

CDN 205 ÷ 905



English

Français



19
÷
83 kW



Air cooled condensing units

Groupes de condensation à refroidissement par air

IOM CDN-N.5GBF

Date : **September / Septembre 2006**

Supersedes / Annule et remplace : **IOM CDN-N.4GBF/10.05**



INSTALLATION AND SELECTION MANUAL

NOTICE D'INSTALLATION ET DE SELECTION

INSTALLATION UND VORWÄHLER-HANDBUCH

MANUALE DI SELEZIONE E DELL'INSTALLAZIONE

MANUAL DE LA INSTALACIÓN Y DE LA SELECCIÓN

English

Français

Deutsch

Italiano

Español

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POWER SUPPLY MUST BE SWITCHED OFF BEFORE STARTING TO WORK IN THE ELECTRIC CONTROL BOX!

GENERAL RECOMMENDATIONS

Please read the following safety precautions very carefully before installing the unit.

SAFETY DIRECTIONS

Follow the safety rules in forces when you are working on your appliance.

The installation, commissioning and maintenance of these units should be performed by qualified personnel having a good knowledge of standards and local regulations, as well as experience of this type of equipment.

The unit should be handled using lifting and handling equipment appropriate to the unit's size and weight.

Any wiring produced on site must comply with the corresponding national electrical regulations.

Make sure that the power supply and its frequency are adapted to the required electric current of operation, taking into account specific conditions of the location and the current required for any other appliance connected with the same circuit.

The unit must be EARTHED to avoid any risks caused by insulation defects.

It is forbidden to start any work on the electrical components if water or high humidity is present on the installation site.

WARNING

Cutoff power supply before starting to work on the appliance.

When making the hydraulic connections, ensure that no impurities are introduced into the pipe work.

The manufacturer declines any responsibility and the warranty becomes void if these instructions are not respected.

If you meet a problem, please call the Technical Department of your area.

If possible, assemble the mandatory or optional accessories before placing the appliance on its final location. (see instructions provided with each accessory).

In order to become fully familiar with the appliance, we suggest to read also our Technical Instructions.

-The information contained in these Instructions are subject to modification without advance notice.

GENERAL

The condensing unit CDN 205 to 905 offer 8 models with cooling capacities from 19 to 83 kW allowing to suit, in this capacity range, the air conditioning applications required for tertiary or industrial sectors.

In a compact shape, these condensing units have a very small space requirement.

The units are suitable for outdoor installation (on a roof or directly on ground) made from galvanised steel coated with powder-based paint.

All units are completely assembled in the factory with all interconnecting refrigerant piping and internal wiring ready for field installation. After assembly, a full run test is also performed in the factory to verify that the refrigerant circuit operates correctly. They are delivered with their complete oil charge, nitrogen charge.

Air cooled condensing units are suitable for air conditioning applications requiring the use of direct expansion coils.

The thermal expansion valve, sight glass and connecting pipes will be supplied by others.

COMPRESSOR

Compressor is of hermetic Scroll type.

The compressor motor, refrigerant gas cooled type, is equipped with automatic reset internal thermal protection.

The compressor is mounted on rubber anti vibration pads.

EVAPORATOR

Evaporator is provided by the installer. Its capacity must correspond to that of condensing unit for the correct operation of installation.

AIR COOLED CONDENSERS

Condenser coils consist of seamless copper tubes arranged in a staggered row pattern. Each coil is mechanically expanded into aluminium fins with full fin collars.

CONDENSER FAN AND MOTOR

The fan is of the direct drive Helicoidal type. The motor is equipped with an internal heat overload protection with an automatic reset function. The rotational speed of the fan or fans is managed by a condensing pressure regulator allowing for operation at low outdoor temperatures (refer to Operating Limits).

ELECTRICAL PANEL

All electrical equipment required for proper unit operation is located in a weatherproof electrical panel with access on the front of the unit.

The CE compliance of electrical panel is assured by an access panel fixed by bolts. The electrical panel has a main switch with externally lockable handle, power contactors, compressor thermal overload, control circuit fuses, high pressure cut-out, antishort cycle time delay and electrical junction blocks for power and control circuits. Indoor unit regulation is not supplied.

TECHNICAL SPECIFICATIONS**SINGLE CIRCUIT**

Models		205	305	405M
Cooling capacity (1)	Kw	18.6	27.8	35.1
	BTU/h	63466	94857	119766
Power input (1)	kW	6.49	9.5	12.4
Dimensions Outdoor Unit CDN				
Lenght	mm	900	1003	1004
Width	mm	800	1003	1004
Height	mm	1060	1094	1250
Weight	kg	164	187	247
Diameter connection brazed				
"Gas" pipe	inch	1" 1/8"		1" 3/8"
"Liquid" pipe	inch	1/2"		5/8"
Number of compressors		1	1	2
Number of condenser coils		1	1	1
Outdoor fan				
Number of fans		1	1	1
Type		Propeller		
Number of blades		3	3	7
Diameter		610	610	800
Drive type		Direct		
Nominal air volume	m3/h	9000	9000	16000
Fan motor				
Nominal power	W	880	880	1000
Speed	tr/mn	850	850	670

1°) Operating Conditions-Cooling:

Air handling evaporating temperature = 7°C

Outdoor air temperature = 35°C

The power input is the total input (compressors + fans).

DUAL CIRCUIT

Models		405	505	605	755	905
Cooling capacity (1)	Kw	36	44.4	55.6	69.1	83
	BTU/h	122837	151500	189715	235779	283208
Power input (1)	kW	13	16.1	19	22.9	27.5
Dimensions Outdoor Unit CDN						
Length	mm	1708	1708	1708	2213	2213
Width	mm	1123	1123	1123	1345	1345
Height	mm	972	1171	1171	1304	1454
Weight	kg	317	378	405	559	592
Diameter connection brazed						
"Gas" pipe	inch	1" 1/8"			1" 3/8"	
"Liquid" pipe	inch	1/2"			5/8"	
Number of compressors		2	2	2	2	2
Number of condenser coils		2	2	2	2	2
Outdoor fan						
Number of fans		2	2	2	2	2
Type		Propeller				
Number of blades		3	3	3	7	7
Diameter		610	610	610	800	800
Drive type		Direct				
Nominal air volume	m ³ /h	2 x 9000	2 x 9000	2 x 9000	2 x 16000	2 x 16000
Fan motor						
Nominal power	W	2 x 880	2 x 880	2 x 880	2 x 1000	2 x 1000
Speed	tr/mn	850	850	850	670	670

1°) Operating Conditions-Cooling:

Air handling evaporating temperature = 7°C

Outdoor air temperature = 35°C

The power input is the total input (compressors + fans).

COOLING SPECIFICATIONS SINGLE CIRCUIT

MODELS		205	305	405M
Refrigerant charge R407C CDN + 4m connecting pipes	g	4800	6200	8700

DUAL CIRCUIT

MODELS		405	505	605	755	905
Refrigerant charge R407C CDN + 4m connecting pipes	g	2 X 4400	2 X 5600	2 X 8800	2 X 9000	2 X 10900

The refrigerant charge for the various units is provided for **information only** for the versions BAZ or BAC (without liquid line reserve). The charge required to ensure correct installation operation should be added on site in relation to the connecting pipe lengths and the indoor unit.

REFRIGERANT CIRCUIT DIAGRAM

SEE APPENDIX

ACOUSTIC CAPACITY SPECTRUMS

ACOUSTIC CAPACITY LEVEL

SINGLE CIRCUIT

		MODEL		
		255	305	405M
Sound power level by frequency band	Hz	dB(A)	dB(A)	dB(A)
	125	61.1	64.5	68.0
	250	68.3	71.6	73.0
	500	69.9	76.1	76.4
	1000	76.9	77.4	77.7
	2000	72.6	75.5	74.7
4000	69.4	68.4	74.1	
Global		80	82	83

DUAL CIRCUIT

		MODEL				
		405	505	605	755	905
Sound power level by frequency band	Hz	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
	125	64.4	73.2	71.7	71.0	71.0
	250	68.5	75.3	78.7	76.2	76.7
	500	74.7	78.1	83.5	80.7	81.6
	1000	78.3	79.4	81.0	80.7	81.0
	2000	74.6	75.5	78.8	81.1	80.7
4000	72.8	69.2	71.2	75.6	77.6	
Global		82	84	87	87	87

OPERATING LIMITS

Description	Mini	Maxi
Ambient air temperature °C	-10	45

APPLICATION ADJUSTEMENT FACTOR

ALTITUDE FACTORS

Altitude (m)	Cooling capacity	Power input
600	0,987	1,01
1200	0,973	1,02
1800	0,958	1,029
2400	0,943	1,038

SELECTION PROCEDURE

For conditions different from those indicated in performance tables, interpolations is allowed; however, extrapolation is not permitted.

