KWI

instructions for installation

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COSTAN®

F3000

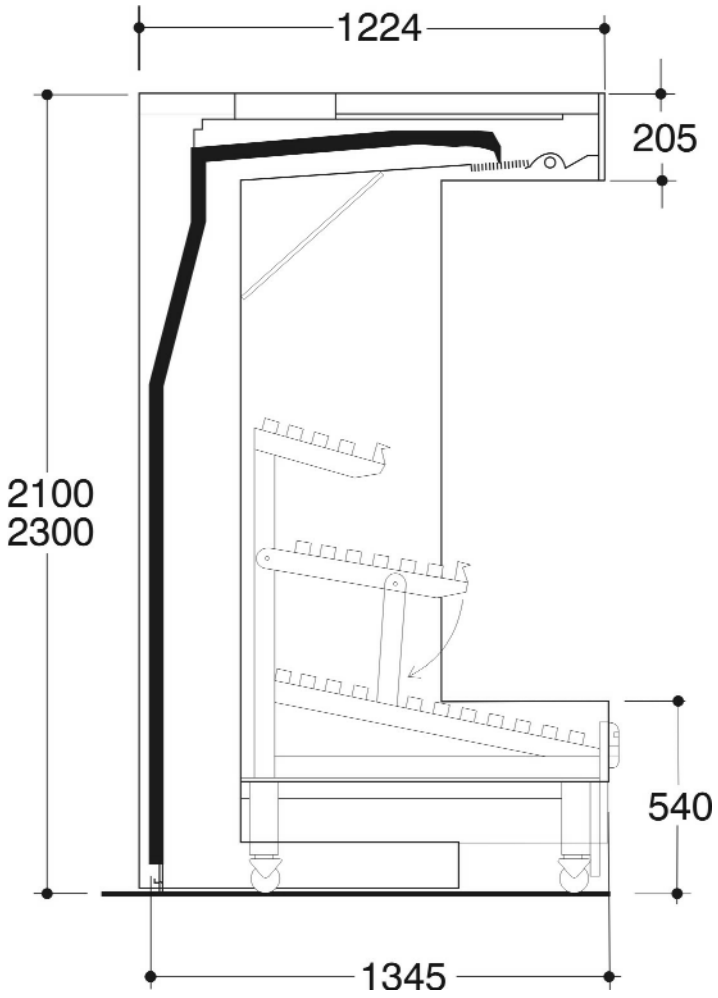
KEY

"-" First issue

A, B, C..... Chapter revision index

AA, AB, AC.. General revision index of document

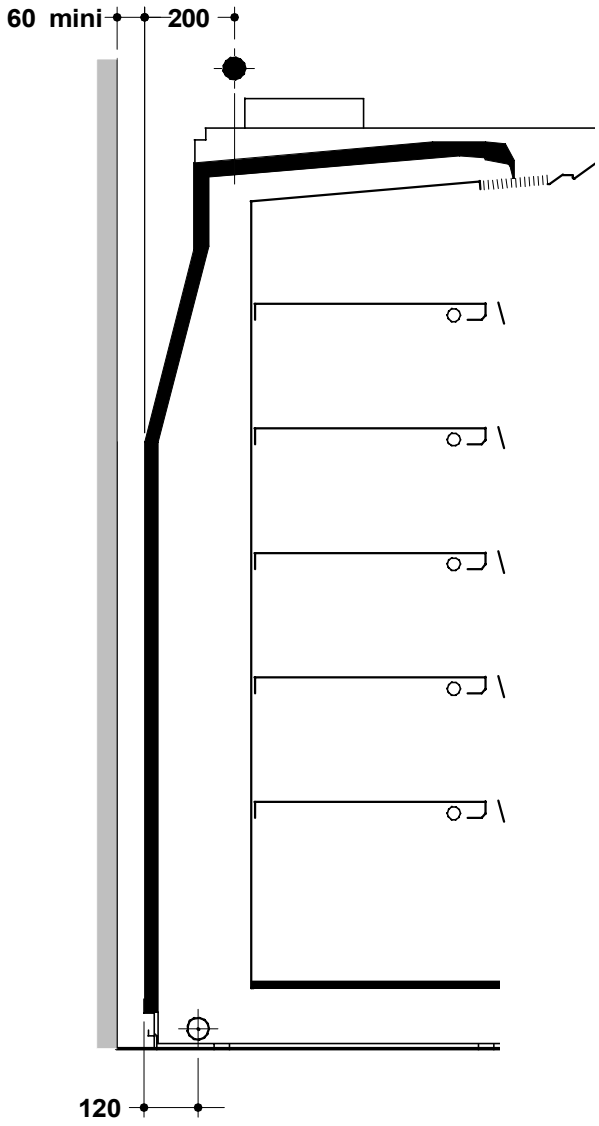
KIWI SECTIONS



AVAILABLE LENGTHS Linear cabinets: 188 - 250 - 375 cm

KIWI
ELECTRICAL, WATER, REFRIGERATING CONNECTIONS

WATER AND REFRIGERATING CONNECTIONS SECTION

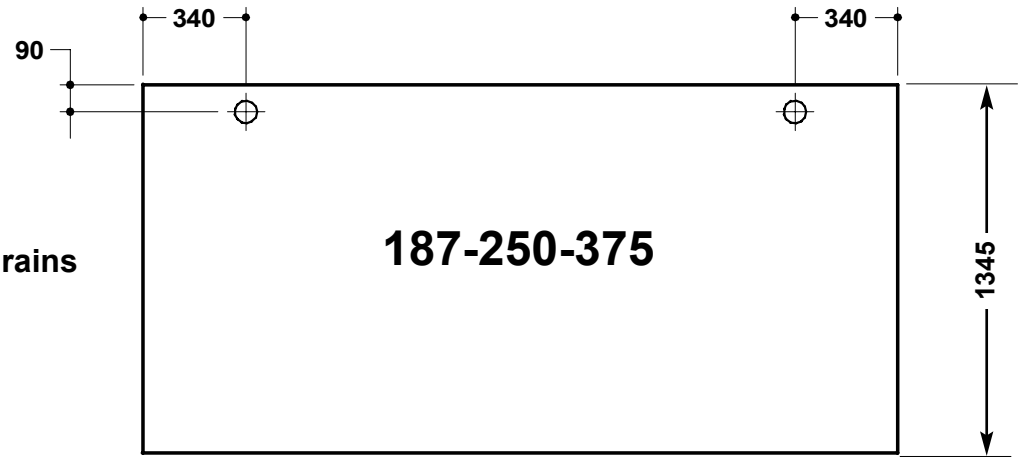


WATER OUTLET

FREON CONNECTION

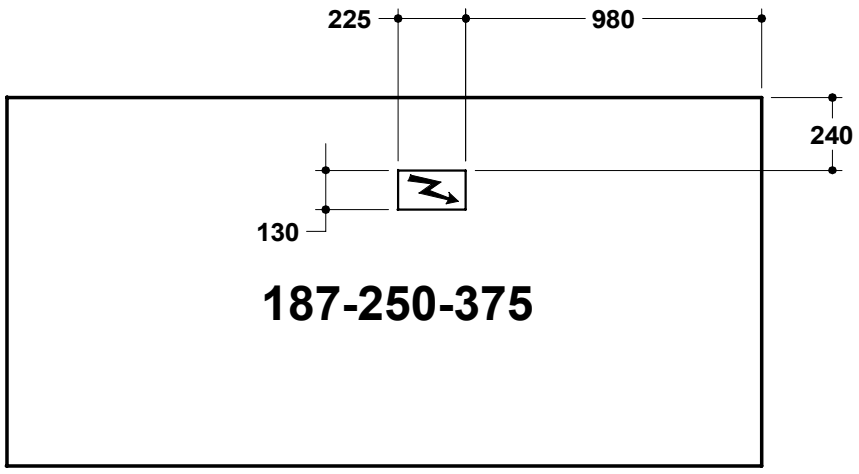
CONNECTIONS - GROUND PLAN

position of drains

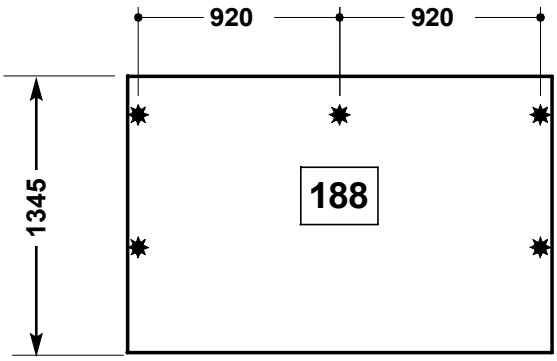


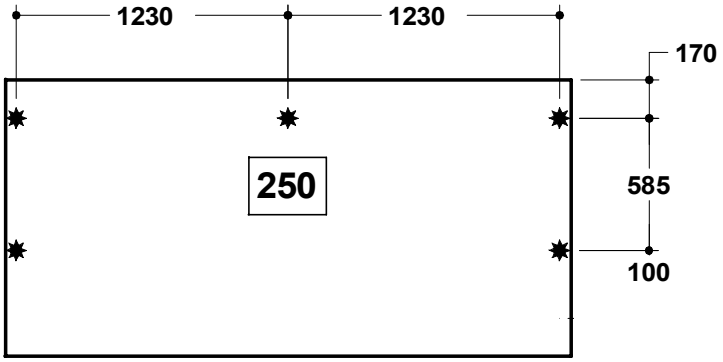
freon connection

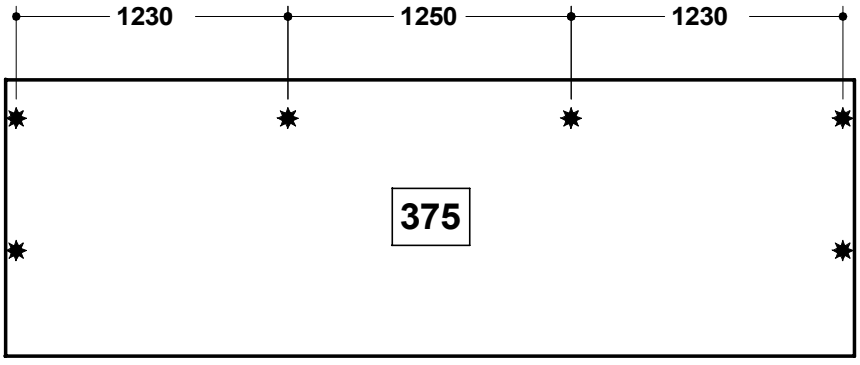
electrical connection



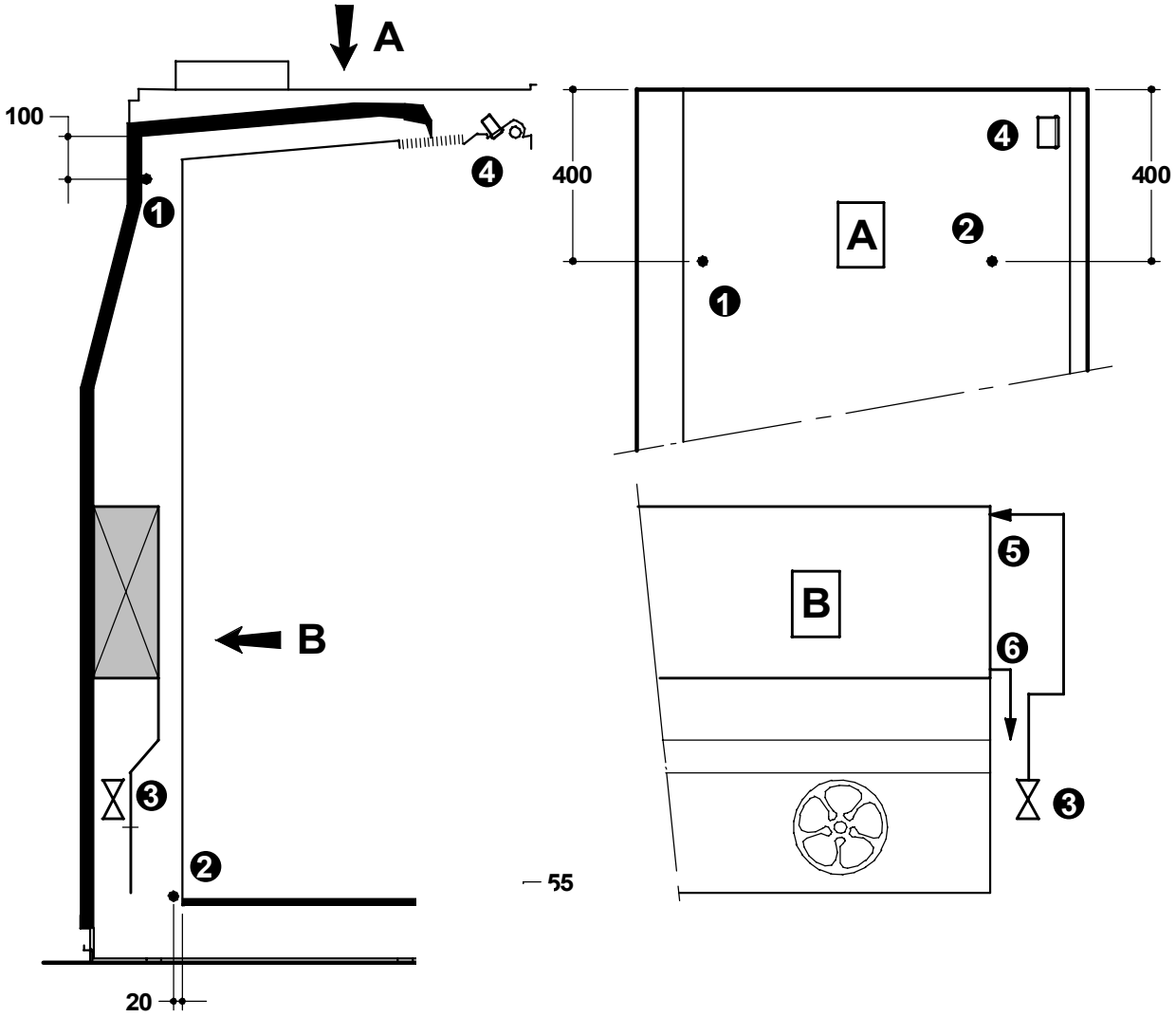
KIWI
POSITION OF FEET







KIWI
position of probes, thermal-expansion valve, remote thermostat



❶ air discharge probe

❷ air return probe

❸ thermal expansion valve

❹ remote thermostat

❺ way-in of evaporator piping

❻ way-out of evaporator piping

REQUIRED HEAT EXTRACTION RATE - SETTINGS

ISO 1992 / II EN 441-4 : 1994 EN 441-12 : 1997
CLASS 3 : 25° C - 60% RH

KIWI

M	C	IF	T_o °C	T_{MIN}* °C	Φ_O (W)						
							188TG				
					W/m		L188		L250		L375
H2200 / H2000			-9		1830		3440		4575		6865

S.L.C.								
M	C	IF	Ctrl		Def			
			Ci ° C	Co ° C	Type	N/24 h	T°ter ° C	t_d mn
H2200 / H2000			0	-1	**Nat**	6	10	20

ELECTRICAL DETAILS

Power voltage: 230 V single-phase 50 hz
Wattage: W (Watt)
Amperage: A (Ampere)

Optional motor for night blinds: 160W - 0,8A

(1) Lighting (per row of lamps - standard ferromagnetic ballast)

(2) Standard power-factor-improved (compensated) lighting: 0,9 < cos Φ < 1

KIWI

	L	STANDARD									OPTION					
		Fans			*Heaters*			*Canopy lighting (1)*			*Defrost heaters*			*Shelf lighting (1)*		
		NB	W	A	NB	W	A	NB	W	A(2)	NB	W	A	NB	W	A(2)
H2000	188	2	76	0,46				2	92	0,42	1	1280	5,6	2	92	0,42
	250	2	76	0,46				2	92	0,42	1	1700	7,4	2	92	0,42
H2200	375	3	114	0,69				3	138	0,63	1	2550	11,1	3	138	0,63

FEATURES OF THERMAL-EXPANSION VALVE

FEATURES OF THE DANFOSS THERMAL-EXPANSION VALVE RANGE N - WITHOUT MOP - WITH ADAPTOR TO SOLDER

Selection rules:

- **lab-tested effective heat extraction rate and evaporating temperature at 25 °C 60% RH, class 3 ;**
- **correspondent condensing temperature at + 35 °C;**
- **subcooling: 4 K**.

KIWI

		R404A	
M	**L**	**Type**	**Orifice**
KIWI 2000	125	TS2	03
	188	TES2	03
	219		04
	250		04
	281		04
	375		05
KIWI 2200	125	TS2	03
	188	TES2	03
	219		04
	250		04
	281		04
	375		06

Refrigerating details refer to thermal-expansion valves adjusted for 5 K overheating.

FEATURES OF THE DANFOSS THERMAL-EXPANSION VALVE

Selection rules:

- **lab-tested effective heat extraction rate and evaporating temperature at 25 °C 60% RH class 3 ;**
- **correspondent condensing temperature at + 35 °C;**
- **subcooling: 4 K.C**
- **considering overcapacity to be 25% and the maximum valve's opening to be between 50 and 75% as recommended by DANFOSS.**

KIWI

		R404A	
M	**L**	**Type**	**Orifice**
KIWI 2000	125	**AKV 10**	4
	188		5
	219		6
	250		6
	281		6
	375		7
KIWI 2200	125		5
	188		5
	219		6
	250		6
	281		6
	375		7

Refrigerating details refer to thermal-expansion valves adjusted for 5 K overheating.

	SETTINGS FOR CONTROLLER DANFOSS AKC201				Factory default settings
	Parameter function	**Danfoss controller parameters**	**Danfoss controller Min. value**	**Danfoss controller Max. value**	**KIWI**
1.	Cut-out T° for S4 / Sout *	**Out**	**-50°C**	**50°C**	**-2**
2.	Cut-out T° for S3 / Sin *	**In**	**-50°C**	**50°C**	**2**
Thermostat parameters					
1.	Temperature unit (°C/°F)	**r05**	**°C**	**°F**	**°C**
2.	S4/Sout differential (r07= cut-in T° * - Sout cut-out signal)	**r07**	**0.1 K**	**20 K**	**1**
