified in accordance with the requirements of the ISO 45001 standard (latest current version) after an assessment conducted by an authorized independent third party.
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