Models	Temp. evap. (1) °C	Temp. Dew Point (2) °C	Ambient air temperature									
			≤25 (3)		30		35		40		45	
			Cool. capa (kW)	Power input (kW)	Cool. capa (kW)	Power input (kW)	Cool. capa (kW)	Power input (kW)	Cool. capa (kW)	Power input (kW)	Cool. capa (kW)	Power input (kW)
205	0	3	18,06	5,08	17,09	5,61	16,12	6,15	15,16	6,68	14,19	7,22
	2	5	19,31	5,20	18,31	5,76	17,31	6,31	16,31	6,87	15,31	7,42
	4	7	20,52	5,35	19,55	5,92	18,57	6,49	17,59	7,06	16,62	7,63
	6	9	22,21	5,53	21,02	6,10	19,83	6,66	18,64	7,22	17,45	7,78
	8	11	23,47	5,65	22,35	6,24	21,23	6,83	20,11	7,43	18,98	8,02
	10	13	25,31	5,79	23,93	6,39	22,54	6,98	21,16	7,57	19,78	8,17
305	0	3	27,04	7,43	25,59	8,22	24,14	9,00	22,69	9,78	21,24	10,57
	2	5	28,90	7,62	27,41	8,43	25,91	9,24	24,42	10,05	22,93	10,86
	4	7	30,72	7,83	29,26	8,66	27,80	9,50	26,34	10,34	24,88	11,17
	6	9	33,25	8,10	31,47	8,92	29,69	9,75	27,90	10,57	26,12	11,39
	8	11	35,14	8,27	33,46	9,14	31,78	10,00	30,10	10,87	28,42	11,74
	10	13	37,89	8,48	35,82	9,35	33,75	10,22	31,68	11,08	29,61	11,95
405M	0	3	35,02	9,68	33,14	10,70	31,26	11,72	29,38	12,74	27,50	13,76
	2	5	37,43	9,92	35,49	10,98	33,56	12,03	31,62	13,09	29,69	14,14
	4	7	39,79	10,19	37,89	11,28	36,00	12,37	34,11	13,46	32,21	14,55
	6	9	43,06	10,54	40,75	11,62	38,44	12,69	36,14	13,76	33,83	14,84
	8	11	45,51	10,77	43,33	11,90	41,16	13,03	38,98	14,15	36,80	15,28
	10	13	49,06	11,04	46,38	12,17	43,70	13,30	41,02	14,43	38,34	15,56
405	0	3	34,18	10,16	32,35	11,23	30,51	12,30	28,68	13,37	26,84	14,44
	2	5	36,53	10,41	34,64	11,52	32,76	12,62	30,87	13,73	28,98	14,84
	4	7	38,84	10,70	36,99	11,84	35,14	12,98	33,29	14,12	31,44	15,26
	6	9	42,03	11,06	39,78	12,19	37,52	13,32	35,27	14,44	33,02	15,57
	8	11	44,42	11,30	42,30	12,48	40,17	13,67	38,05	14,85	35,92	16,04
	10	13	47,89	11,59	45,28	12,77	42,66	13,96	40,04	15,15	37,43	16,33
505	0	3	43,19	12,60	40,87	13,93	38,55	15,25	36,24	16,58	33,92	17,91
	2	5	46,16	12,91	43,77	14,28	41,39	15,66	39,00	17,03	36,62	18,41
	4	7	49,07	13,27	46,74	14,68	44,40	16,10	42,07	17,52	39,73	18,93
	6	9	53,10	13,72	50,26	15,12	47,41	16,52	44,57	17,91	41,72	19,31
	8	11	56,13	14,02	53,44	15,49	50,76	16,95	48,07	18,42	45,39	19,89
	10	13	60,51	14,37	57,21	15,84	53,90	17,32	50,60	18,79	47,29	20,26
605	0	3	54,09	14,87	51,18	16,43	48,28	18,00	45,38	19,56	42,47	21,13
	2	5	57,80	15,24	54,82	16,86	51,83	18,48	48,84	20,10	45,85	21,72
	4	7	61,45	15,66	58,52	17,33	55,60	19,00	52,68	20,67	49,75	22,34
	6	9	66,50	16,20	62,94	17,84	59,37	19,49	55,81	21,14	52,25	22,79
	8	11	70,28	16,54	66,92	18,27	63,56	20,01	60,20	21,74	56,84	23,47
	10	13	75,78	16,96	71,64	18,70	67,50	20,43	63,36	22,17	59,22	23,91
705	0	3	67,22	17,92	63,61	19,81	60,00	21,69	56,39	23,58	52,78	25,47
	2	5	71,84	18,36	68,12	20,32	64,41	22,27	60,70	24,23	56,99	26,18
	4	7	76,37	18,87	72,73	20,89	69,10	22,90	65,47	24,91	61,83	26,93
	6	9	82,64	19,52	78,22	21,51	73,79	23,49	69,36	25,48	64,93	27,46
	8	11	87,35	19,94	83,17	22,03	79,00	24,11	74,82	26,20	70,64	28,29
	10	13	94,18	20,45	89,03	22,54	83,89	24,63	78,74	26,72	73,60	28,81
905	0	3	80,74	21,52	76,41	23,79	72,07	26,05	67,74	28,32	63,40	30,58
	2	5	86,29	22,05	81,83	24,40	77,37	26,75	72,91	29,09	68,45	31,44
	4	7	91,73	22,66	87,37	25,08	83,00	27,50	78,64	29,92	74,27	32,34
	6	9	99,27	23,44	93,95	25,83	88,63	28,21	83,31	30,60	77,99	32,98
	8	11	104,92	23,94	99,90	26,45	94,89	28,96	89,87	31,46	84,85	33,97
	10	13	113,12	24,55	106,94	27,06	100,76	29,58	94,58	32,09	88,40	34,60

(1) Middle point between Dew Point and Bulb Point

(2) Saturated Temperature Dew Point at compressor suction pressure

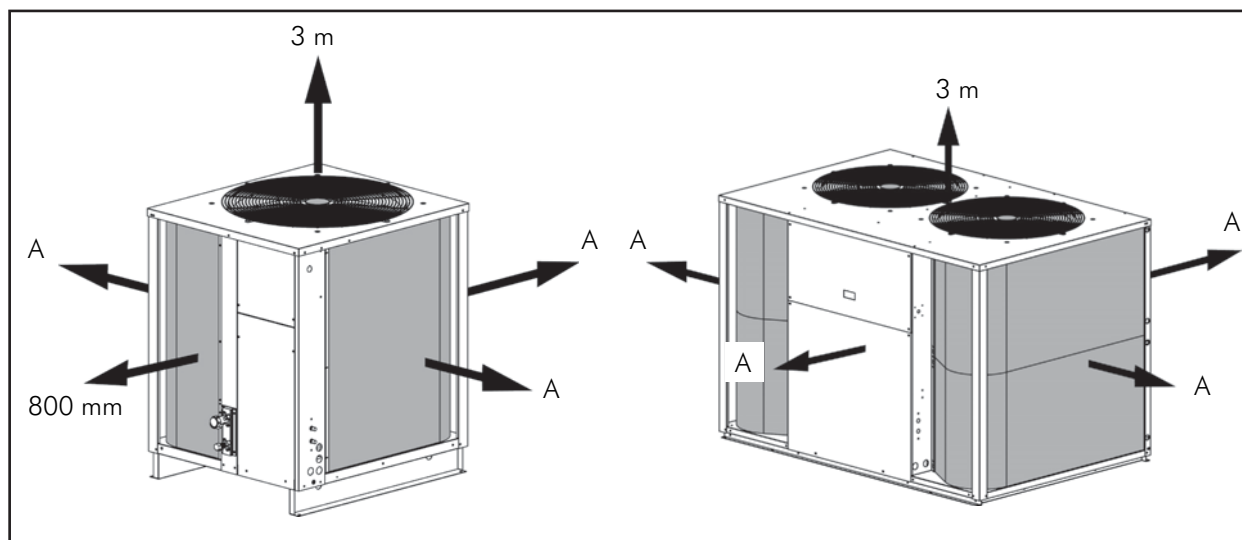
(3) At lower ambient air temperatures, capacities and performances remain constant by means of condensing pressure control.

Table valid for 6K sub-cooling and a 8K superheat.

The power input is the total input (compressors + fans)

UNIT INSTALLATION

Minimum free clearance for maintenance access.



Minimum free clearance (mm)								
MODEL	205	305	405M	405	505	605	755	905
A	500			800				

LOCATION

The unit must be installed on a firm level foundation, of adequate strength to support its full operating weight. Vibration isolation such as rubber waffle pads should be installed between the unit and the supporting structure.

The unit must not be located where it will be subjected to heavy downpour of roof drainage and must be above ground level in areas that are prone to stormwater flooding.

Minimum recommended height is :

250 mm above ground level.

When locating unit give consideration to, and locate unit as remote as possible from neighbour's sleeping areas to minimise noise.

Service and air flow clearances must be allowed as indicated on the unit dimension sheet. It should be noted that major service may require removal of the top panels. Particular attention should be paid to avoiding obstructions to the vertical condenser or air discharge which may result in recirculation of the outdoor air.

In addition to the service clearances noted on the dimension sheet it is essential that provision is made for adequate and safe service access.

REFRIGERANT LINES

Refrigerant line installation, leak testing, evacuation and charging the system should be carried out by a qualified refrigeration mechanic.

New, clean, moisture free refrigerant quality copper tube must be used.

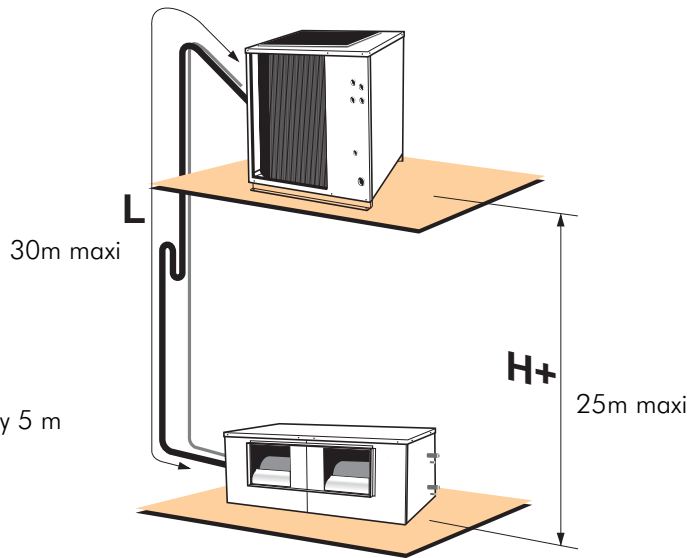
Using specified diameter tubing, run liquid and gas lines from the outdoor unit to the indoor unit avoiding hot surfaces such as hot water pipes, boilers, flues, etc...

The refrigerant piping should be run as short and straight as possible to obtain the most efficient performance.

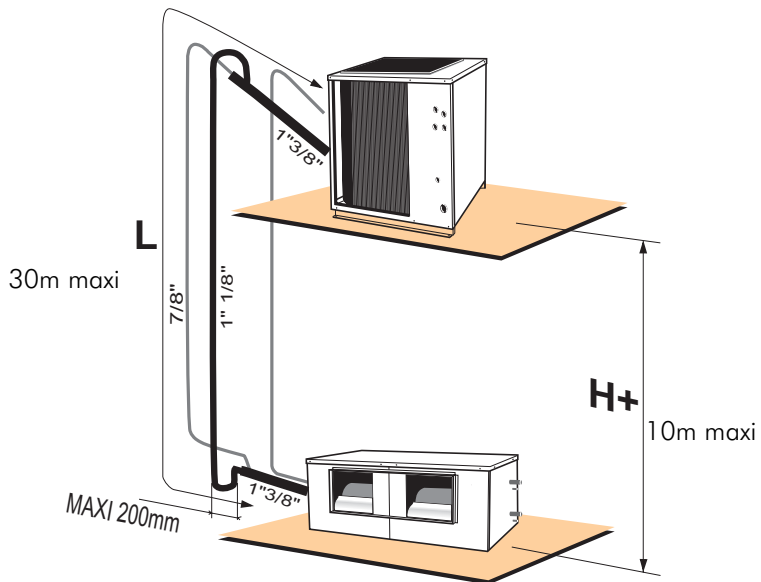
OUTDOOR UNIT AT A HIGHER LEVEL

205 - 305 - 405 - 505 - 605 - 755 - 905

Install a siphon on the Gas pipe every 5 m

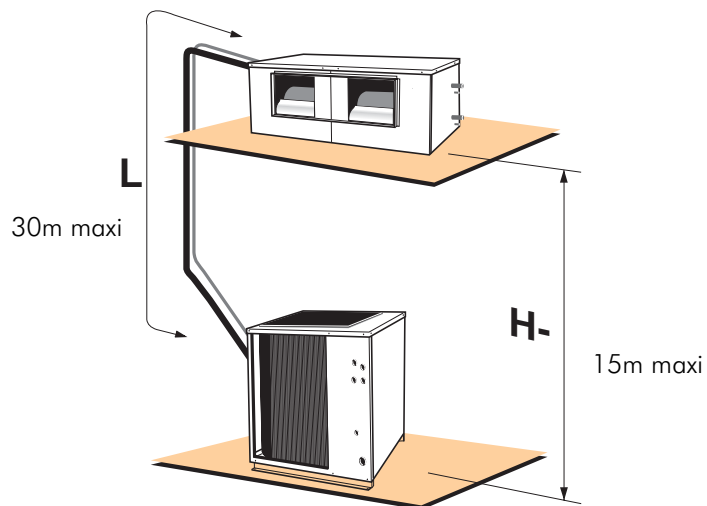


405M



OUTDOOR UNIT AT A LOWER LEVEL

The pipe links should have a minimum slope of 1/250 towards the outdoor unit.