3.	S3/Sin differential (r08= cut-in T° * - Sin cut-out signal)	**r08**	**0.1 K**	**20 K**	**1**
4.	Correction of signal from S4/Sout	**r09**	**-20.0 K**	**20.0 K**	**0**
5.	Correction of signal from S3/Sin	**r10**	**-20.0 K**	**20.0 K**	**0**
Alarm parameters					
1.	Timing of temperature alarm *	**A03**	**0**	**90 mn**	**10**
2.	Upper limit exceeded S4/Sout (A05 = threshold * Sout cut-out T°)	**A05**	**0 K**	**50 K**	**6**
3.	Bottom limit of S4/Sout exceeded	**A06**	**-50 K**	**0 K**	**-50**
4.	Upper limit of S3/Sin exceeded (A07 = threshold * cut-out T° of Sin)	**A07**	**0 K**	**50 K**	**50**
5.	Lower limit of S3/Sin exceeded	**A08**	**-50 K**	**0 K**	**-50**
6.	S3/Sin alarm delay with night covers on	**A09**	**-50 K**	**50 K**	**0**
VEM Parameters					
1.	Min. operation time	**c01**	**0 mn**	**15 mn**	**0**
2.	Gap between two starts	**c02**	**0 mn**	**15 mn**	**0**
3.	Cut-in frequency in case of probe failure	**c03**	**0%**	**100%**	**100**
Defrost parameters					
1.	Compressor On under defrosting	**d01**	**No**	**Yes**	**No**
2.	Defrost end T° * (probe selection automatic according to d10)	**d02**	**0**	**25 °C**	**10**
3.	Interval between 2 defrosts (d03=24 / n° of defrosts per day*)	**d03**	**OFF**	**48 h**	**4**
4.	Safety time *	**d04**	**0**	**180 mn**	**45**
5.	Delay of defrost start signal on startup	**d05**	**0**	**60 mn**	**0**
6.	Drip time	**d06**	**0**	**20 mn**	**0**
7.	Fan start delay after defrost	**d07**	**0**	**20 mn**	**0**
8.	Fan start temperature (>25°=OFF)	**d08**	**-25**	**26°C**	**OFF**
9.	Fan operation under defrosting (yes/no)	**d09**	**No**	**Yes**	**Yes**
10.	Defrost probe	**d10**	**OUT**	**DEF**	**OUT**
11.	Alarm delay on defrost end *	**d11**	**0**	**200 mn**	**35**
12.	Display timing after defrost end	**d12**	**0**	**30 mn**	**0**
13.	Defrost start	**d13**	**No**	**Yes**	**No**
Clock parameters					
1.	1. Defrost start, hour	**t01**	**OFF**	**23 h**	**Value to be defined at the time of installation for controllers Danfoss model S or S/C only**
2.	1. Defrost start, minutes	**t11**	**0**	**59 mn**	
3.	2. Defrost start, hour	**t02**	**OFF**	**23 h**	
4.	2. Defrost start, minutes	**t12**	**0**	**59 mn**	
5.	3. Defrost start, hour	**t03**	**OFF**	**23 h**	
6.	3. Defrost start, minutes	**t13**	**0**	**59 mn**	
7.	4. Defrost start, hour	**t04**	**OFF**	**23 h**	
8.	4. Defrost start, minutes	**t14**	**0**	**59 mn**	
9.	5. Defrost start, hour	**t05**	**OFF**	**23 h**	
10.	5. Defrost start, minutes	**t15**	**0**	**59 mn**	
11.	6. Defrost start, hour	**t06**	**OFF**	**23 h**	
12.	6. Defrost start, minutes	**t16**	**0**	**59 mn**	
13.	Adjustment of hour	**t07**	**0**	**23 h**	
14.	Adjustment of minutes	**t08**	**0**	**59 mn**	
Ventilation parameters					
1.	Fans off when compressors are off	**F01**	**No**	**Yes**	**No**
2.	Fan stop time	**F02**	**0**	**15 mn**	**0**
Other parameters					
1.	Outlet timing on startup	**o01**	**0**	**600 sec**	**0**
2.	Digital input signals	**o02**	**OFF**	**5**	**Values to be defined at the time of installation**
3.	Network address (from 0 to 60)	**o03**	**0**	**990**	
4.	LON service connector	**o04**	**OFF**	**100**	
5.	Access code	**o05**	**OFF**	**100**	**Value to be defined at the time of installation, if necessary**
6.	Type of probe used (Pt/PTC)	**o06**	**Pt**	**PTC**	
7.	Max. wait time after synchronised defrosts with slave cabinets	**o13**	**OFF**	**2**	**Value to be defined at the time of installation for controllers Danfoss model S or S/C only**
8.	Selection of regulation probe	**o14**	**Aut**	**Out**	**Out**
9.	Temperature display scale	**o15**	**No**	**Yes**	**Yes**
10.	Max. wait time after synchronised defrost	**o16**	**1**	**30 mn**	**30**
11.	Selection of display probe signal	**o17**	**Aut**	**In**	**In**
12	Output manual control	**o18**	**OFF**	**5**	**OFF**

