



MM 4
MM 8
MM 12
MM 12 M



User's manual

Reference : 39786125818
Edition : C - 20/02/2003



Summary

Installation and maintenance should be performed by qualified service personnel

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Installation

1 - Remove the red brackets

2 - Keyholes are on back of cabinet. Make sure the sheetrock or masonry wall is solid.

3 - Mount the unit on the toggle bolts.

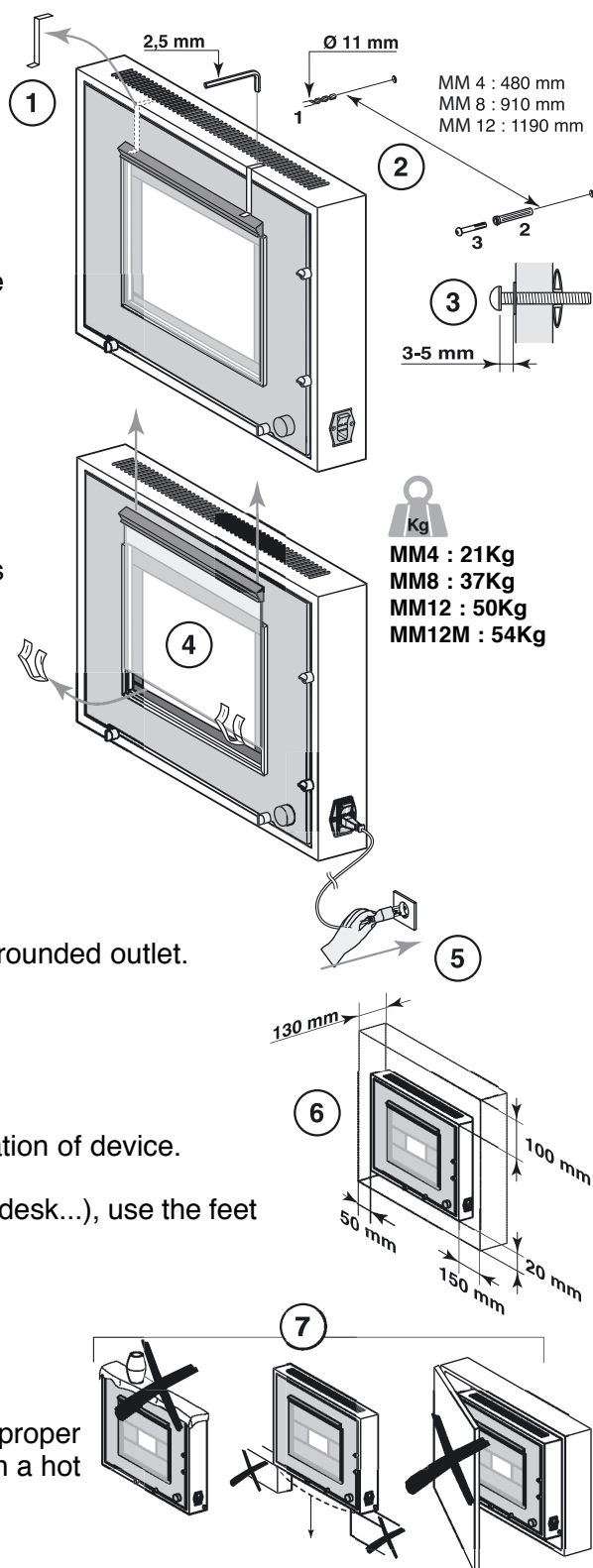
4 - Remove the protective Styrofoam slips underneath glass.

5 - Use a 120V/60Hz - minimum 10 amp, grounded outlet.

6 - Leave minimum space for proper ventilation of device.

If the device is installed on a surface (table, desk...), use the feet set option.

7 - Warning : do not cover vents, provide proper support, do not enclose in cabinet, neither in a hot environment.





Shutter movement and dimmer

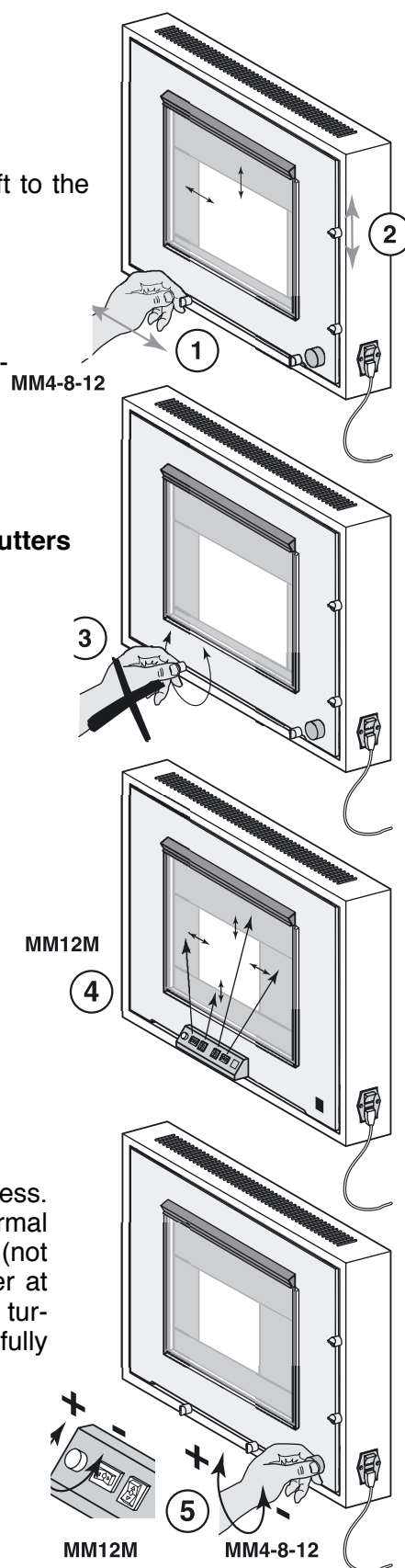
1 - Vertical shutters : move the knobs from right to left to the desired position.