WIRING DIAGRAM**SEE APPENDIX****N 722****WIRING DIAGRAM LEGEND**

SE :3214	CDN 205 /305	3-Phase 400/230 V+/-10% 50Hz
SE :3492	CDN 405M	3-Phase 400/230 V+/-10% 50Hz
SE :3215	CDN 405 / 505 / 605	3-Phase 400/230 V+/-10% 50Hz
SE :3494	CDN 755 / 905 CONTROL	230 V+/-10% 50Hz
SE :3493	CDN 755 / 905 POWER	3-Phase 400/230 V+/-10% 50Hz

POWER CIRCUIT

Voltage : 400 V~ + Neutral + Earth

On Earth - N - L1 - L2 - L3 : on optional Isolator terminal Q1 of outdoor unit. On Main terminals or optional isolator Q1.

This power supply comes from a main switchboard in accordance with Table 1. FFG supplied by installer.

The Electrical Installation and Wiring of this unit must be in accordance with Local Wiring Regulations.

TABLE 1:

MODEL CDN	FFG FUSE/ TYPE aM CIRCUIT BREAKER SIZE	FULL LOAD CURRENT	STARTING CURRENT
205	20 A	16,5 A	104 A
305	25 A	24 A	130,5 A
405M	40 A	32 A	121 A
405	40 A	37,5 A	123 A
505	50 A	38,5 A	113 A
605	63 A	47 A	153 A
755	63 A	56 A	191 A
905	80 A	67 A	234 A

ELECTRICAL DIAGRAMS ABBREVIATIONS**COMPRESSOR/SAFETY CIRCUIT**

FFG	: general circuit breaker (not supplied)
Q1 (1)	: isolator
K1/K2	: power contactor of compressor M1/M2
FT1/FT2 (1)	: compressor M1/M2 thermal relay
KA1 (1)	: phase rotation and missing phase protection
LP1/LP2	: low pressure switch (AUTO-RESET CONTROL)
HP1/HP2	: high pressure switch (MANUEL-ESET CONTROL)
KS1	: electronic motor compressor M1 protection (according to model)
KS2	: electronic motor compressor M2 protection (according to model)
EM1/EM2	: 4 mn electronic timer
R1/R2	: crankcase heater
M1/M2	: 3-phase refrigerant compressor
X	: terminal
F1/F3	: control fuse

FAN MOTORS & RELATED EQUIPEMENT

MO1/MO2	: fan motor of outdoor unit
CO1/CO2	: capacitor of motor MO1/2 (Table 2)
FO1/FO2	: motor MO1/2 thermal cut-out (<u>auto reset overload protection</u>)
SP1/SP2	: electronic fan speed pressure controller

TABLE 2

	CAPACITOR VALUE
CDN 205/305	12 μ F
CDN 405/505/605	10 μ F

SPECIFIC COMPONENTS FOR MOD. 405M / 755 / 905

ACS	: Three phase frequency converter
S1/S2	: Pressure transducer

RANGE AND SETTING OF COMPRESSOR THERMAL RELAYS,CURRENT RATING OF UNIT CONTACTORS (CLASS AC3)

SINGLE CIRCUIT

MODEL	205	305	405M	
THERMAL RELAYS ADJUSTMENT				
FT1/ FT2	Range	12 –18A	16 – 24A	12 –18A
	Adjustment	16A	20.7A	12A
F1 (gG)		1.6A	1.6A	1.6A
F3 (gG)		-	-	-
Contactor AC3				
K1		18A	25A	18A
K2		-	-	18A

DUAL CIRCUIT

MODEL	405	505	605	755	905	
THERMAL RELAYS ADJUSTMENT						
FT1/ FT2	Range	12 –18A	12 –18A	16 – 24A	16 – 24A	23 - 32A
	Adjustment	16A	16.4A	20.7A	23A	32A
F1 (gG)		1.6A	1.6A	1.6A	-	-
F3 (gG)		-	-	-	1.6A	1.6A
Contactor AC3						
K1		18A	18A	25A	25A	32A
K2		18A	18A	25A	25A	32A

ADJUSTMENT OF PRESSURE SWITCHES

- LP1 : fixed adjustment low pressure 140 kPa 1,4 bar
 LP2 : fixed adjustment low pressure 140 kPa 1,4 bar
 HP1 : fixed adjustment high pressure 2920 kPa 29,2 bar (423,7 PSI)
 HP2 : fixed adjustment high pressure 2920 kPa 29,2 bar (423,7 PSI)

COLOUR CODE

- BK : black WH : white BU : blue
 OG : orange RD : red GY : grey
 GNYE : green/yellow VT : purple BN : brown

ALL WARRANTIES ARE VOID IF THE INSTRUCTIONS

BELOW ARE NOT FOLLOWED:



The values stated in chart 1 do not take account of appliances that may be connected to the control terminals. They should be adjusted in relation to the system's final configuration.

SCROLL type compressors are sensitive to the direction of rotation. Therefore, we advise the use of the «phase sequence and phase cut-out control relay» option.

The 2 compressors must never be started simultaneously.

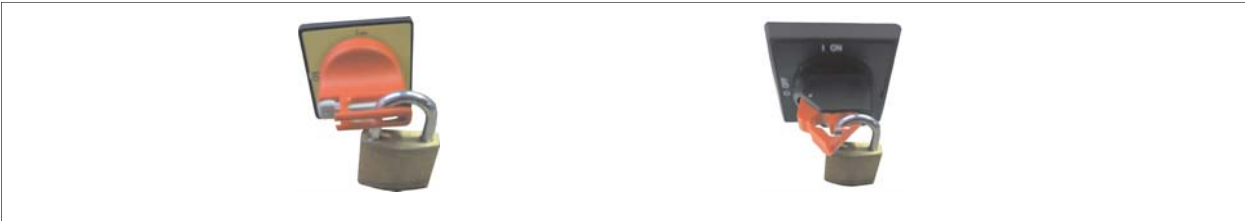
REGULATION

A specific terminal block in the electrical box is provided for receiving command and shut down instructions from the unit via a client regulation system (230V dry contacts).

ELECTRICAL CONNECTIONS

As standard, these units are equipped with a local switch acting as a mains supply terminal block.

This switch can be padlocked.



A trip switch or a fuse holder (not supplied) must be installed upstream of the unit, in accordance with the wiring diagram. Refer to the electrical specifications for the fuse ratings.

MODELS
205 - 305 - 405M

Press to unclip and remove the local switch from the electrical board.

3N~400V-

N L3 L2 L1 P/E

⏚

MODELS
405 - 505 - 605 - 755

Maximum tightening torque

models 205 - 305 - 405M
2,1Nm

models 405 - 505 - 605 - 755
4Nm

Use a POZIDRIV M 3.5, Z screwdriver for connecting the wires.

3N~400V-

P/E L1 L2 L3 N

⏚

Couple de serrage maxi
Modèle 905
6Nm

Use a key for hexagonal socket screws of 4mm for connecting the wires.

VERY IMPORTANT:

3N~400V-50HZ+ ⏚

The outdoor unit is equipped as standard with a phase sequence and cut-out controller located in the electrical box.

THIS PRODUCT IS EQUIPPED WITH A PHASE SEQUENCE CONTROLLER. THE LED'S INDICATE THE FOLLOWING CONDITIONS:

Green LED = 1

Yellow LED = 1

Low voltage supply
The compressor rotation
direction is correct

Green LED = 1

Yellow LED = 0

Phase inversion or phase absent
(L1)
The compressor and the fans
do not start.

Green LED = 0

Yellow LED = 0

Phase absent (L2 or L3)
the compressor and the fans do
not start.

FREQUENCY DRIVE

This equipment is installed on external units 405M, 755 and 905.



WARNING FREQUENCY DRIVE

EMC

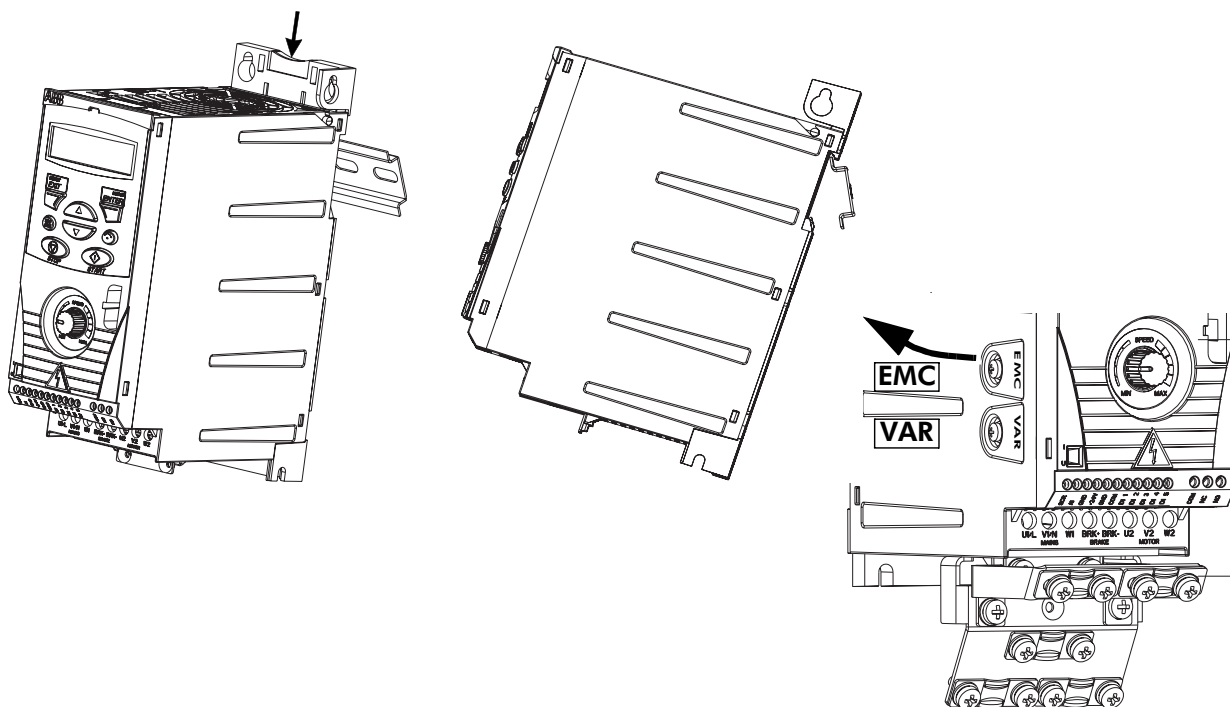


When the building power supply is of an IT (ungrounded) type or corner grounded TN type, disconnect the internal EMC filter by removing the screw at EMC.