*** Parameters to be adapted to the climatic class of foodstuffs**

** Preset with night blind option

WIRING DIAGRAMS

KEY TO ALL DIAGRAMS

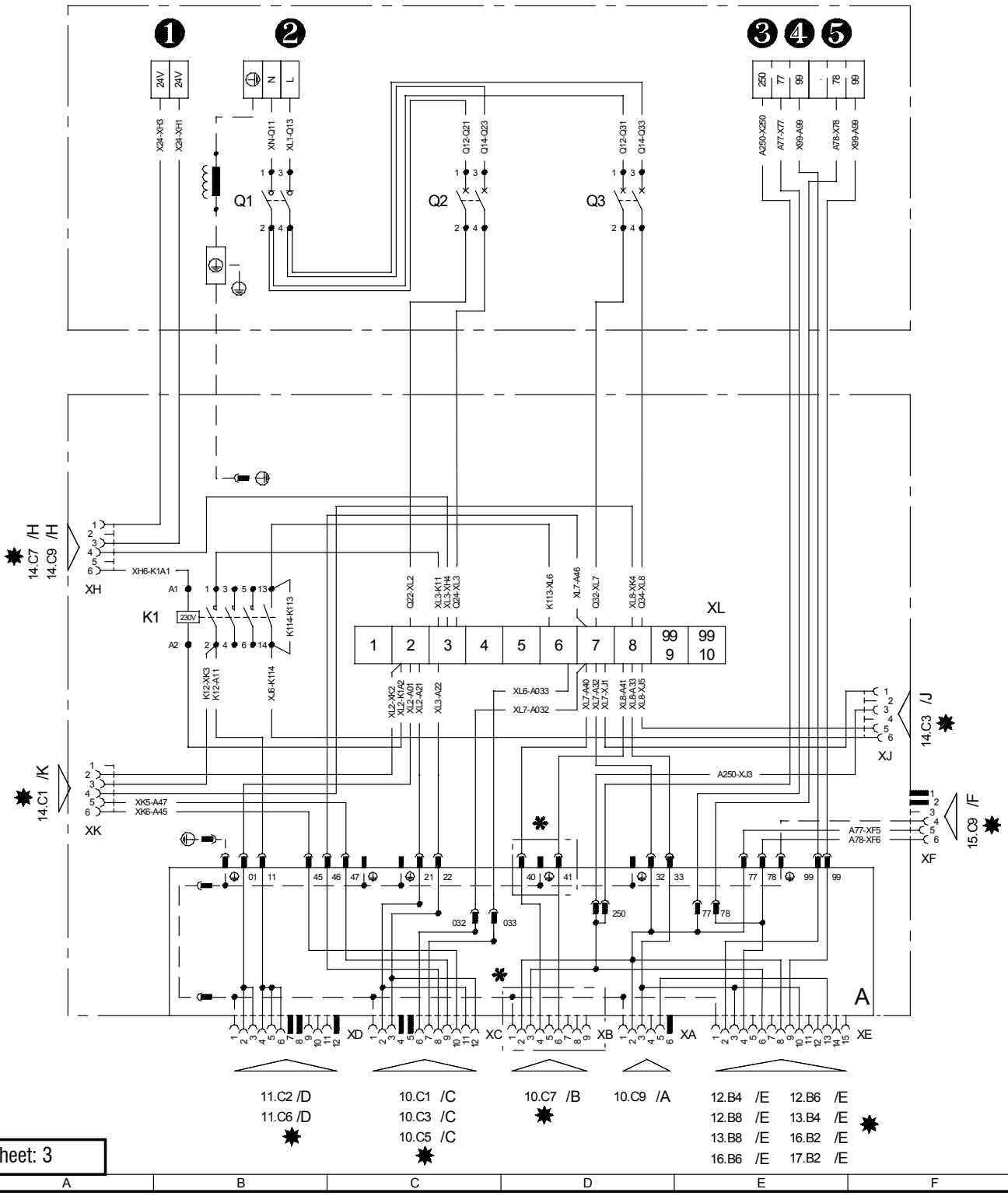
Q1 Circuit breaker
Q2 Lighting cutoff switch
Q3 Cutoff switch
K1 Lighting contactor
XA 1st air curtain fans
XB Electric defrost (optional)
XC Demist heater - 2nd air curtain fans
XD Lighting
XE Regulation
XF VEM
XG Lighting switch
XH Relay 24V to control lighting (optional)
XJ Relay to control 2nd air curtain
XM FTB connection

WIRING DIAGRAM SRTS 1

(Security-operation terminal-board for 1 cabinet)

✸ Depending on equipment

1. Lights remote control signal 24V AC
2. Power supply 400V AC
3. Defrost-start signal (250)
4. Alarm dead contact (99-99)
5. Thermostat signal (77-78)

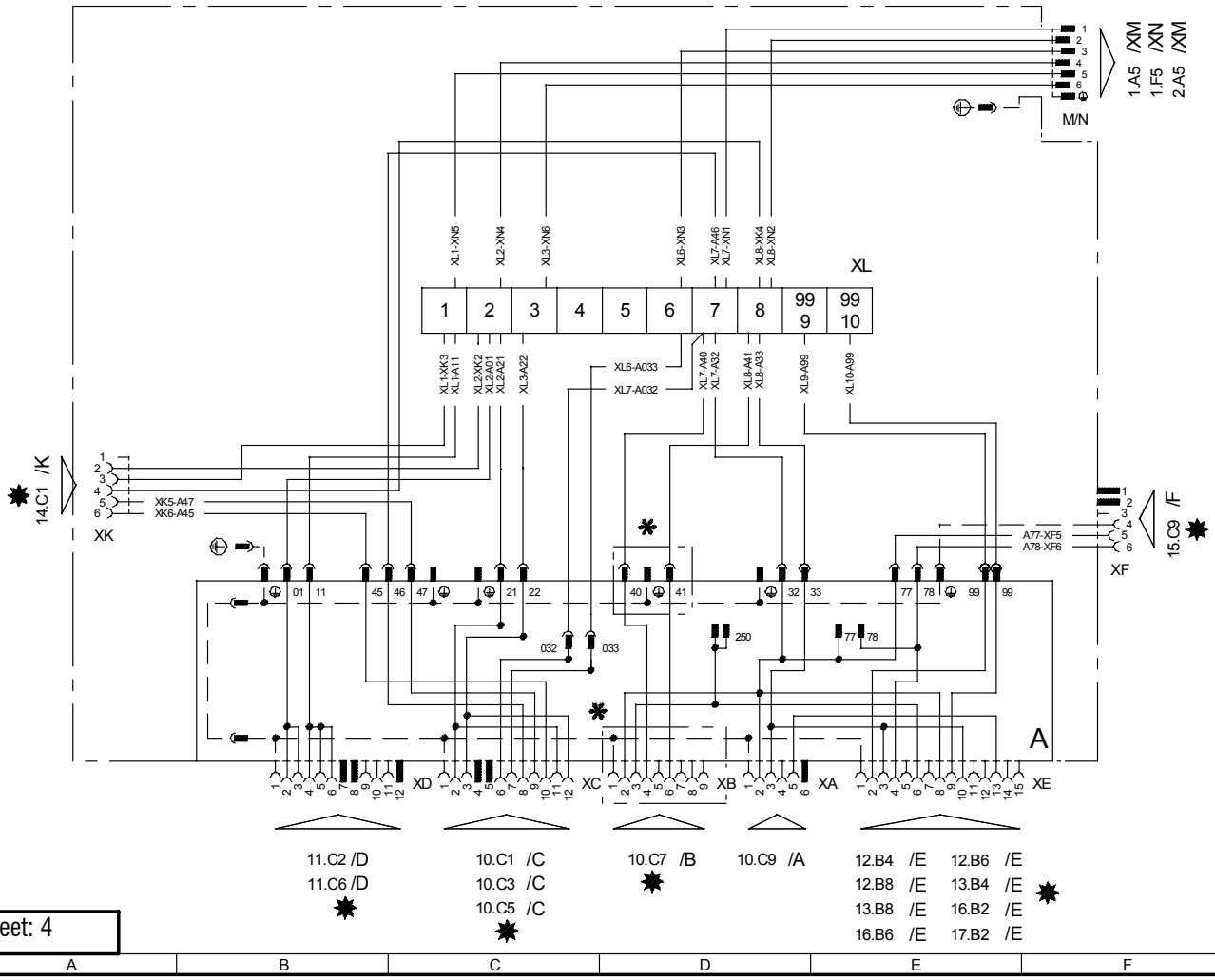


Sheet: 3

WIRING DIAGRAM FTB

(End terminal-board)