2 - Horizontal shutters : move the knobs from top to bottom to the desired position.

3 - The knobs slide, do not twist knobs to move shutters

4 - Motorized shutters (MM12M)

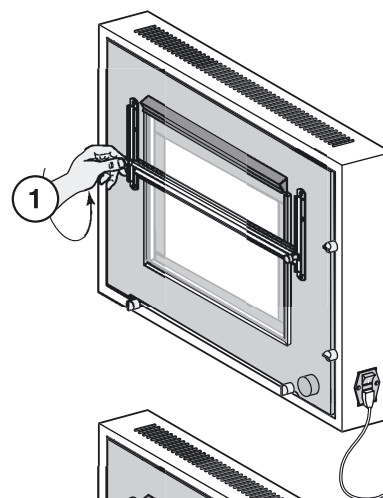
5 - Dimmer control : turn clockwise to increase brightness. Turn counterclockwise to reduce brightness. The normal range is approximately a 50% luminance difference (not turning radius). Please note that the lamps may flicker at the low end of the rheostat range if the user continues turning the knob beyond its limit. Simply turn the system fully on and slowly turn it down to determine the range.



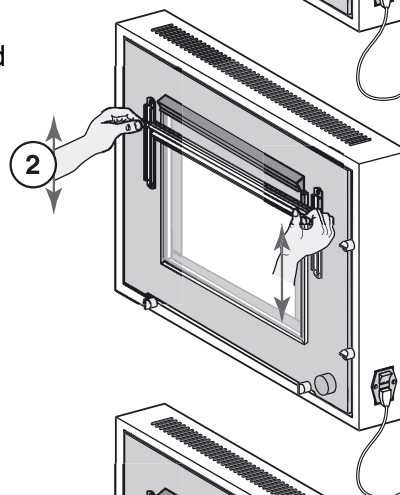


Using the adjustable film grip MM12

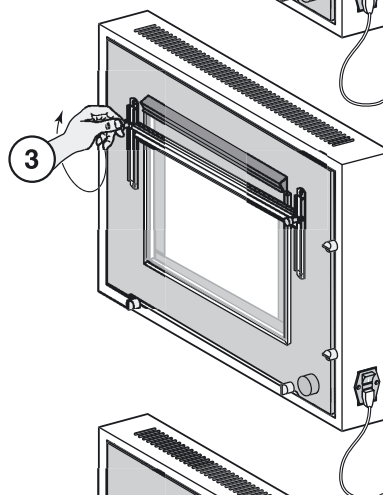
1 - Loosen the two knobs of the film grip.



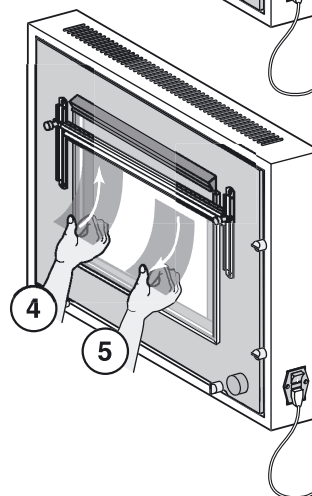
2 - Using the two knobs, place the film grip in the desired position.



3 - Retighten the two knobs of the film grip.



4 - To insert film, slide it between the glass and the film grip. The metal cylinders will support film.



5 - To remove film, simply pull it out.



Front panel disassembly

1 - Turn off the Mammomask, then unplug it.

2 - Remove the intensity control knob (2 recessed set screws at 90°).

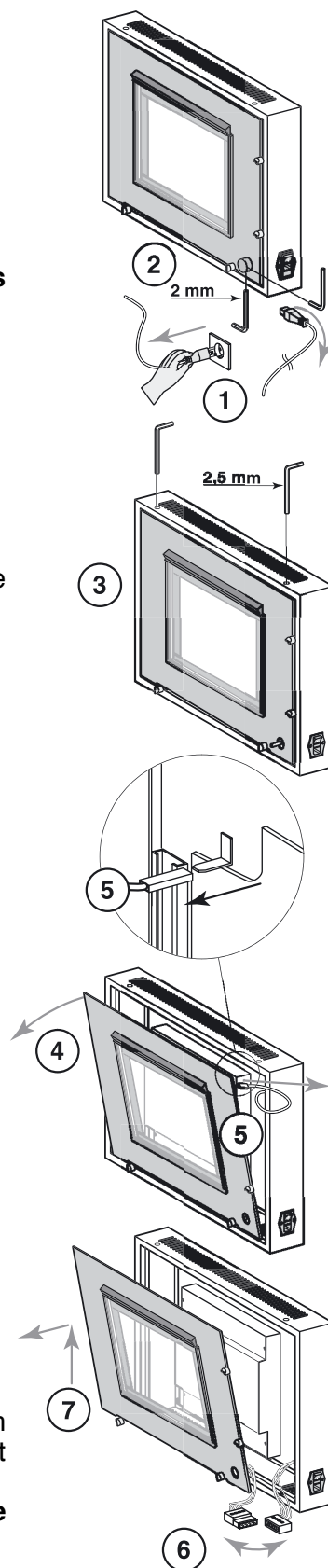
3 - Remove the two recessed screws at top, while keeping one hand on the front panel to prevent it from falling forward.

4 - Gently tilt the front panel forward.

5 - Disconnect the ground wire.

6 - MM12M : Disconnect the terminal block

7 - Gently lift to remove the metal nibs protruding from bottom edges of panel, tilt forward making sure the dimmer stem is not damaged. Gently place the front panel on an appropriate support, or against a wall. **Do not turn upside down as the glass can slide out.**





Front panel reassembly

1 - Tilt the front panel and place the two metal nibs in their housing

2 - MM12M : Reconnect the terminal block

3 - Close the front panel, making sure the dimmer clears the opening provided.