WARNING! If a drive whose EMC filter is not disconnected is installed on an IT system [an ungrounded power system or a high resistance-grounded (over 30 ohms) power system], the system will be connected to earth potential through the EMC filter capacitors of the drive. This may cause danger or damage the drive.

If a drive whose EMC filter is not disconnected is installed on a corner grounded TN system, the drive will be damaged.

Press the release lever on top of the drive.



MAINTENANCE

GENERAL INSTALLATION

Perform a visual inspection of the complete installation in operation.

Check the general cleanliness of the installation and check that the condensate evacuation pipes are not blocked, particularly the evaporator coil pipe, before the summer season.

Check the condition of the condensate tray.

Check the condition and tension of the belt(s).

REFRIGERANT CIRCUIT

Clean the air exchanger using a special product on the aluminium / copper pipe coils. Then rinse with water. Do not use hot water or steam for cleaning as this could provoke a refrigerant fluid pressure rise.

Check that the aluminium fins on the heat exchanger coil have not been damaged by impacts or scratches and clean them with an appropriate tool as required.

For the installation to operate correctly the air filter located at the level of the air treatment coil intake and on the condenser (optional filter box) must be cleaned regularly.

Cleaning intervals vary greatly depending on the level of impurities in the air. The filter should be replaced regularly.

A clogged filter causes a reduction in the air flowing across the heat exchangers, leading to a reduction in installation output and hindering the cooling of the fan motor.

Check the cleanliness of the indoor coil.

ELECTRICAL CIRCUIT

Check that the mains supply cable has not been damaged in any way that might cause a breakdown in insulation.

Check that the inter-connecting cables between the units and the infra red receiver have not been damaged and are properly connected.

Retighten as required.

Check the earth connection.

Carry out the same checks on the cable(s) connecting the units.

This is not an exhaustive list. Other checks can be performed depending on the environment and the unit's operating conditions.



WARNING

BEFORE STARTING ANY WORK ON THE UNIT, YOU MUST ENSURE THAT THE POWER SUPPLY IS CUT OFF AND THAT THERE IS NO POSSIBILITY OF IT BEING ACCIDENTALLY SWITCHED BACK ON. FAILURE TO COMPLY WITH THIS MEASURE CAN LEAD TO INJURY OR DEATH BY ELECTROCUTION

IT IS RECOMMENDED THAT THE LOCAL SWITCH BE PADLOCKED

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ANNEXE
ANLAGE
ALLEGATO
ANEXO

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ALLEGATO

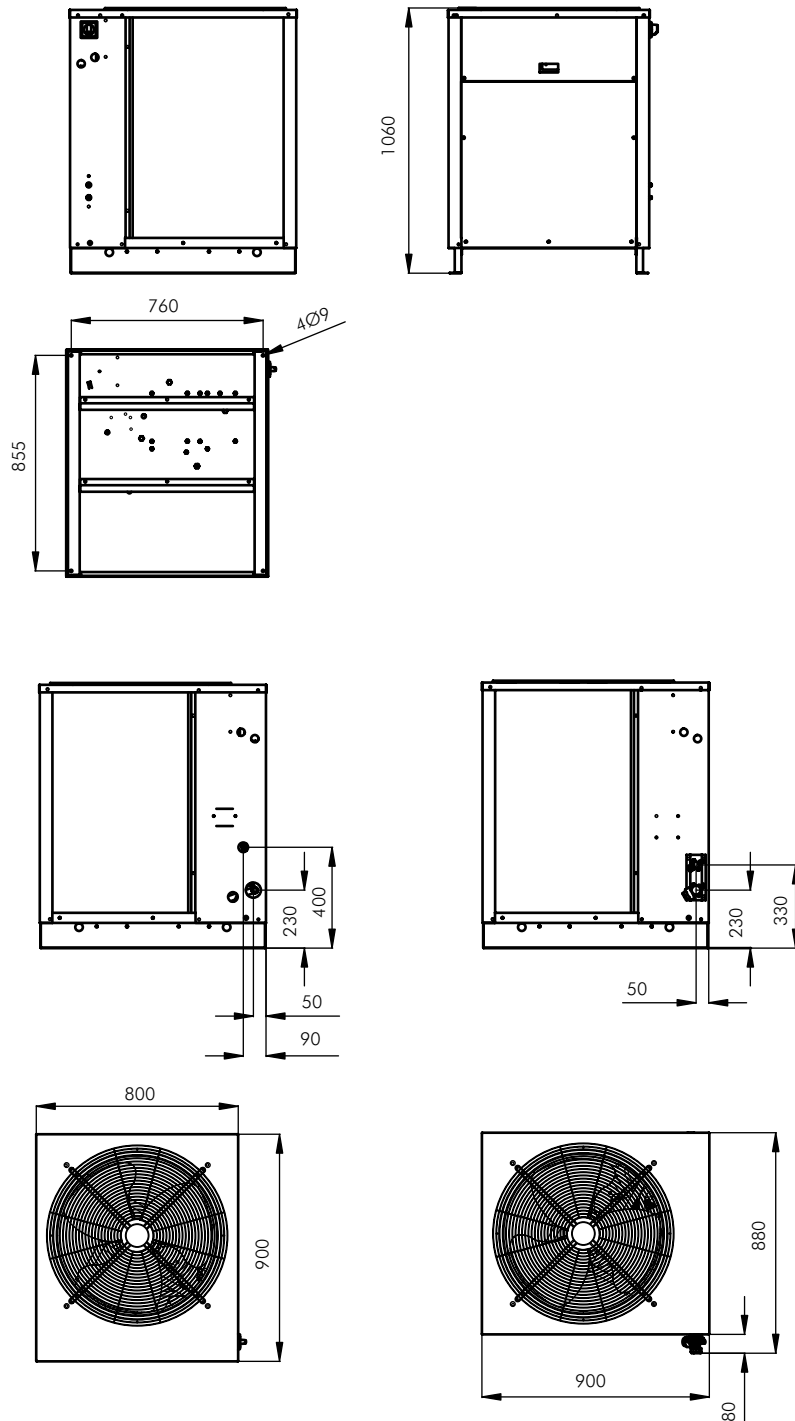
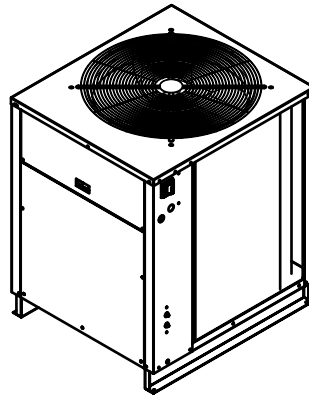
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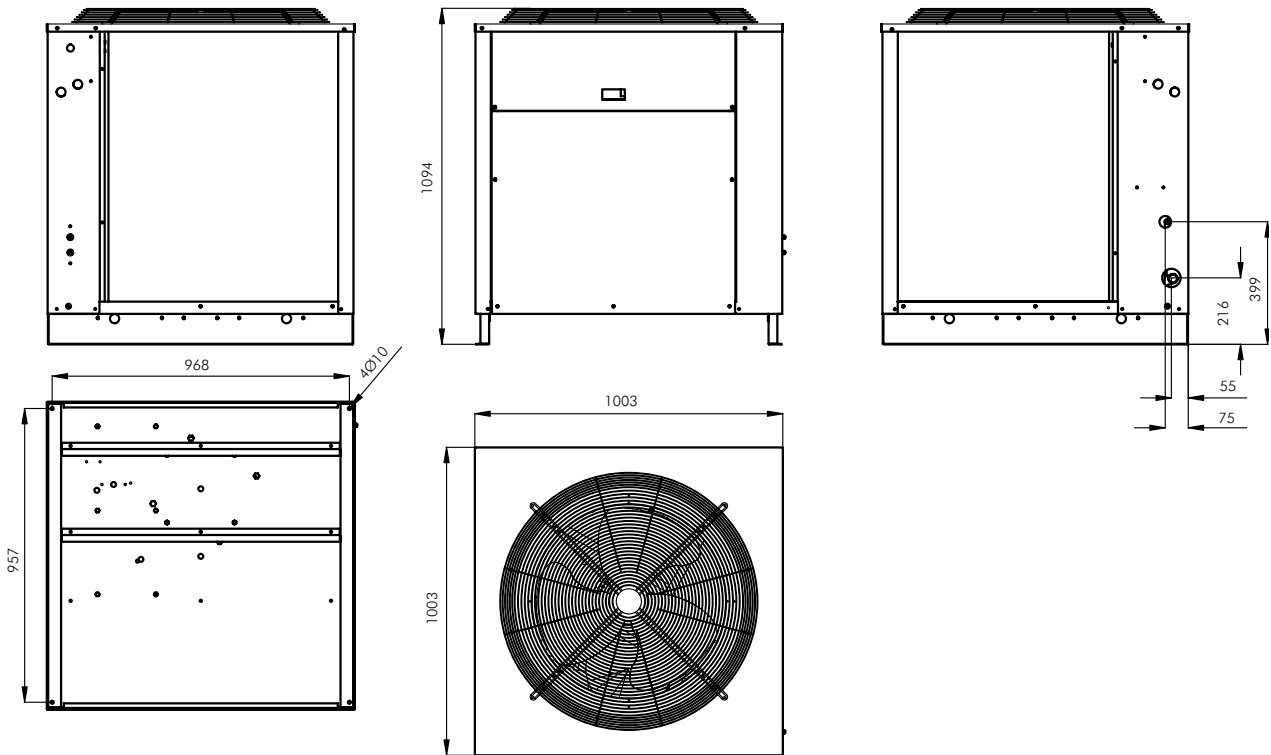
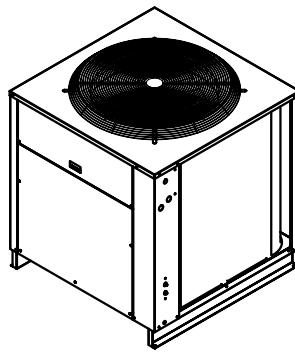
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205 305	XI
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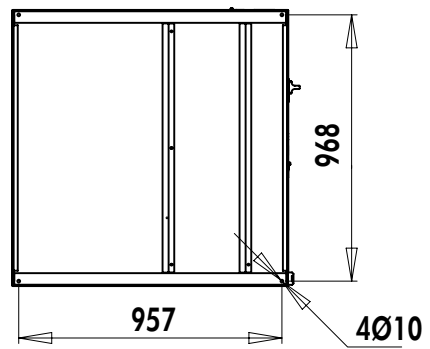
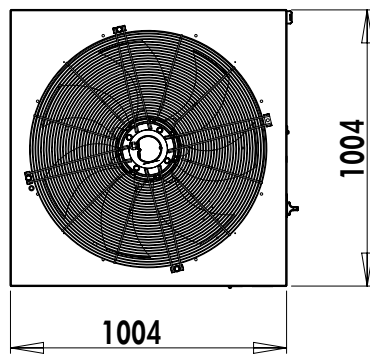
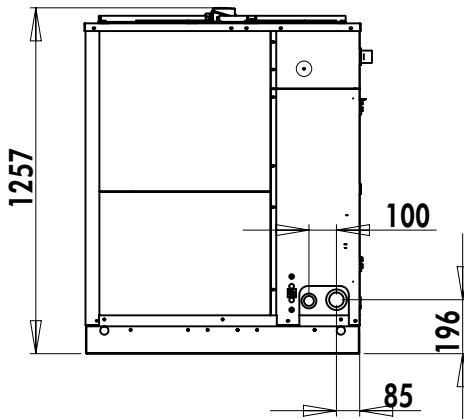
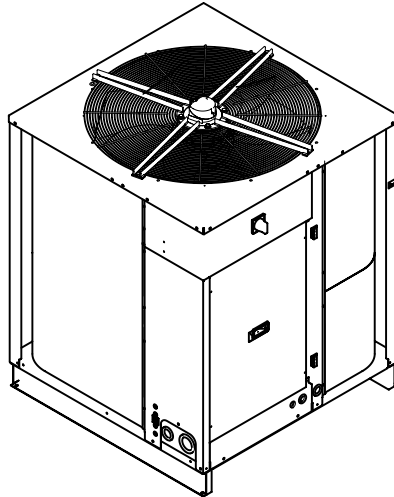
DIMENSIONS
DIMENSIONS
ABMESSUNGEN
DIMENSIONI
DIMENSIONES