✸ Depending on equipment



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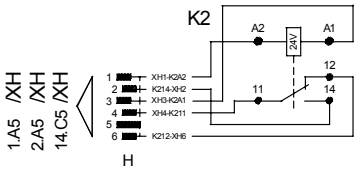
WIRING DIAGRAM

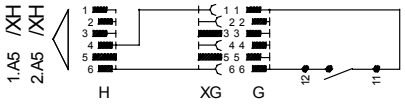
(Customised for SRTS-FTB)

✸ Depending on equipment

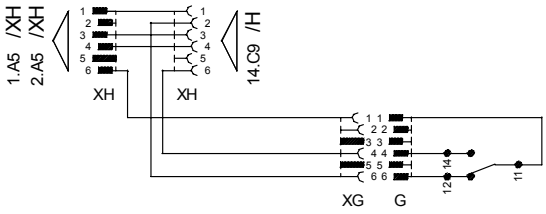
1 Lights remote control relay ✸



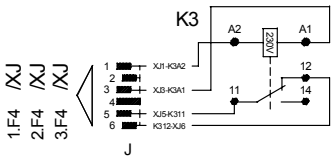
2 Lights switch ✸



3 Lights remote control relay + Lights switch ✸

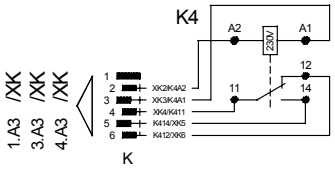


4 Fans-stop relay ✸



When this relay is provided along with night blinds (either electrical or manual), disconnect shunt K113-K114 on 1.B4/K1, 2.B4/K1 or 3.B4/K1

5 Motor-driven night blind relay ✸



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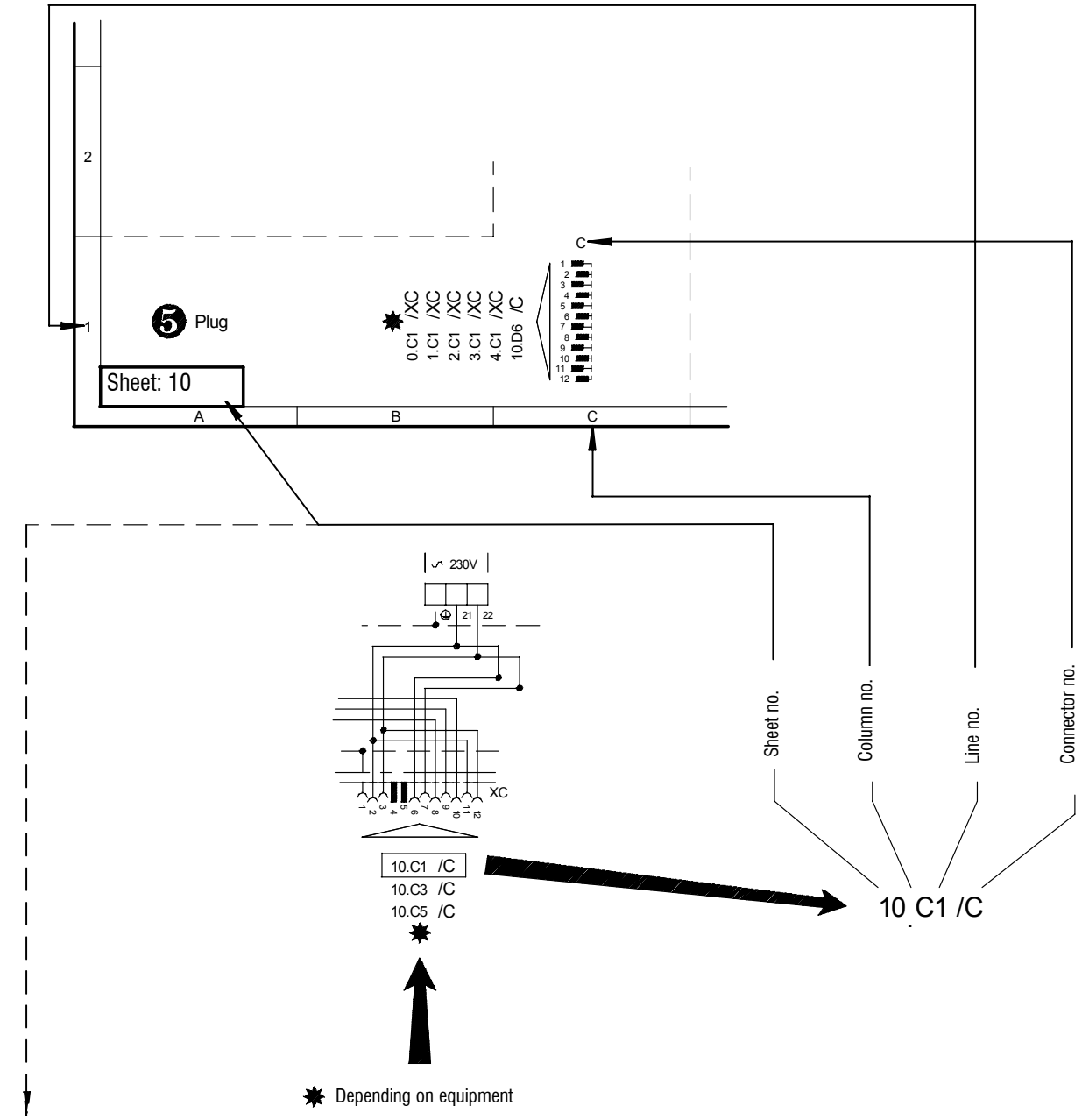
WIRING DIAGRAMS READING PRINCIPLE



Sheet numbering

Sheet No.	0.. ..9	10.. ..29
Function	External connection	Cabinet components

Sheet: 00

WIRING DIAGRAM: TERMINAL BOARD OF CABINET

✸ Depending on equipment

❶ Lights power supply

❷ Power supply of night blinds
47: Up
45: Down

❸ Power supply of demist heater and/or second air curtain

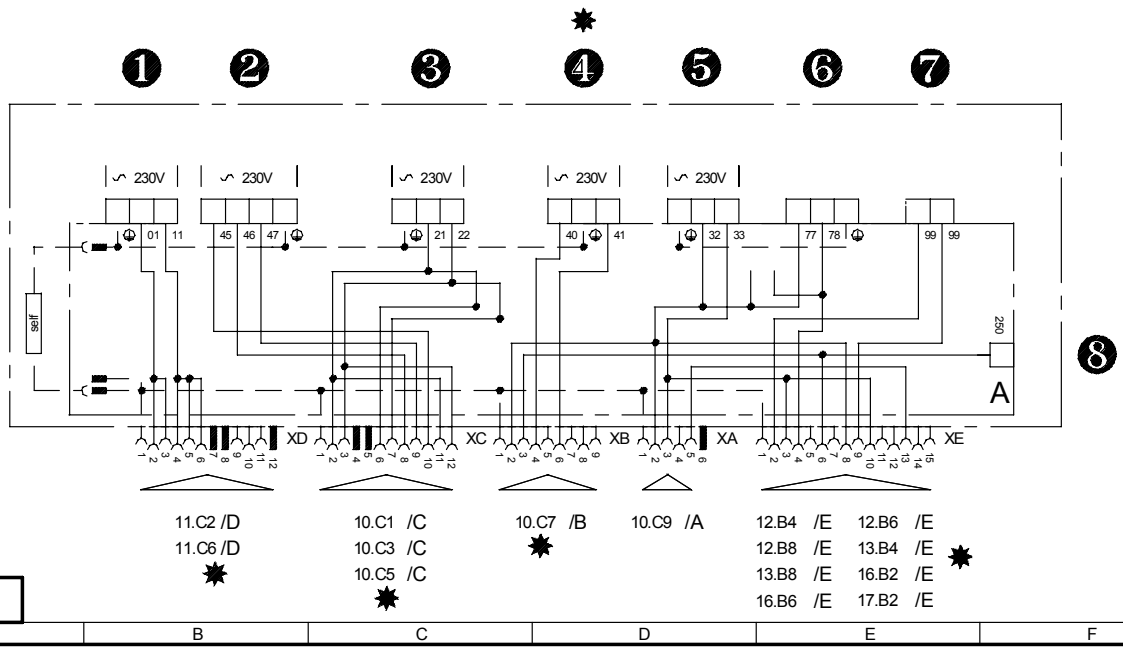
❹ Power supply of defrost heater ✸

❺ Power supply of fans + controller

❻ Solenoid valve

❼ Alarm dead contact

❽ Defrost-start signal

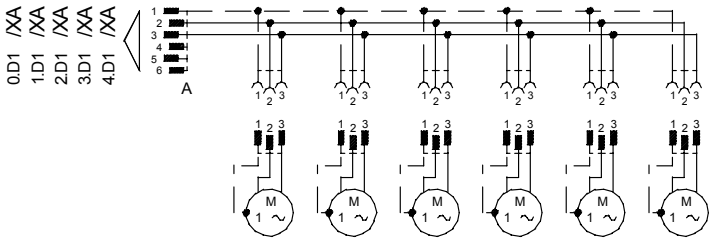


Sheet: 0

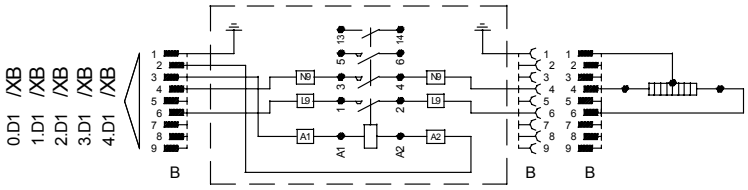
WIRING DIAGRAM
(FANS/DEFROST/NIGHT BLINDS)