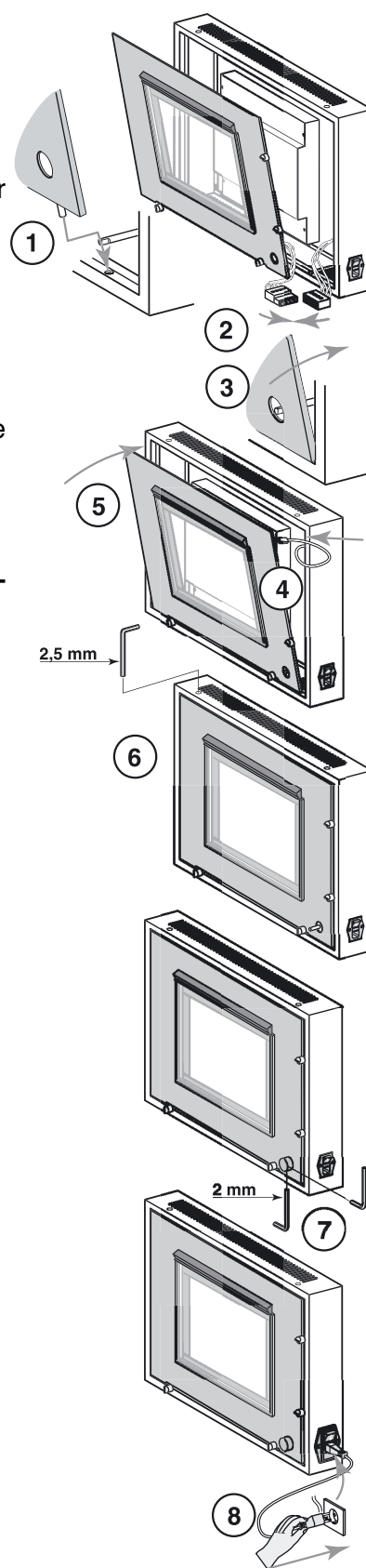
4 - Be sure the white beaded chain at bottom is not snagged on the interior light box.

5 - Reconnect the ground wire before closing front panel.

6 - Without letting go of the front panel, reinsert the screws

7 - Reinstall the dimmer knob.

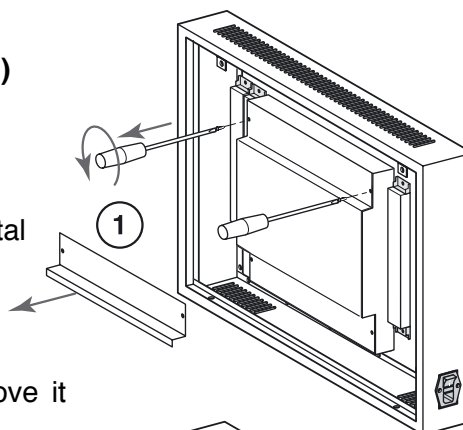
8 - Reconnect the power cord.





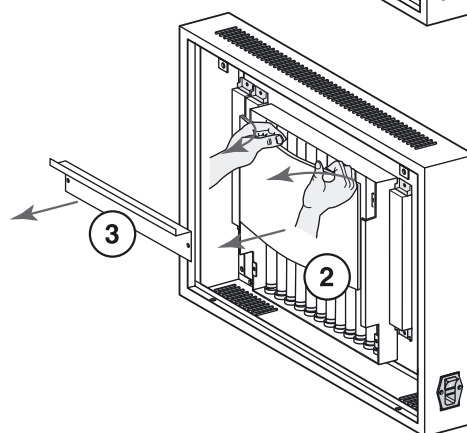
Lamp replacement on MM4 & MM8 (part I)

1 - Remove the front panel and remove the upper metal lamp shield.

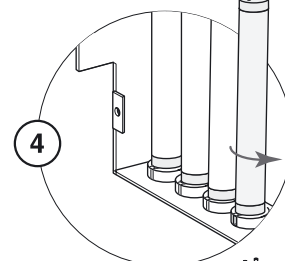


2 - Gently bend the plastic diffusing sheet to remove it from its guides.

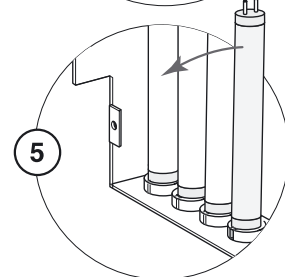
3 - Remove the lower metal lamp shield.



4 - Turn the lamp to be changed a quarter turn.



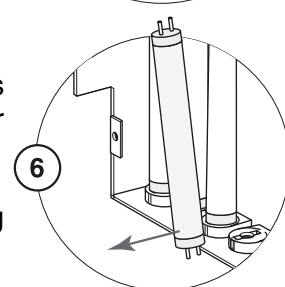
5 - Tilt the lamp slightly to release its upper pins.



6 - Remove the lamp.

 - In order to maintain the performance of your product, it is recommended to clean it and change the tubes every 6 months or 2000 hours of use.

 - It is recommended to change all lamps at the same time using high luminance daylight lamps available from Broadwest Corp.





Lamp replacement on MM4 & MM8 (part II)

1 - Insert the two metal pins of the lamp in the lower groove.

2 - Tilt the lamp to insert the two upper pins.