205



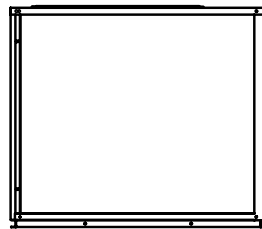
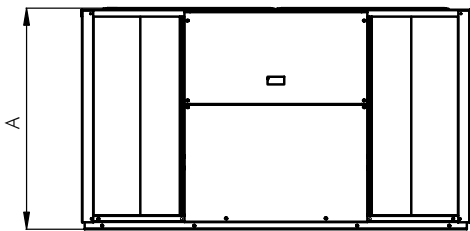
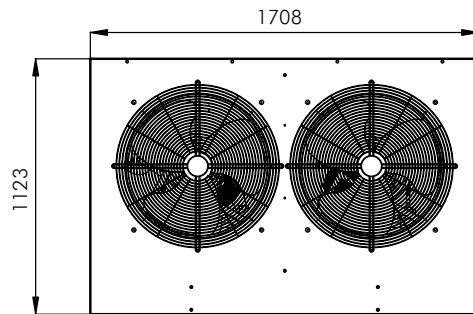
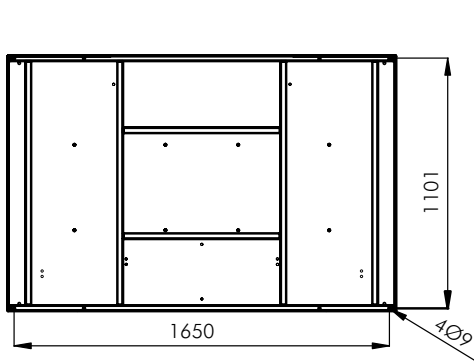
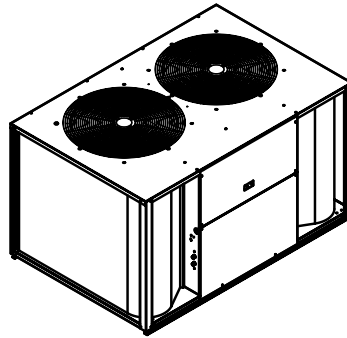


405M

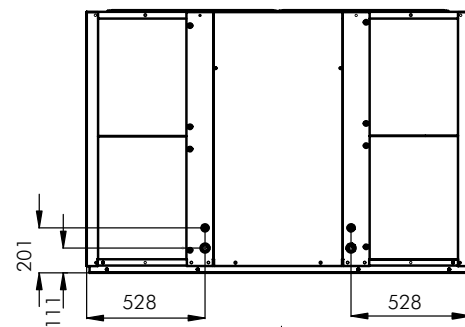
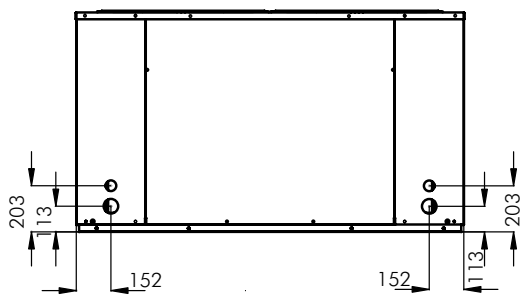


ANNEXE / ANNEXE / ANLAGE / ALLEGATO / ANEXO

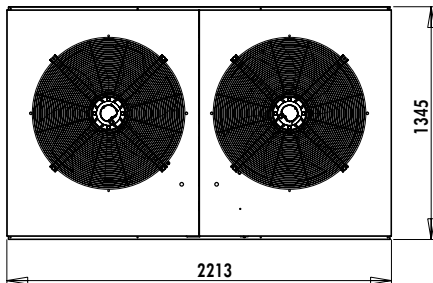
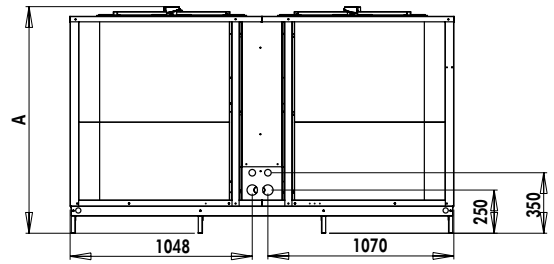
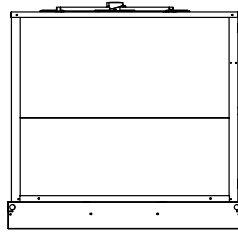
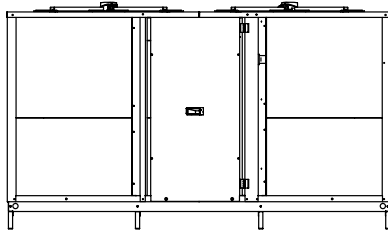
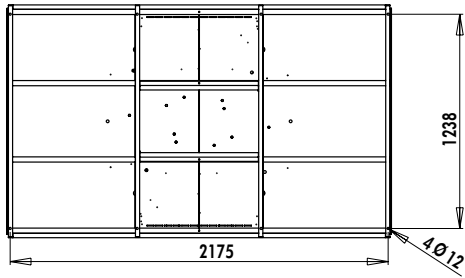
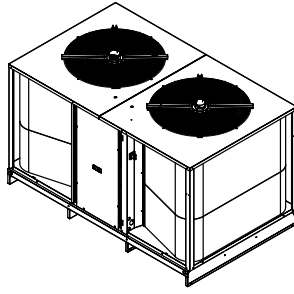
405 - 505 - 605



	405	505	605
A	972	1171	1171



755 - 905



	755	905
A	1309	1459

REFRIGERANT CIRCUIT DIAGRAM

SCHEMA DU CIRCUIT FRIGORIFIQUE

KÄLTEKREISLAUFDIAGRAMM

SCHEMA DEL CIRCUITO REFRIGERANTE

ESQUEMA DEL CIRCUITO FRIGORÍFICO

- 1 COMPRESSOR
- 2 CONDENSER COIL
- 3 FILTER-DRIER
- 4 LIQUID LINE RESERVE
- 5 SUCTION ACCUMULATOR
- 6 VALVE (FACTORY ASSEMBLED OPTION)
- 7 SIGHT GLASS AND MOISTURE INDICATOR (SUPPLIED BY THE INSTALLER)
- 8 THERMAL EXPANSION VALVE (SUPPLIED BY THE INSTALLER)
- 9 EVAPORATOR (SUPPLIED BY THE INSTALLER)

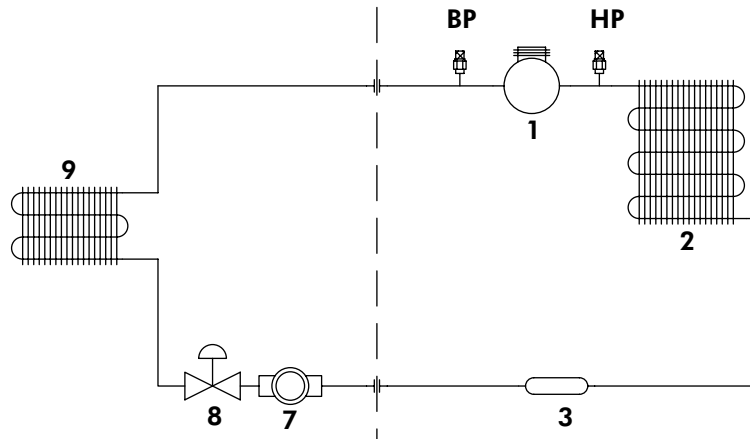
- 1 COMPRESSEUR
- 2 CONDENSEUR
- 3 FILTRE DESHYDRATEUR
- 4 BOUTEILLE RESERVOIR LIQUIDE
- 5 BOUTEILLE ANTI-COUP LIQUIDE
- 6 VANNE (OPTION MONTEE EN USINE)
- 7 VOYANT LIQUIDE (FOURNITURE INSTALLATEUR)
- 8 DETENDEUR THERMOSTATIQUE (FOURNITURE INSTALLATEUR)
- 9 EVAPORATEUR (FOURNITURE INSTALLATEUR)

- 1 KOMPRESSOR
- 2 VERFLÜSSIGER
- 3 WASSERABSCHIEDUNGSFILTER
- 4 FLÜSSIGKEITSSAMMLER
- 5 FLASCHE MIT FLÜSSIGKEITSRESERVE
- 6 KUPPLUNG (IM WERK MONTIERTE OPTION)
- 7 SCHAUGLAS FLÜSSIGKEIT (LIEFERUNG INSTALLATEUR)
- 8 THERMOSTATISCHES DRUCKMINDERVENTIL (LIEFERUNG INSTALLATEUR)
- 9 VERDAMPFER (LIEFERUNG INSTALLATEUR)