✸ Depending on equipment

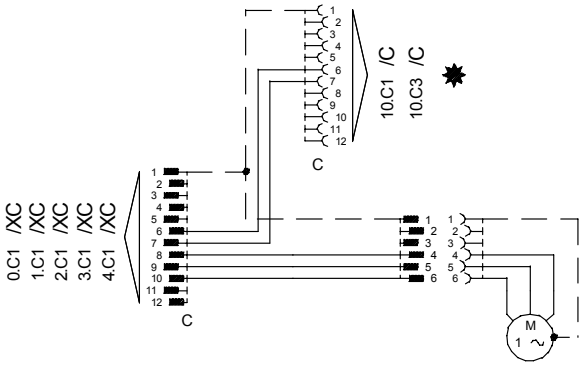
1 1st air curtain fans



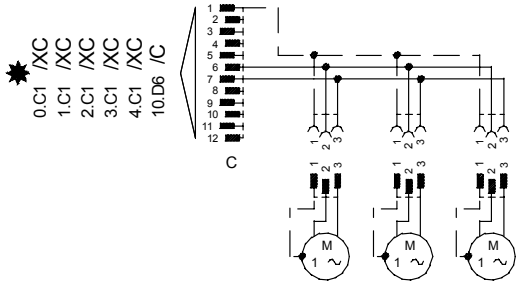
2 Electric defrost ✸



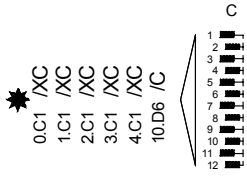
3 Night blinds ✸



4 2nd air curtain fans ✸



5 Plug ✸



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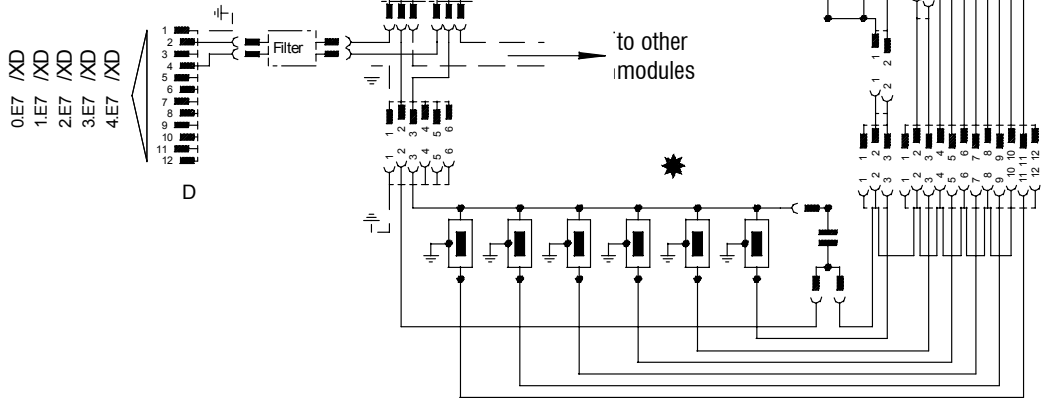
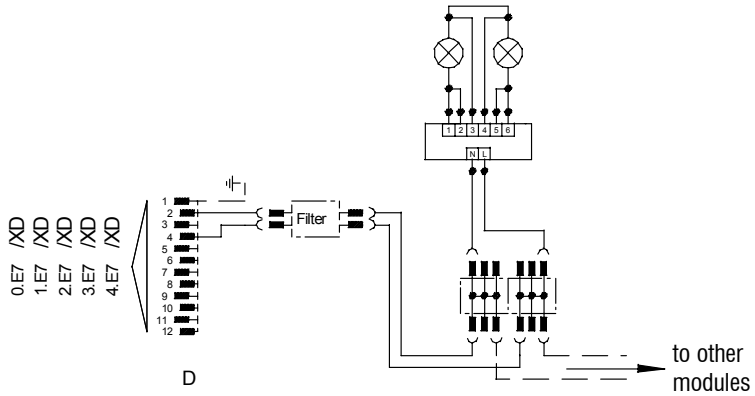
WIRING DIAGRAM (LIGHTING)

✸ Depending on equipment

1 Lighting with ferromagnetic ballast ✸



2 Lighting with electronic ballast ✸



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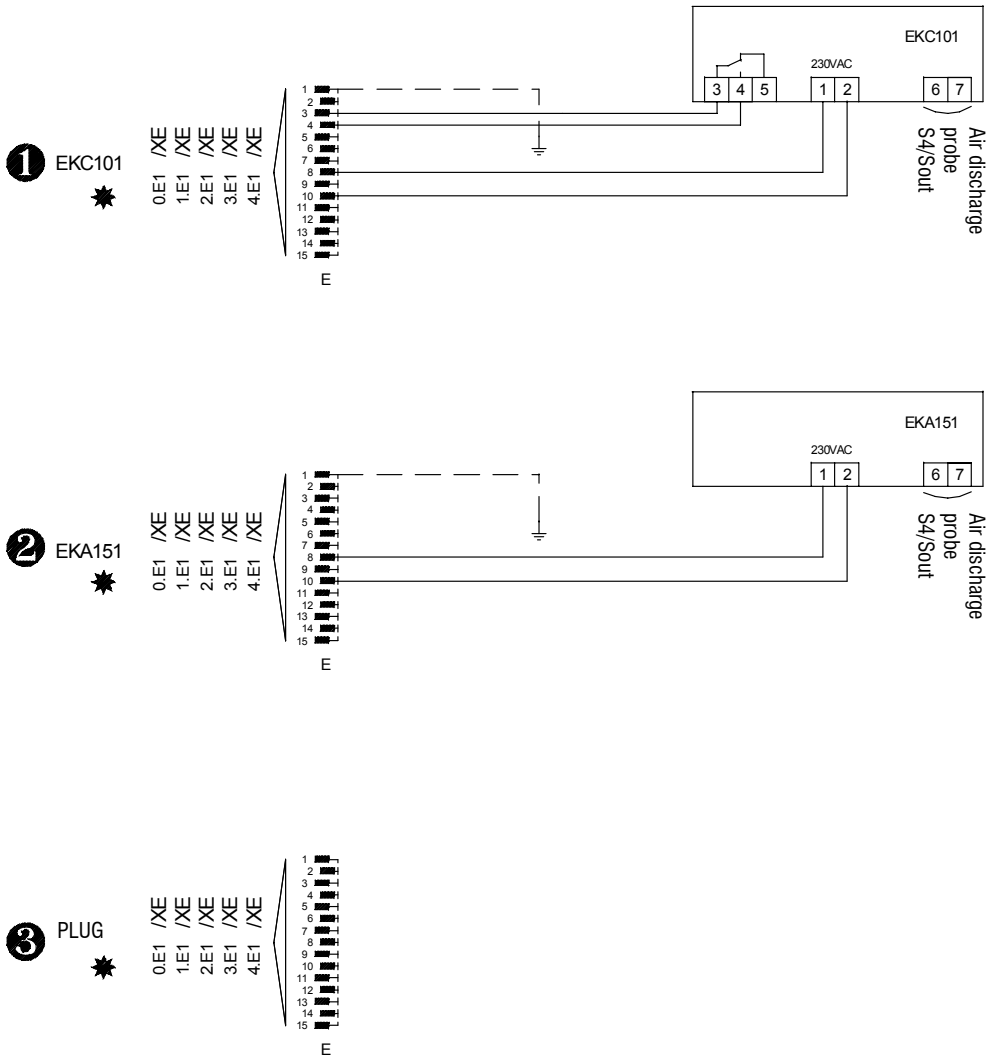
WIRING DIAGRAM (DISPLAY/THERMOSTAT)

✸ Depending on equipment



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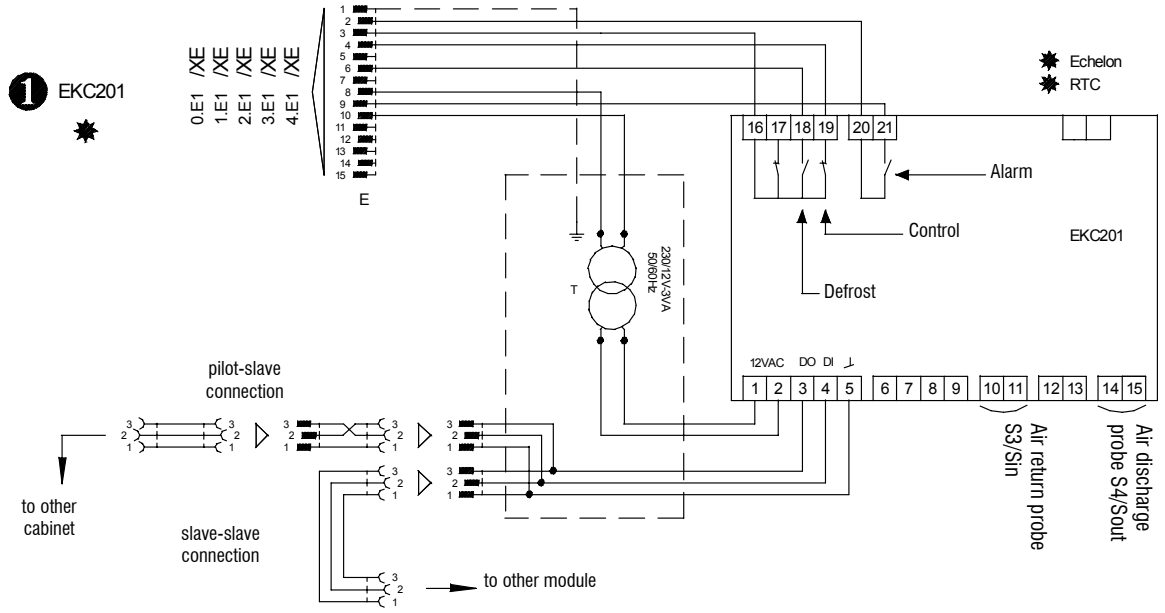
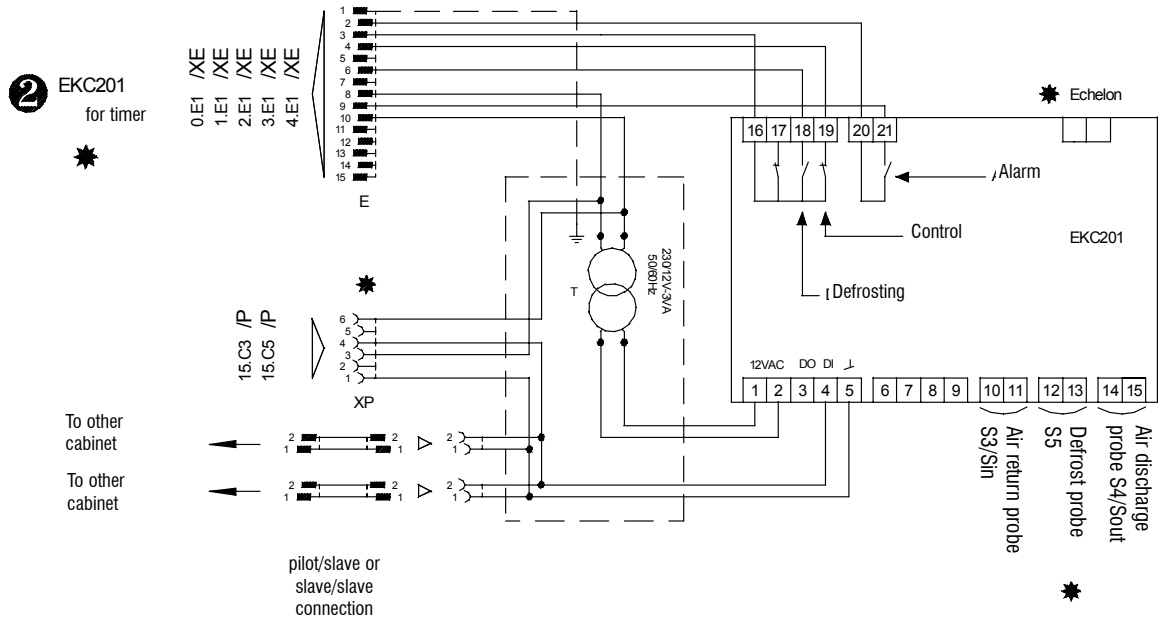
WIRING DIAGRAM (EKC201)