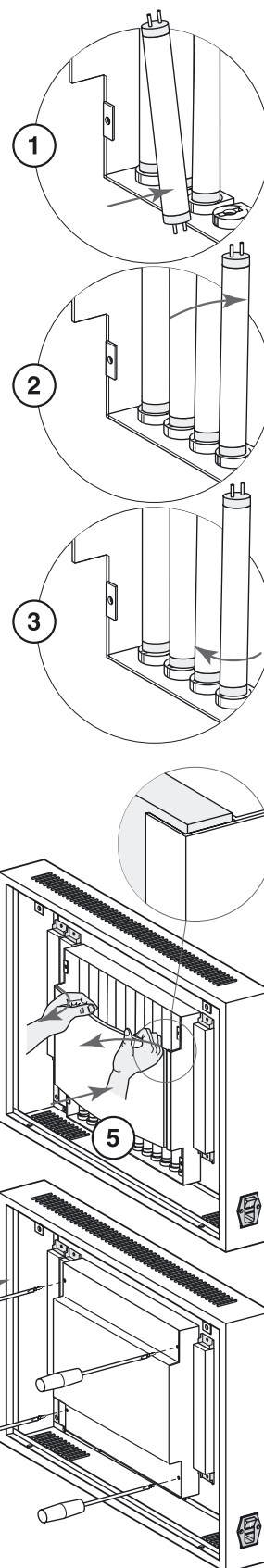
3 - Turn the lamp a quarter turn.

4 - Position the lower metal shield.

5 - Slightly bend the diffusing sheet to insert it in the side guides. Lower into the channel of the bottom angle bar.

6 - Position the upper metal shield.

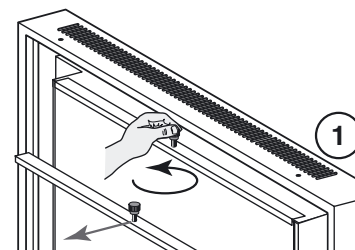
7 - Make sure that the screws are tightened and reassemble the front panel.



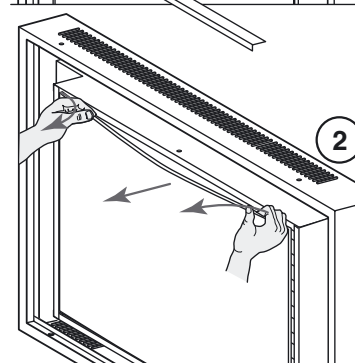


Lamp replacement on MM12 (part I)

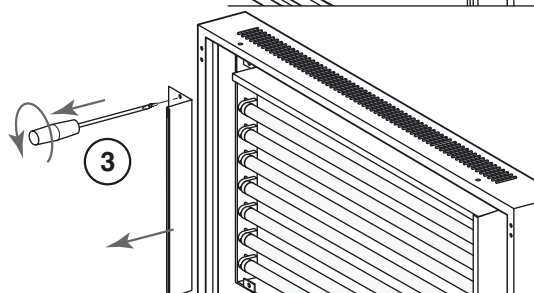
1 - Remove the front panel and remove the knurled knob of the upper bracket.



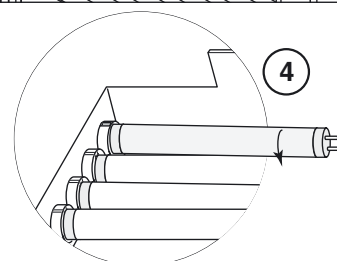
2 - Slightly bend the diffusing sheet to release it from its guides.



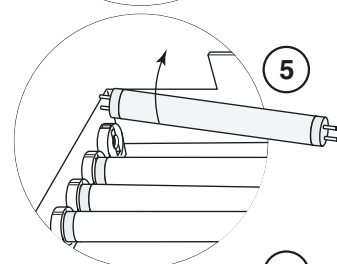
3 - Remove one of the side lamp shields.



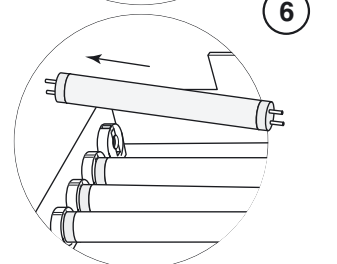
4 - Turn the old lamp a quarter turn.



5 - Slightly raise the lamp to release it from one end.



6 - Remove the lamp.



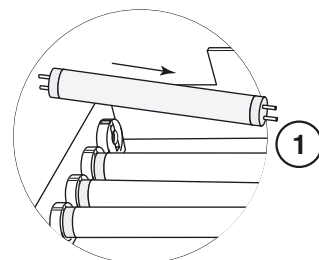
 - In order to maintain the performance of your product, it is recommended to clean it and change the tubes every 6 months or 2000 hours of use.

 - It is recommended to change all lamps at the same time using high luminance daylight lamps available from Broadwest Corp.

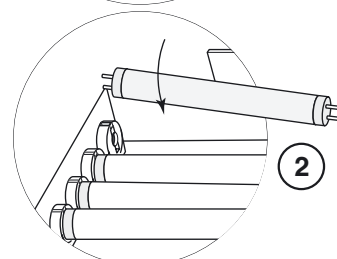


Lamp replacement on MM12 (part II)

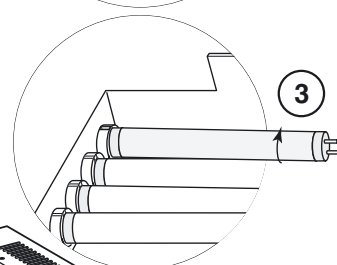
1 - Insert the two metal pins of the lamp in the lampholder groove.



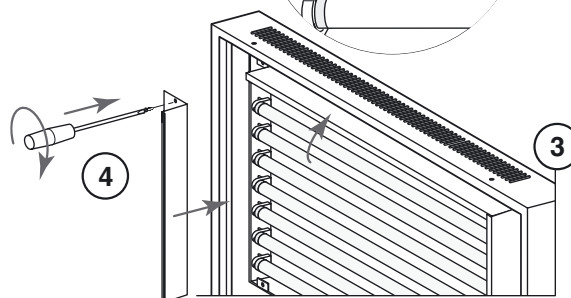
2 - Tilt the lamp to insert the two metal pins in the opposite lampholder.