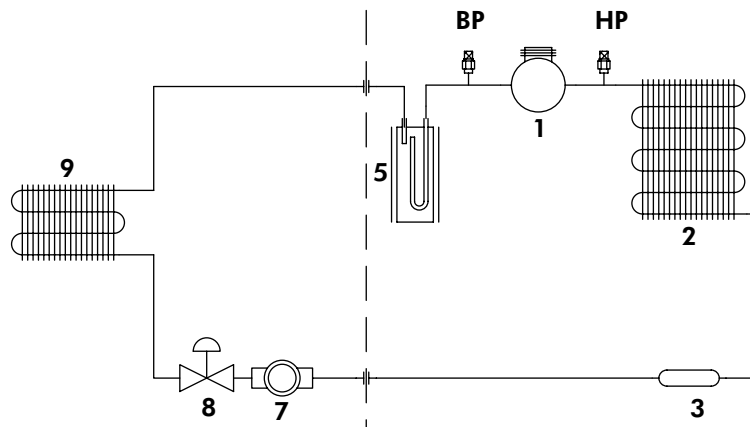
- 1 COMPRESSORE
- 2 CONDENSATORE
- 3 FILTRO DISIDRATATORE
- 4 BOMBOLA SERBATOIO LIQUIDO
- 5 BOMBOLA ANTI-COLPO LIQUIDO
- 6 VALVOLA (OPZIONE - VIENE MONTATA IN FABBRICA)
- 7 SPIA LIQUIDO (FORNITA DALL' INSTALLATORE)
- 8 REGOLATORE DI PRESSIONE TERMOSTATICA (FORNITO DALL' INSTALLATORE)
- 9 EVAPORATORE (FORNITO DALL' INSTALLATORE)

- 1 COMPRESOR
- 2 CONDENSADOR
- 3 FILTRO DESHIDRATADOR
- 4 BOTELLA DEPÓSITO LÍQUIDO
- 5 BOTELLA ANTIGOLPE LÍQUIDO
- 6 VÁLVULA (OPCIONAL MONTADA EN FÁBRICA)
- 7 INDICADOR LUMINOSO DE LÍQUIDO (SUMINISTRADO POR EL INSTALADOR)
- 8 REDUCTOR DE PRESIÓN TERMOSTÁTICO (SUMINISTRADO POR EL INSTALADOR)
- 9 EVAPORADOR (SUMINISTRADO POR EL INSTALADOR)

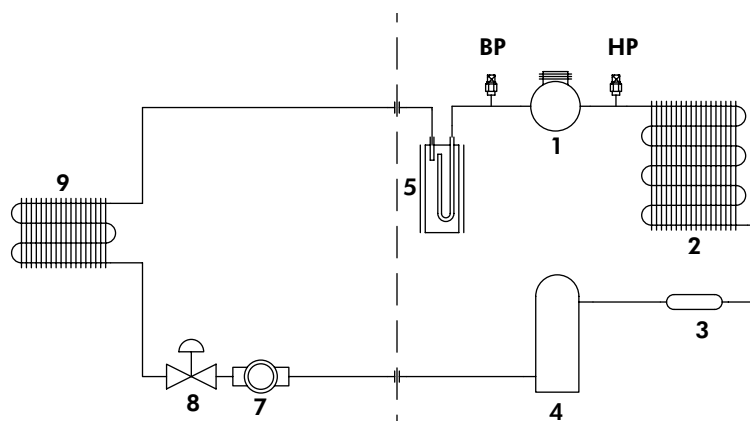
VERSION BAZ



VERSION BAC



VERSION BAL



The pressostats and the pressure takeoffs are directed outdoors

Les pressostats et les prises de pressions sont ramenés à l'extérieur.

Die Pressostate und Druckanschlussstellen sind nach außen verlegt.

I pressostati e le prese di pressione sono riportati all'esterno.

Los presostatos y las tomas de presión se ponen en el exterior.

WIRING DIAGRAM

SCHEMAS ELECTRIQUES

STROMLAUFPLANS

SCHEMA ELETRICO

ESQUEMA ELECTRICO

TAKE CARE!

These wiring diagrams are correct at the time of publication. Manufacturing changes can lead to modifications. Always refer to the diagram supplied with the product.

ATTENTION

Ces schémas sont corrects au moment de la publication. Les variantes en fabrications peuvent entraîner des modifications. Reportez-vous toujours au schéma livré avec le produit.

ACHTUNG!

Diese Stromlaufplans sind zum Zeitpunkt der Veröffentlichung gültig. In Herstellung befindliche Varianten können Änderungen mit sich bringen. In jedem Fall den mit dem Produkt gelieferten Stromlaufplan hinzuziehen.

ATTENZIONE !

Questi schemi sono corretti al momento della pubblicazione. Le varianti apportate nel corso della fabbricazione possono comportare modifiche. Far sempre riferimento allo schema fornito con il prodotto.

ATENCIÓN !

Esto esquemas son correctos en el momento de la publicación. Pero las variantes en la fabricación pueden ser motivo de modificaciones. Remítase siempre al esquema entregado con el producto.