✸ Depending on equipment





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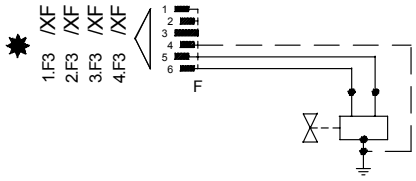
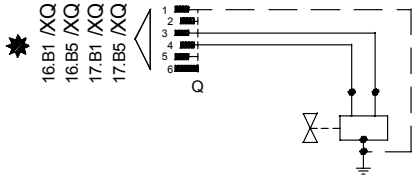
WIRING DIAGRAM (AC-DC SOLENOID/DEFROST RELAY/TIMER)

Depending on equipment

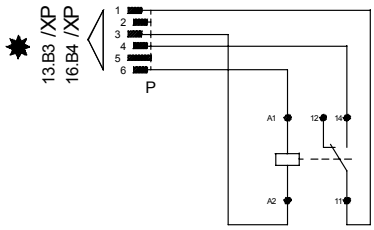
1 AC SOLENOID



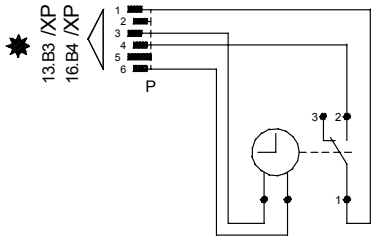
2 DC SOLENOID



3 DEFROST START RELAY



4 TIMER



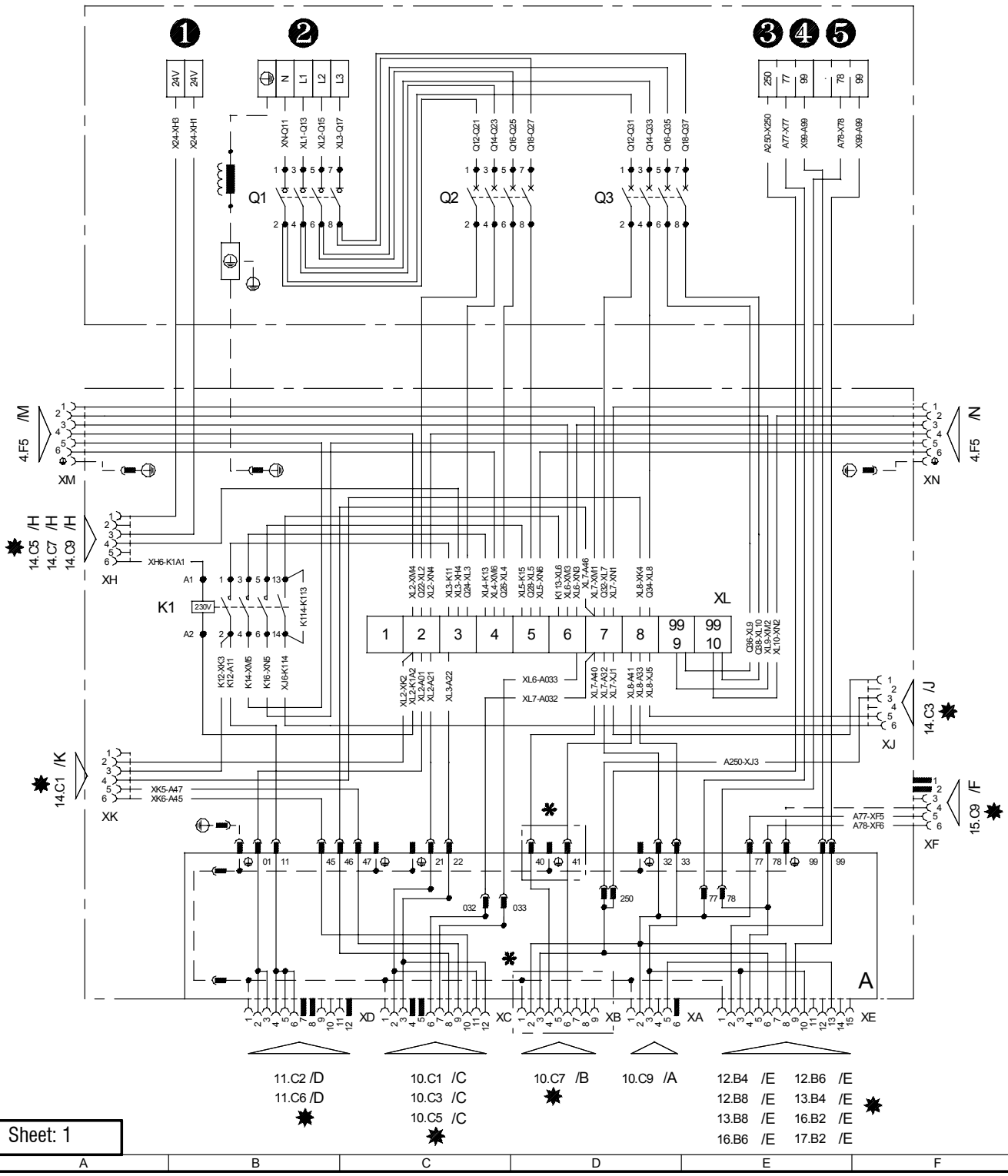
Sheet: 15

WIRING DIAGRAM SRTS 3

(Security-operation terminal board for 3 cabinets)

✸ Depending on equipment

1. Lights remote control signal 24V AC
2. Power supply 400V AC
3. Defrost-start signal (250)
4. Alarm dead contact (99-99)
5. Thermostat signal (77-78)



Sheet: 1

WIRING DIAGRAM SRTS 2

(Security-operation terminal board for 2 cabinets)

✸ Depending on equipment

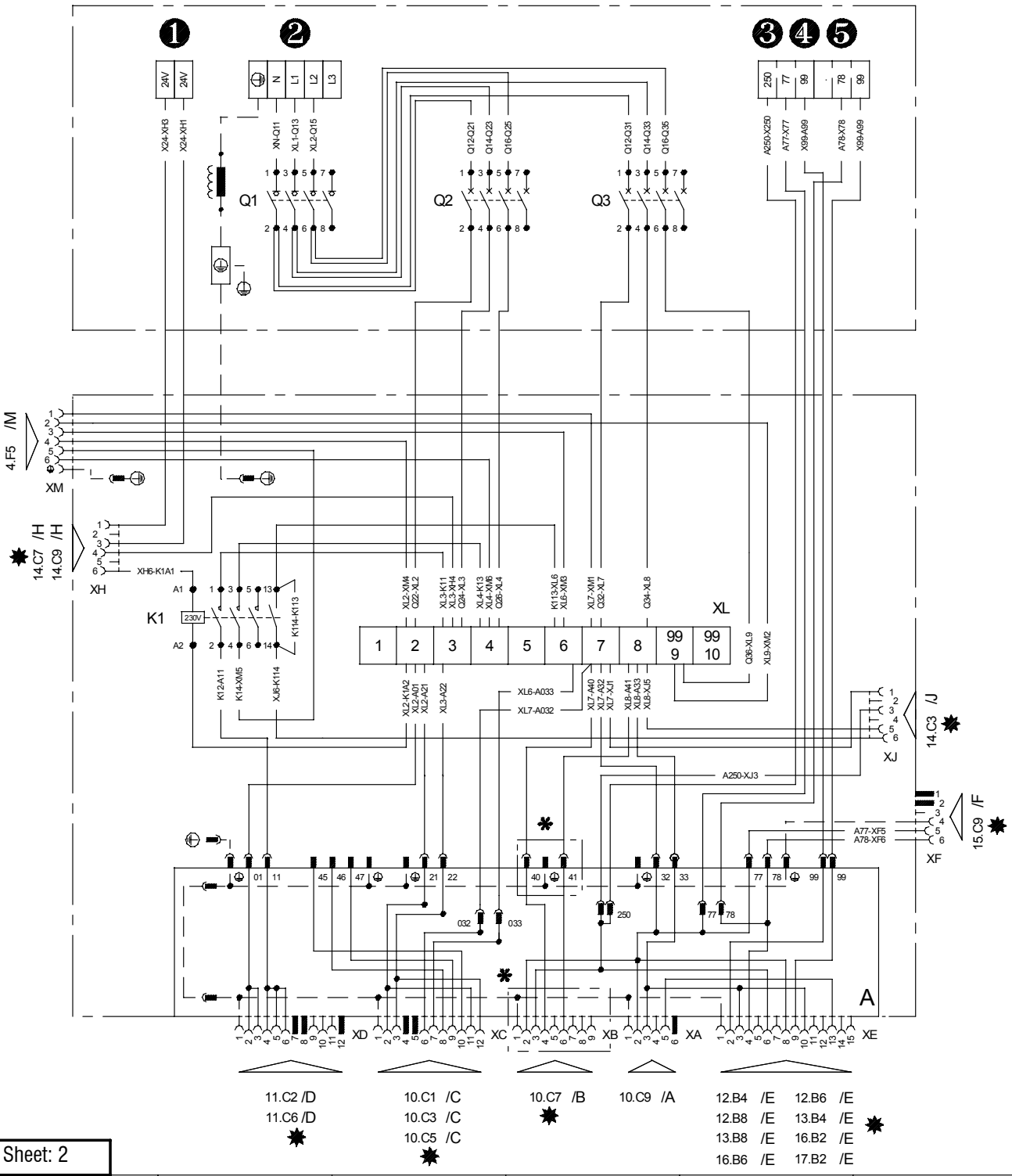
❶ Lights remote control signal 24V AC

❷ Power supply 400V AC

❸ Defrost-start signal (250)