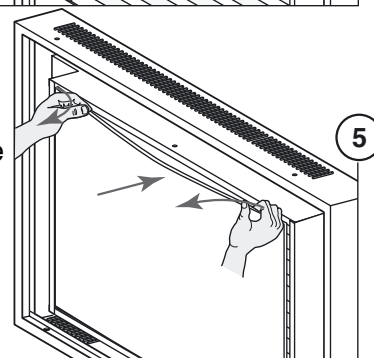
3 - Turn the lamp a quarter turn.



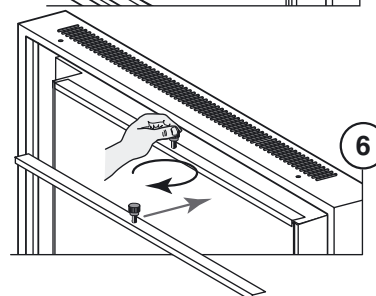
4 - Reassemble the lamp shield.



5 - Slightly bend the diffusing sheet to insert it back into the side guides. Lower it into in the bottom angle bar.



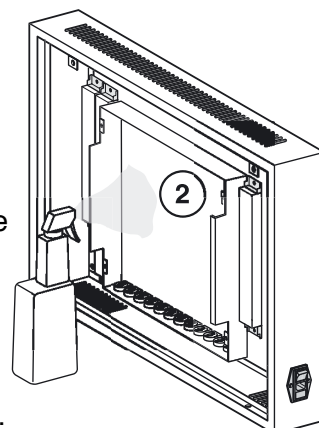
6 - Insert the upper angle bar and the knurled knob.



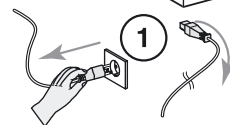


Maintenance

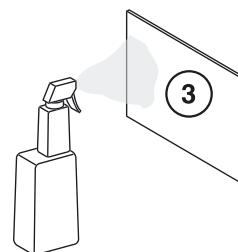
1 - Before any cleaning or maintenance, turn off the Mammomask® and unplug the power cord.



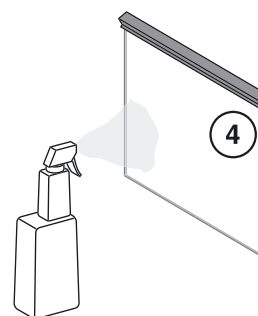
2 - Housing of fluorescent lamps : use an alcohol-based cleaner.



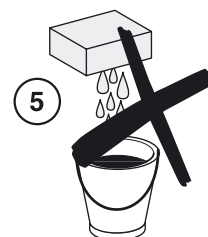
3 - Altuglas diffusing panel: use a antistatic plastic cleaner, such as Kleenmaster® Brilliantize available from Broadwest Corp.



4 - Glass : use a glass cleaner or same product as above.



5 - Do not use water on the unit.





Changing fuses

1 - Turn off the Mammomask® and unplug the power cord from the filter.

2 - Using a miniature flathead screwdriver, slide out the fuse holder tray.

3 - Change the fuses, using slow blow 3AG glass fuses as follows :

MM4 :	2A/250V 1.25" x 1/4"
MM8 :	6.25A/250V 1.25" x 1/4"
MM12 :	10A/250V 1.25" x 1/4"

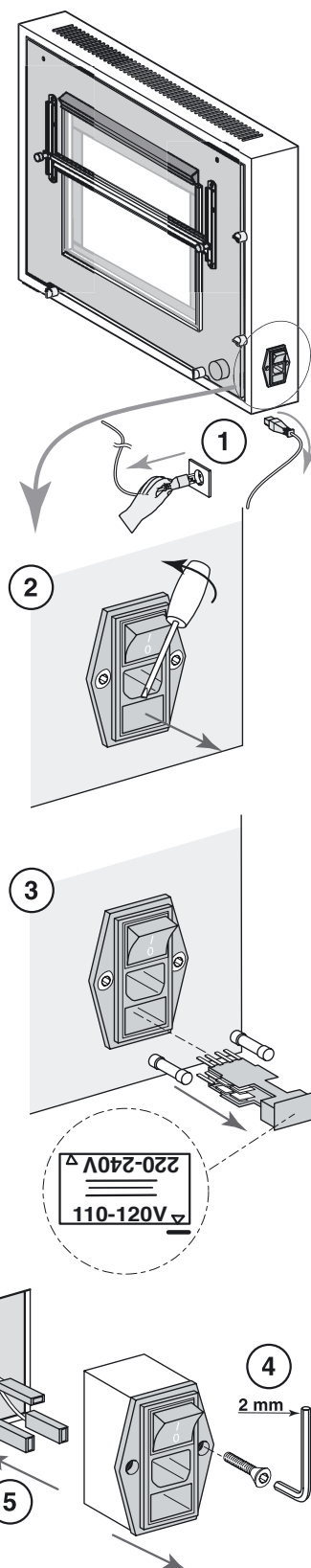
Do not connect to 220V/240V or invert fuse holder tray.
UL Listed for 120V operation only.

Changing the EMI filter

1 - Turn off the Mammomask® and remove the power cord from the filter.

4 - Remove the two mounting screws from the filter.

5 - Remove the filter, disconnect the three wires on the back of the filter. Replace the filter.





Changing the glass

1 - For MM12A or MM12MA with an adjustable center film grip, remove the lower two screws of the rail as shown.

MM12
MM12 M

2 - Unfasten the two knobs of the film grip.

3 - Slide the film grip downwards, keeping it pressed against the glass.

4 - Rotate the film grip, making sure the metal rollers do not fall out.