**POWER SUPPLY MUST BE SWITCHED OFF BEFORE STARTING TO
WORK IN THE ELECTRIC CONTROL BOXES!**

**MISE HORS TENSION OBLIGATOIRE AVANT TOUTE INTERVENTION
DANS LES BOITIERS ELECTRIQUES.**

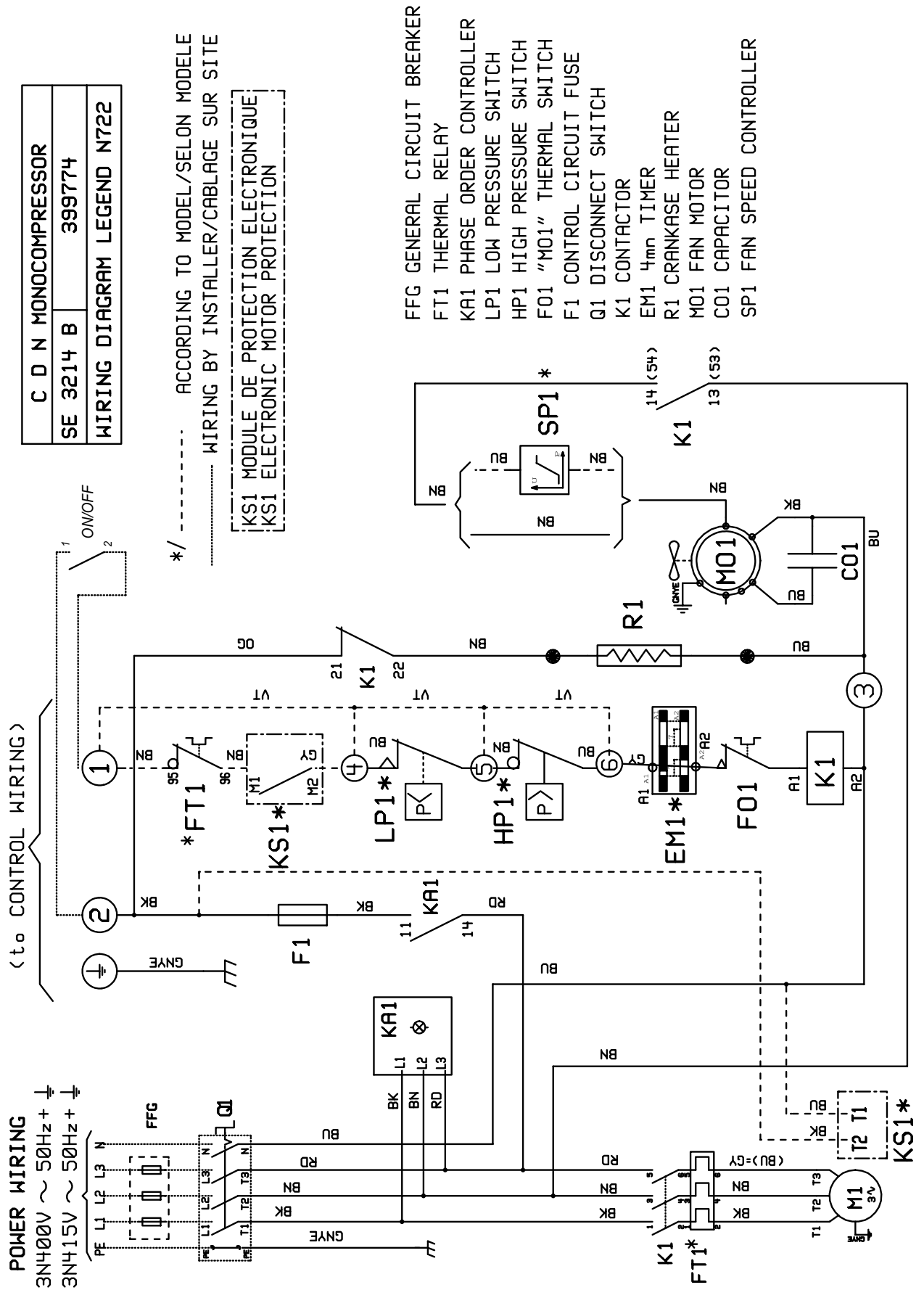
**VOR JEDEM EINGRIFF AN DEN ANSCHLUßKÄSTEN UNBEDINGT
DAS GERÄT ABSCHALTEN!**

**PRIMA DI OGNI INTERVENTO SULLE CASSETTE ELETTRICHE
ESCLUDERE TASSATIVAMENTE L'ALIMENTAZIONE !**

**PUESTA FUERA DE TNESIÓN OBLIGATORIA ANTES DE CUALQUIER
INTERVENCIÓN EN LAS CAJAS ELÉCTRICAS!**

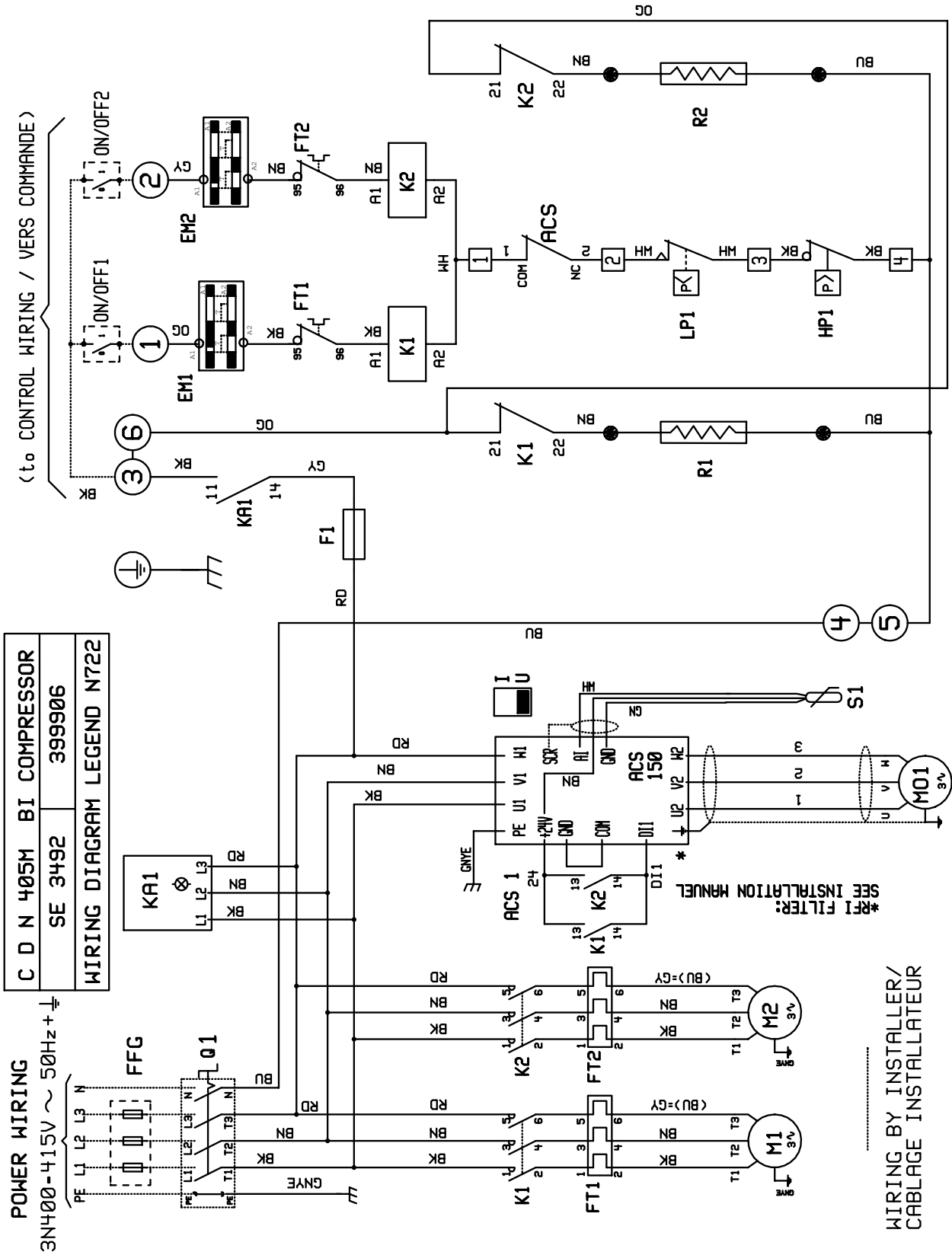


205 305

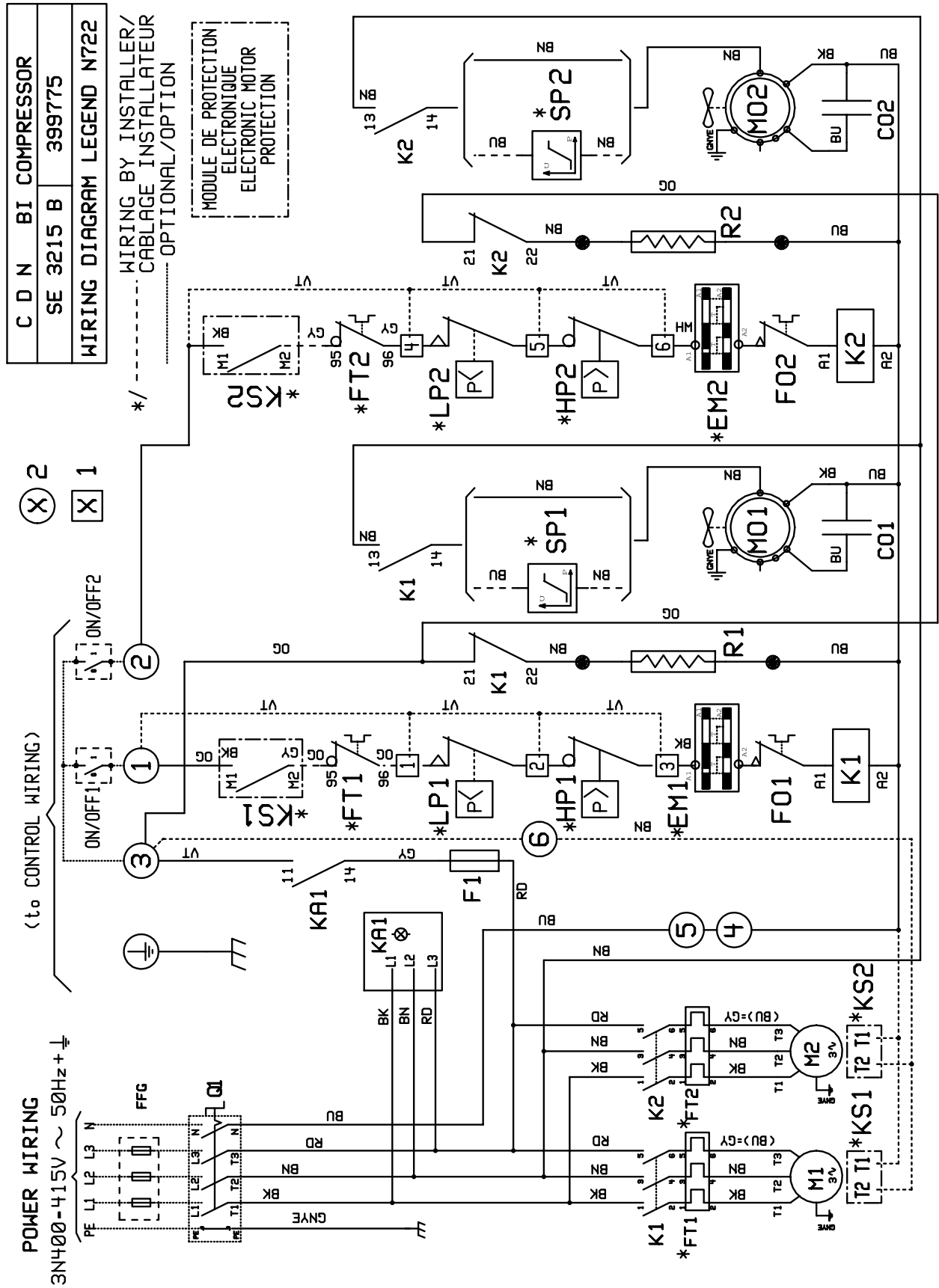


405M

(X) 1
X 2



405 - 505 - 605



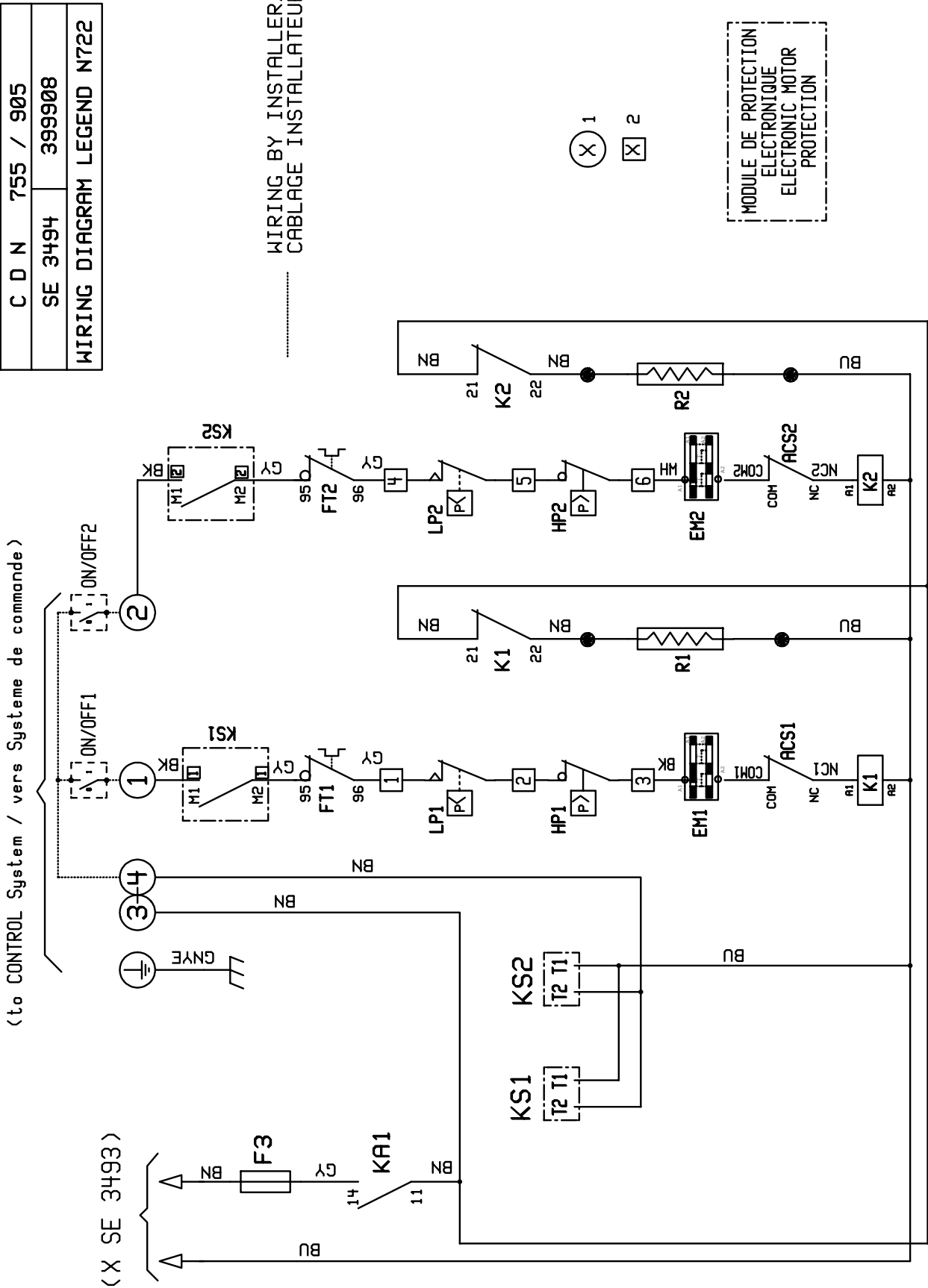
755 - 905

CONTROL

C D N	755 / 905
SE	3494
WIRING DIAGRAM LEGEND N722	

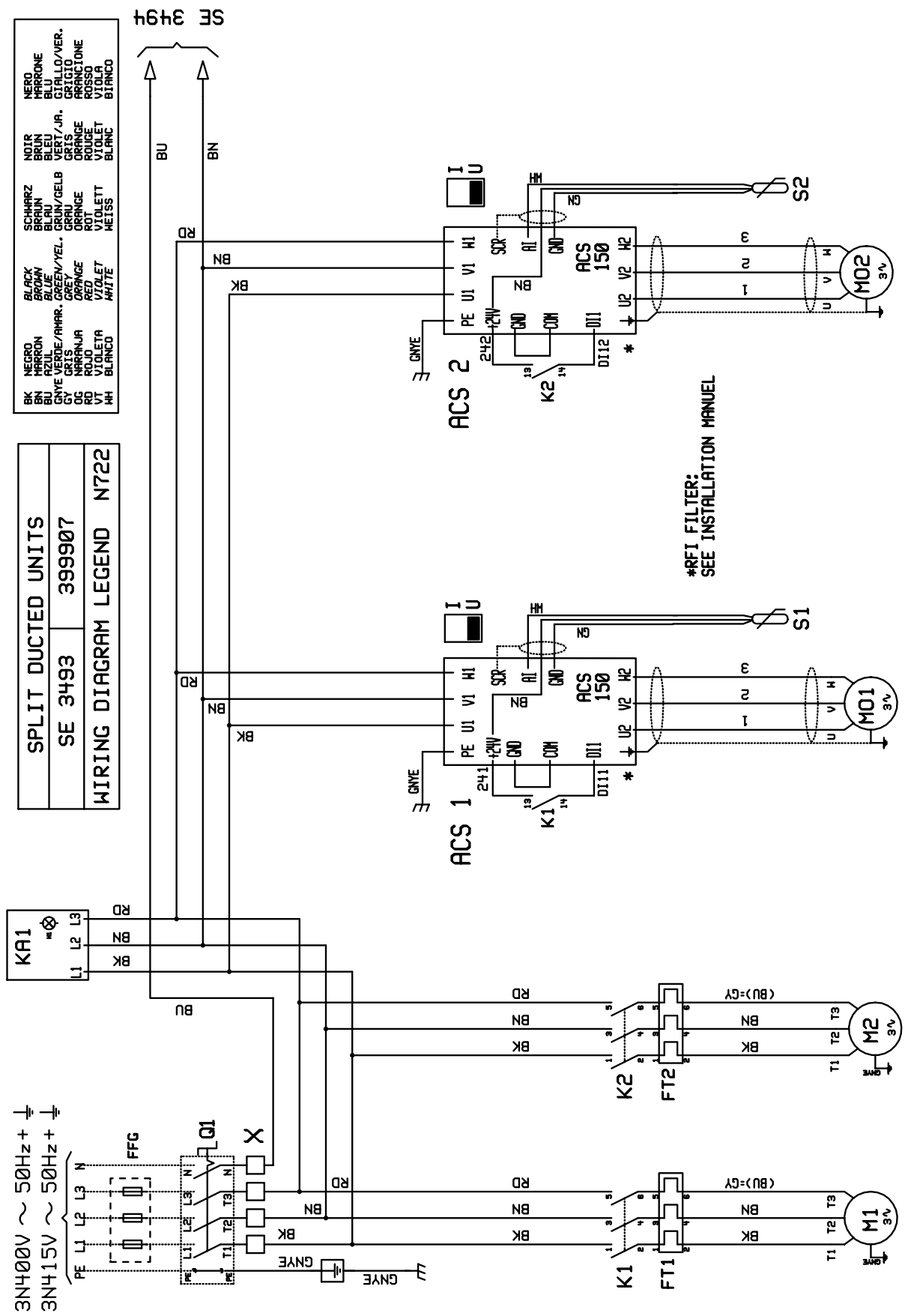
..... WIRING BY INSTALLER/
CABLAGE INSTALLATEUR

MODULE DE PROTECTION
ELECTRONIQUE
ELECTRONIC MOTOR
PROTECTION

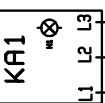


755 - 905

POWER



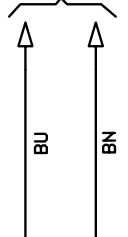
3N400V ~ 50Hz + \downarrow
 3N415V ~ 50Hz + \downarrow
 PE L1 L2 L3 N
 FFG
 Q1
 X



SPLIT DUCTED UNITS	
SE 3493	399907
WIRING DIAGRAM LEGEND N722	

BK	NEGRO	BLACK
BN	MARRON	BROWN
BU	AZUL	BLUE
GV	VERDE/AMAR.	GREEN/YEL.
GR	GRIS	GRAY
OR	ORANGE	ORANGE
RD	ROJO	RED
VI	VIOLETA	VIOLET
HI	BLANCO	WHITE
SCHWARZ	BRUN	BRUN
BLAU	VERT/JR.	VERT/JR.
GRUN/GELB	GRIS	GRIS
GRAN	ORANGE	ORANGE
ROTT	ROUGE	ROUGE
VIOLETT	VIOLET	VIOLET
HEISS	BLANC	BLANC
NERO	MARRONE	MARRONE
BLU	GIALLO/VER.	GIALLO/VER.
GRIGIO	GRIGIO	GRIGIO
ROSSO	ROSSO	ROSSO
VIOLA	VIOLETT	VIOLETT
BIANCO	BIANCO	BIANCO

SE 3494



POWER WIRING/PUISSANCE

WIRING BY INSTALLER

EC Compliance declaration

Under our own responsibility, we declare that the product designated in this manual comply with the provisions of the EEC directives listed hereafter and with the national legislation into which these directives have been transposed.

Déclaration CE de conformité

Nous déclarons sous notre responsabilité que les produits désignés dans la présente notice sont conformes aux dispositions des directives CEE énoncées ci- après et aux législations nationales les transposant.

EG-Konformitätserklärung

Wir erklaren in eigener Verantwortung, das die in der vorliegenden Beschreibung angegebenen Produkte den Bestimmungen der nachstehend erwahnten EG-Richtlinien und den nationalen Gesetzesvorschriften entsprechen, in denen diese Richtlinien umgesetzt sind.

Dichiarazione CE di conformità

Dichiariamo, assumendone la responsabilita, che i prodotti descritti nel presente manuale sono conformi alle disposizioni delle direttive CEE di cui sott e alle lagislazionni nazionali che li recepiscono

Declaración CE de conformidad

Declaramos, bajo nuestra responsabilidad, que los productos designados en este manual son conformes a las disposiciones de las directivas CEE enunciadas a continuacion, asi como a las legislaciones nacionales que las contemplan.

CDN 205 - CDN 305 - CDN 405M - CDN 405 - CDN 505 - CDN 605 - CDN 755 - CDN 905
REF: 7SP1121.. - ESP1120..

MACHINERY DIRECTIVE 98 / 37 / EEC