❹ Alarm dead contact (99-99)

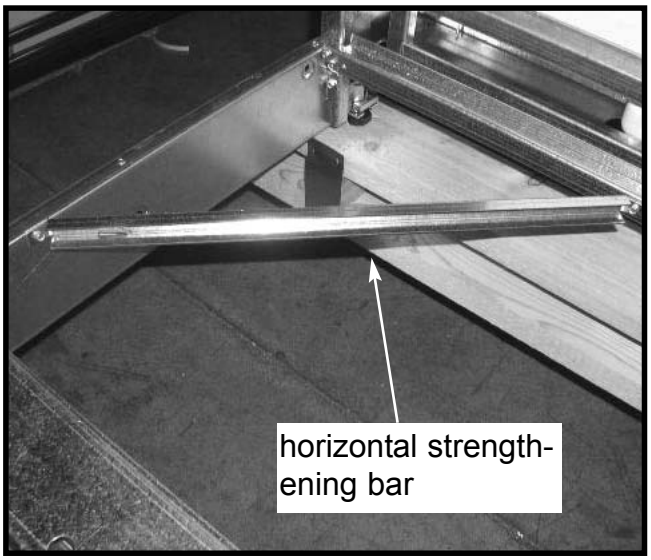
❺ Thermostat signal (77-78)



Sheet: 2

MULTIPLEXING AND FINISHING CABINETS

CAUTION: the horizontal strengthening bar must be removed just before fastening the cabinet to the floor.

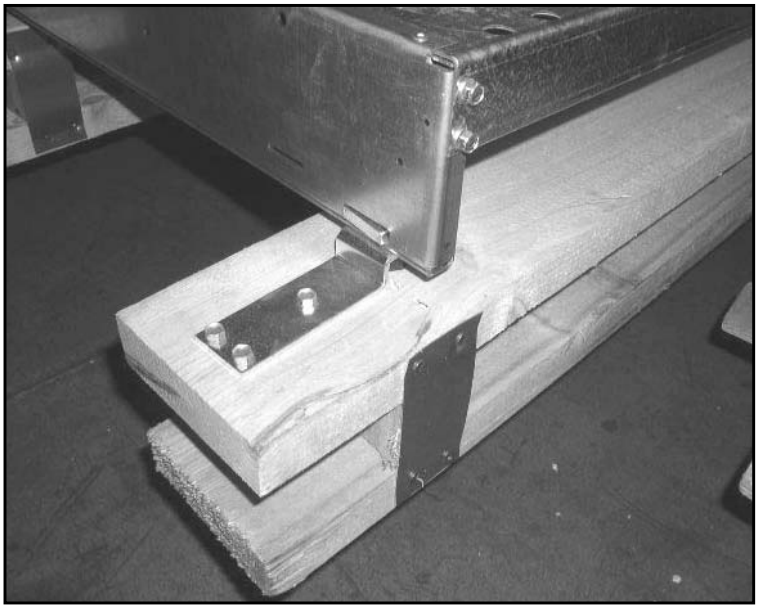


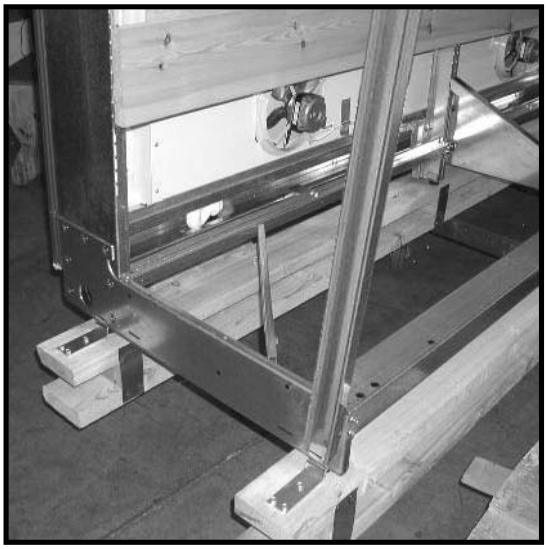
REMOVE THE TROLLEYS

Move the trolleys out of the cabinet and unpack them.

UNPACK THE CABINET

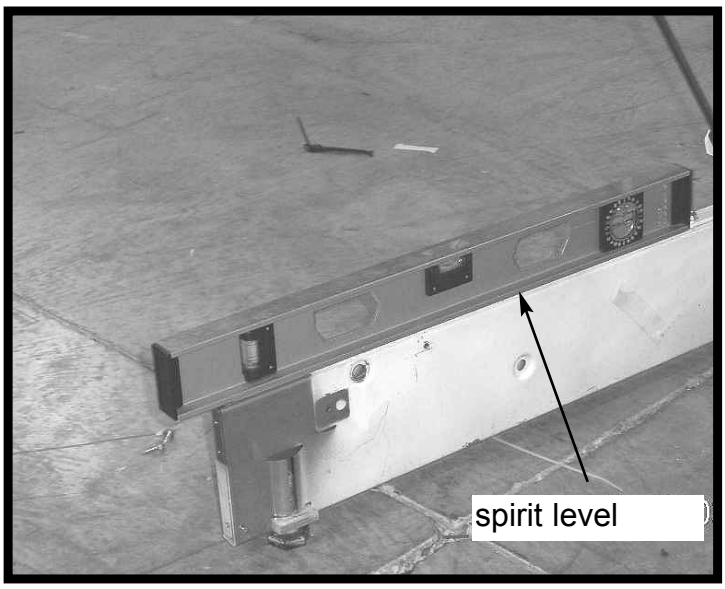
Unpack the cabinet and lift it as little as necessary to remove the wood slides after having unscrewed them.





LEVEL THE CABINETS

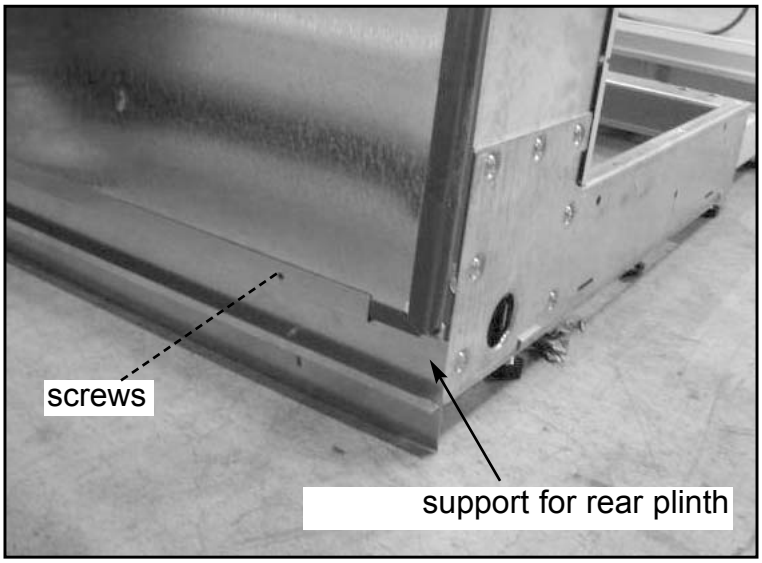
To level the cabinets, adjust side and rear middle feet using the appropriate key.
Check levelness both crosswise and lengthwise using a spirit level.



SECURE REAR PLINTHS

Fasten pre-assembled rear plinths onto the cabinets to be coupled using self-tapping screws as shown on the drawing.

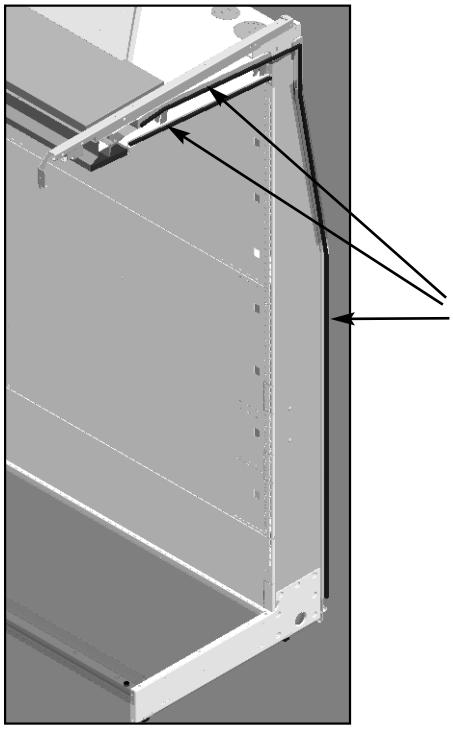
IMPORTANT: do not forget to carry out this action, otherwise the cabinet will not perform properly.



WHEN LATERAL ENDS ARE NOT PROVIDED: couple the cabinets as described below.

APPLY SPONGE RUBBER

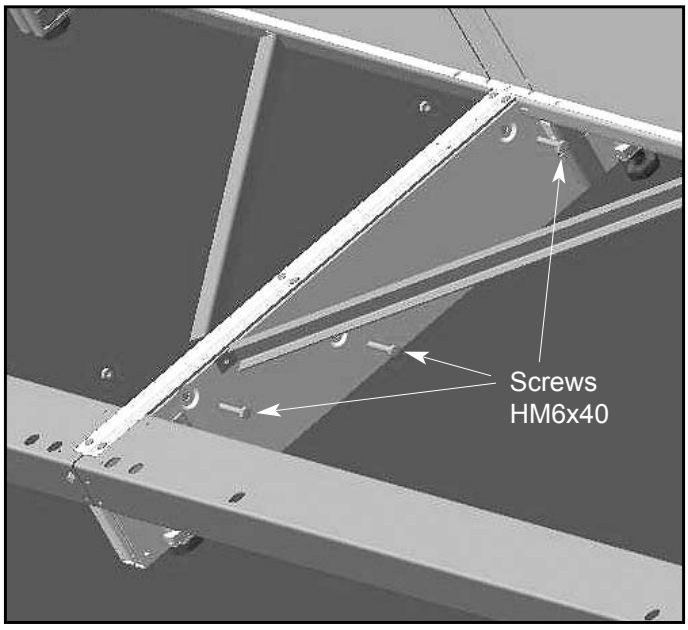
Apply sponge rubber onto one of the two cabinets to be coupled, as shown in the figure.