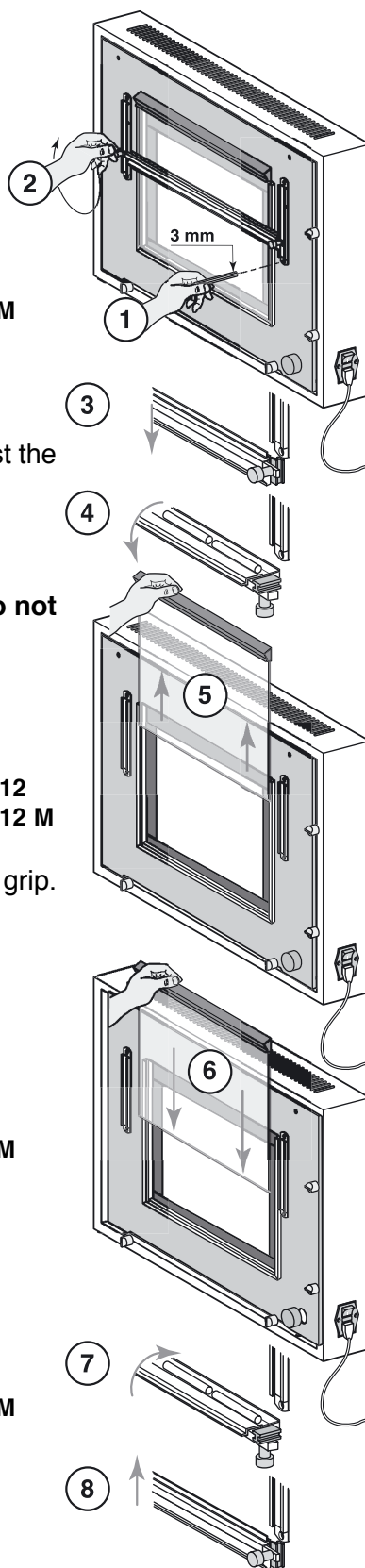
5 - 6 - Lift straight up holding the top film grip to remove the glass panel. For MM12 units where the center film grip is permanently attached to the glass, carefully lift straight up holding the top and center film grip.

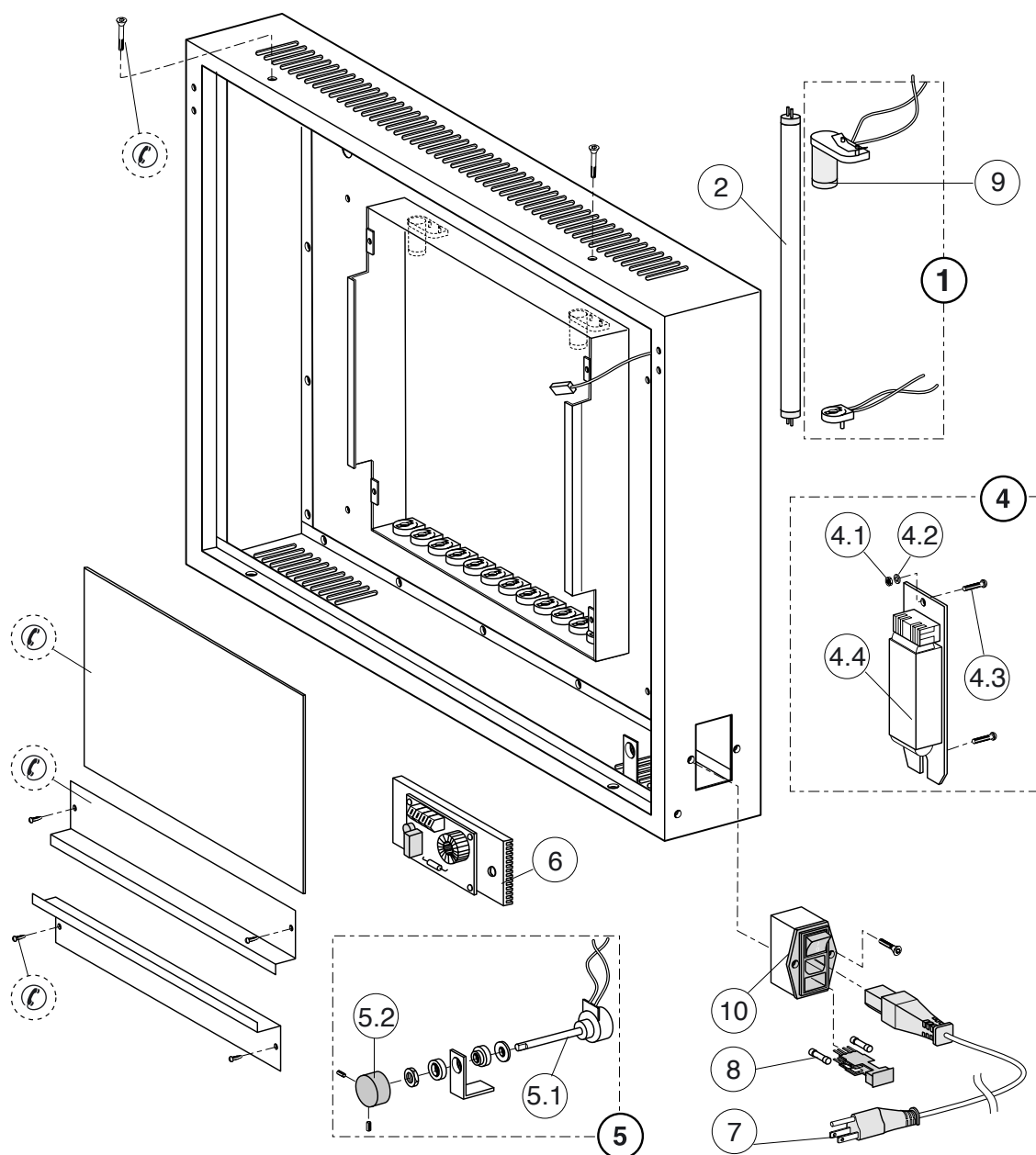
MM12
MM12 M

MM4
MM8
MM12
MM12 M

MM12
MM12 M

7 - 8 - Follow the same steps in reverse order to reinstall.