LOW VOLTAGE DIRECTIVE (DBT) 73 / 23 / CEE AMENDED BY DIRECTIVE 93 / 68 EEC
ELECTROMAGNETIC COMPATIBILITY DIRECTIVE 89 / 336 / EEC
PRESSURISE EQUIPMENT DIRECTIVE (DESP) 97 / 23 / EEC
MODULE A CATEGORY I: CDN 205 - 405
SUB-MODULE A1 CATEGORY II: CDN 405M - 905
NOTIFIED BODY: TÜV RHEINLAND – 6, RUE HALÉVY – 75 009 PARIS - FRANCE.
THE PRODUCTS ARE PROVIDED WITH CE 0035 MARKING OF CONFORMITY

DIRECTIVE MACHINES 98 / 37 C.E.E.
DIRECTIVE BASSE TENSION (DBT) 73 / 23 C.E.E. , AMENDEE PAR DIRECTIVE 93 / 68 C.E.E.
DIRECTIVE COMPATIBILITE ELECTROMAGNETIQUE 89 / 336 / C.E.E.
DIRECTIVE DES EQUIPEMENTS SOUS PRESSION (DESP) 97 / 23 C.E.E.
MODULE A CATEGORIE I : CDN 205 - 405
SOUS-MODULE A1 CATEGORIE II : CDN 405M - 905
AVEC SURVEILLANCE PAR LE TUV RHEINLAND 6, RUE HALÉVY – 75 009 PARIS - FRANCE.
LES PRODUITS SONT FOURNIS AVEC LE MARQUAGE DE CONFORMITE CE 0035

RICHTLINIE MASCHINEN 98 / 37 / EG
RICHTLINIE NIEDERSpannung (DBT) 73 / 23 / EG ABGEÄNDERT DURCH DIE RICHTLINIE 93 / 68 EG
RICHTLINIE ELEKTROMAGNETISCHE VERTRÄGLICHKEIT 89 / 336 / EG
RICHTLINIE FÜR AUSRÜSTUNGEN UNTER DRUCK (DESP) 97 / 23 / EG
MODUL A, KATEGORIE I : CDN 205 - 405
UNTER MODUL A1, KATEGORIE II : CDN 405M - 905
MIT KONTROLLE DURCH DEN TUV RHEINLAND 6, RUE HALÉVY – 75 009 PARIS - FRANCE.
DIE PRODUKTE WERDEN MIT DER MARKIERUNG CONFORMITE CE 0035 GELIEFERT.

DIRETTIVA MACHINE 98 / 37 / CEE
DIRETTIVA BASSA TENSIONE (DBT) 73 / 23 / CEE EMENDATA DALLA DIRETTIVA 93 / 68 CEE
DIRETTIVA COMPATIBILITA ELETTROMAGNATICA 89 / 336 / CEE
DIRETTIVA DEGLI IMPIANTI SOTTO PRESSIONE (DESP) 97 / 23 / CEE
MODULO A, CATEGORIA I : CDN 205 - 405
SOTTOMODULO A1, CATEGORIA II : CDN 405M - 905
CON SUPERVISION POR EL TUV RHEINLAND 6, RUE HALÉVY – 75 009 PARIS - FRANCE.
I PRODOTTI SONO FORNITI CON LA MARCATURA DI CONFORMITE CE 0035.

DIRETTIVA MAQUIAS 98 / 37 / CEE
DIRECTIVA BAJA TENSION (DBT) 73 / 23 / CEE ENMENDATA POR LA DIRECTIVA 93/ 68 CEE
DIRECTIVA COMPATIBILIDAD ELECTROMAGNETICA 89 / 336 / CEE
DIRECTIVA DE LOS EQUIPOS A PRESION (DESP) 97 / 23 / CEE
MODULO A, CATEGORIA I : CDN 205 - 405
BAJA MODULO A1, CATEGORIA II : CDN 405M - 905
CON SORVEGLIANZA DAL TUV RHEINLAND 6, RUE HALÉVY – 75 009 PARIS - FRANCE.
LOS PRODUCTOS SE PROPORCIONAN CON EL MARCADO DE CONFOR CE 0035.

Et que les paragraphes suivants les normes harmonisées ont été appliqués.
And that the following paragraphs of the harmonised standards have been applied.
Und dass die folgenden Paragraphen der vereinheitlichten Normen Angewandt wurden.
E che sono stati applicati i seguenti paragrafi delle norme armonizzate.
Y que se han aplicado los siguientes apartados de las normas armonizadas.

EN 60 335-1
EN 50 082
EN 255

EN 60 335-2-40
EN 60 204-1
EN 378

EN 60 204
EN 61 000-3-2
EN 814


A Tillières Sur Avre
27570 - FRANCE
Le: 22/07/2004
Franck Bailly
Quality Manager
ACE Industrie

*As part of our ongoing product improvement programme, our products are subject to change without prior notice. Non contractual photos.
Dans un souci d'amélioration constante, nos produits peuvent être modifiés sans préavis. Photos non contractuelles.*

Your distributor/Votre agent commercial :