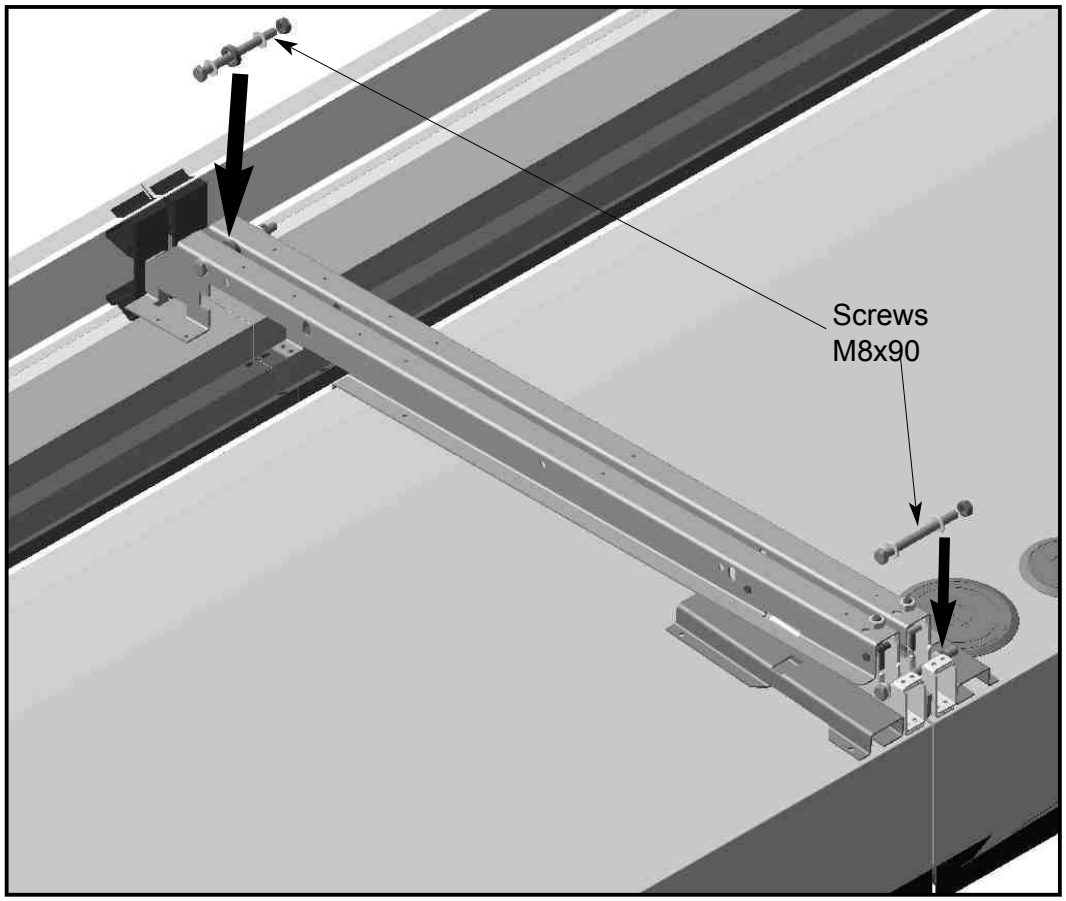
Apply it all along, on the bottom part and on the small plastic profile in contact with the honeycomb deflector.

BRING THE CABINETS TOGETHER AND FASTEN THEM

Bring the cabinets alongside each other and check their levelness using a spirit level.
Secure the cabinets down at the bottom using three screws HM6x40 as shown in the picture.

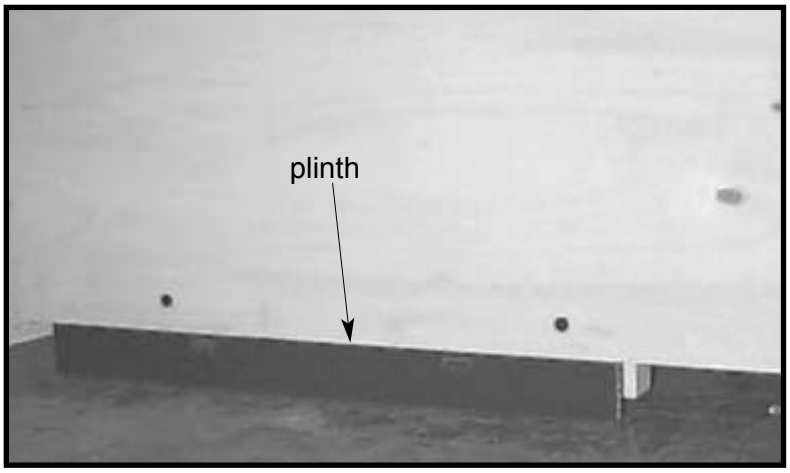


Fasten the cabinets to one another at the top using two screws M8x90 as shown in picture.



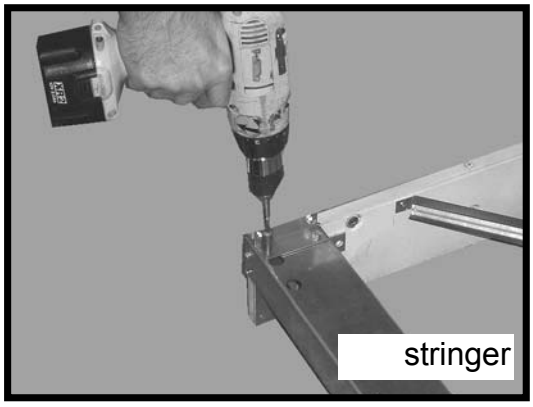
WHEN LATERAL ENDS ARE PROVIDED: press the lower plinth in place as shown in the picture.

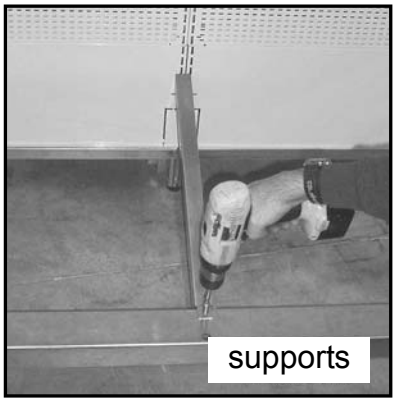
IMPORTANT: do not forget to carry out this action, otherwise the cabinet will not perform properly.



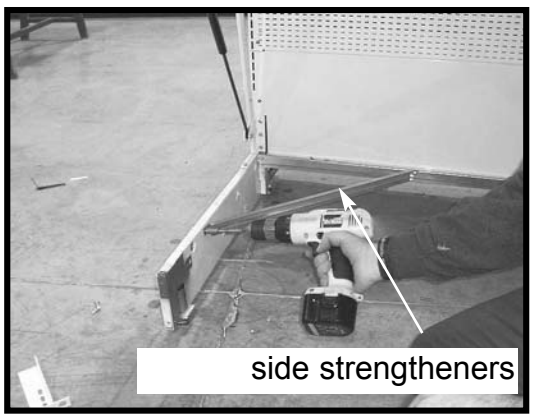
FOR CABINETS EITHER WITH OR WITHOUT LATERAL ENDS: complete installation as described below.

REMOVE THE STRINGER





Unscrew and remove the front stringer and relevant supports.



Remove side strengtheners.

PLACE BOTTOM STEEL COVERS

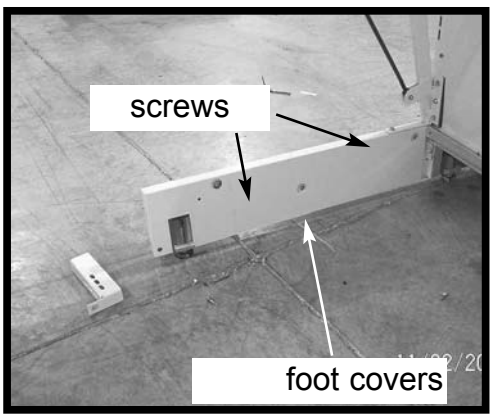
Install bottom steel covers as shown in the picture.

ANCHOR THE CABINET TO THE FLOOR

These cabinets must be anchored to the floor; after that, install foot covers and secure them using the slots provided to the purpose. Proceed as follows:

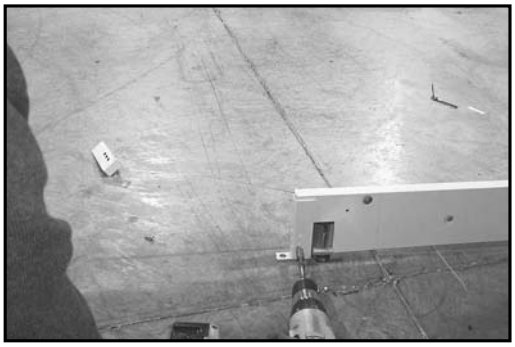
Place fastening plates and mark the position of the holes on the floor.

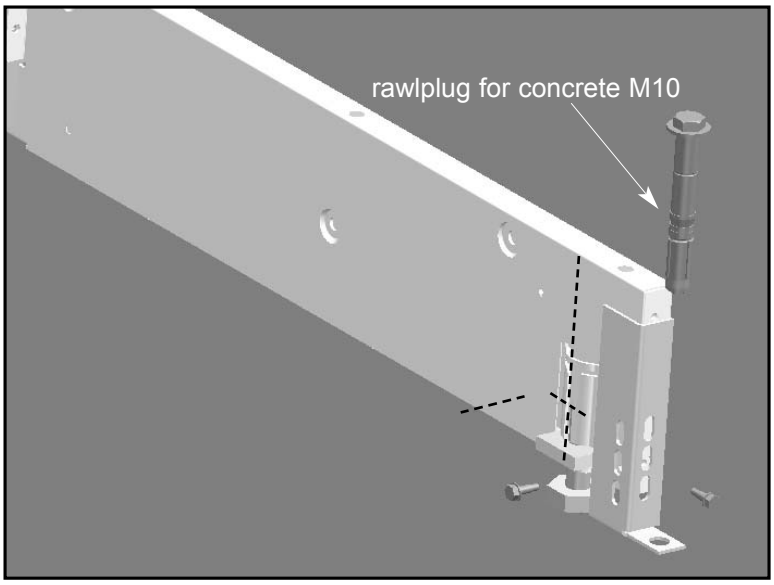
Drill holes Ø 14 on the floor.



Install foot covers and fasten them in the holes provided.

Secure fastening plates onto the floor using the two screws previously removed from the stringer.
Fasten the cabinet to the floor using rawlplugs M10 for concrete.





LOWER REAR PLINTHS

Slightly unscrew the bolts securing the rear plinths to the support, lower the plinths until they rest on the floor and then fasten the bolts back again.

IMPORTANT: do not forget to carry out this step, otherwise the cabinet will not be able to operate properly.