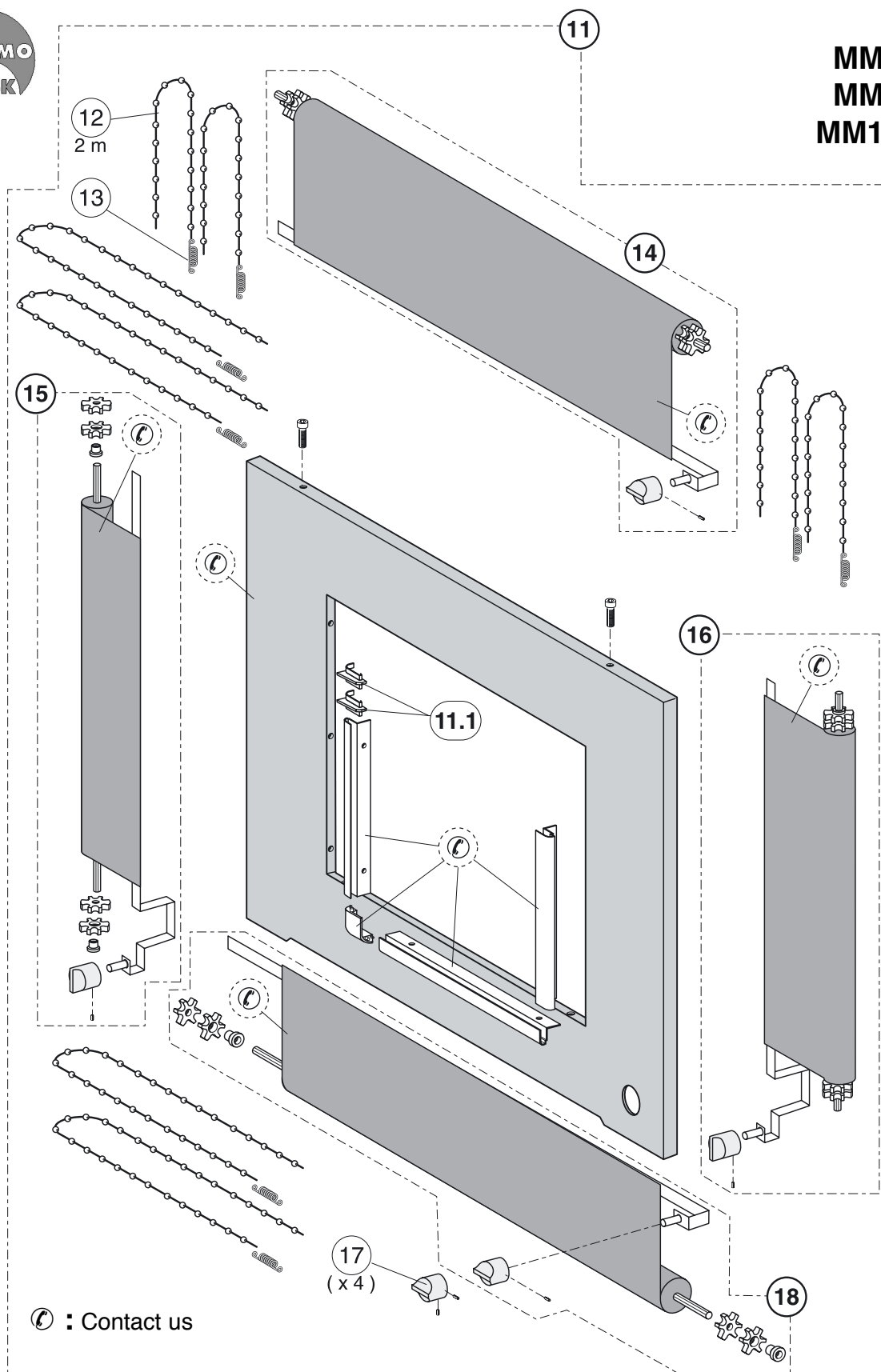


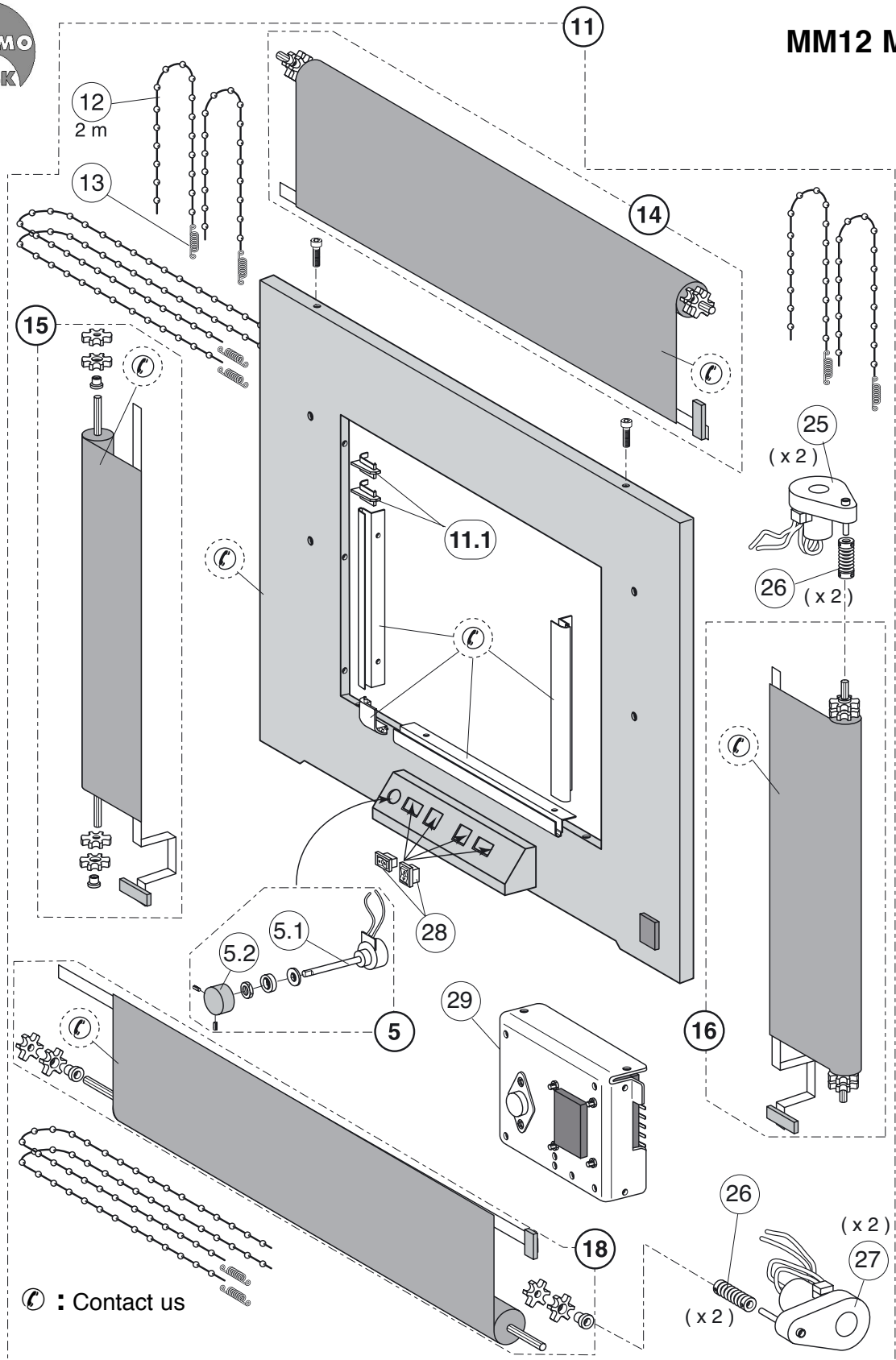
⚡ : Contact us





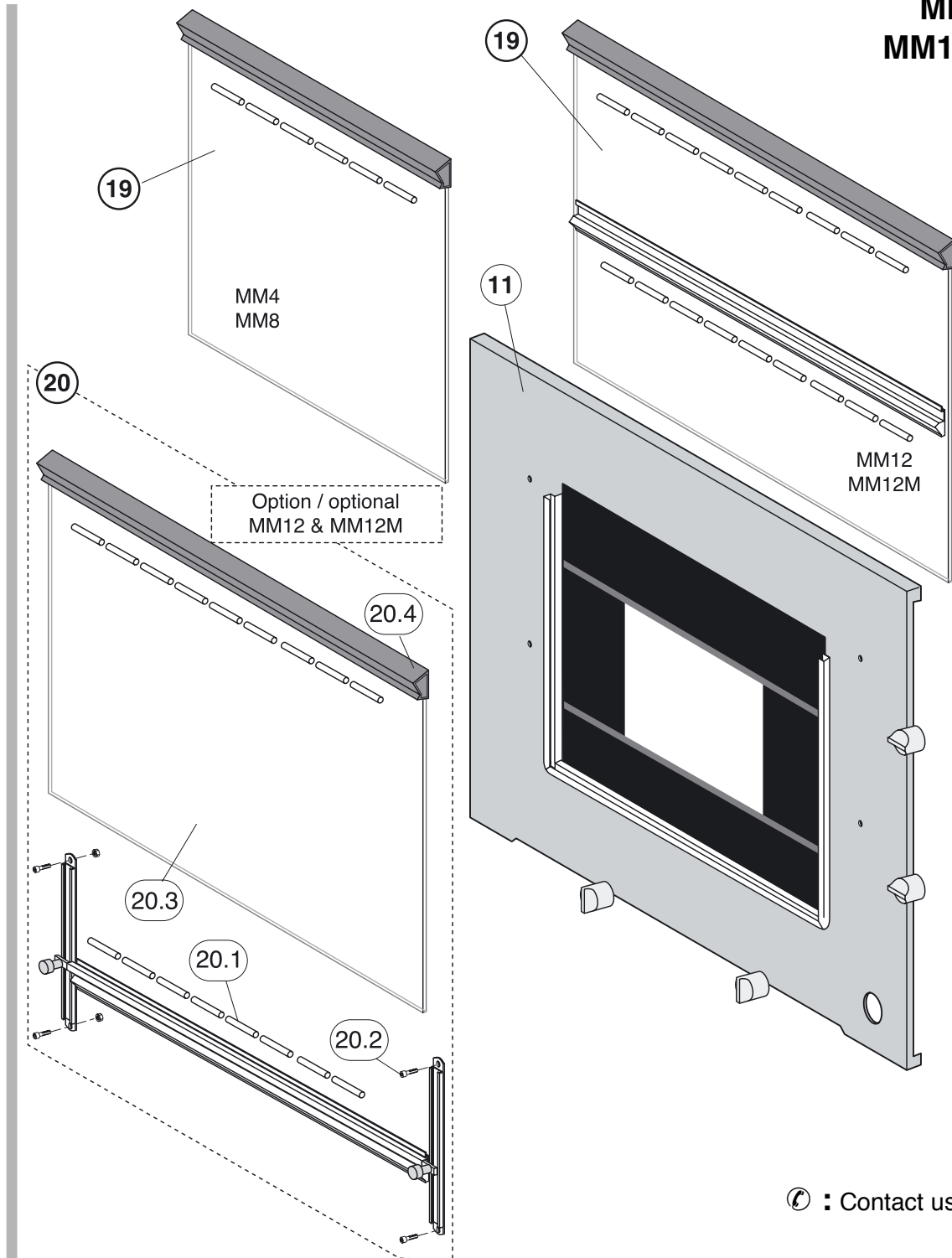
MM4
MM8
MM12







**MM4
MM8
MM12
MM12 M**

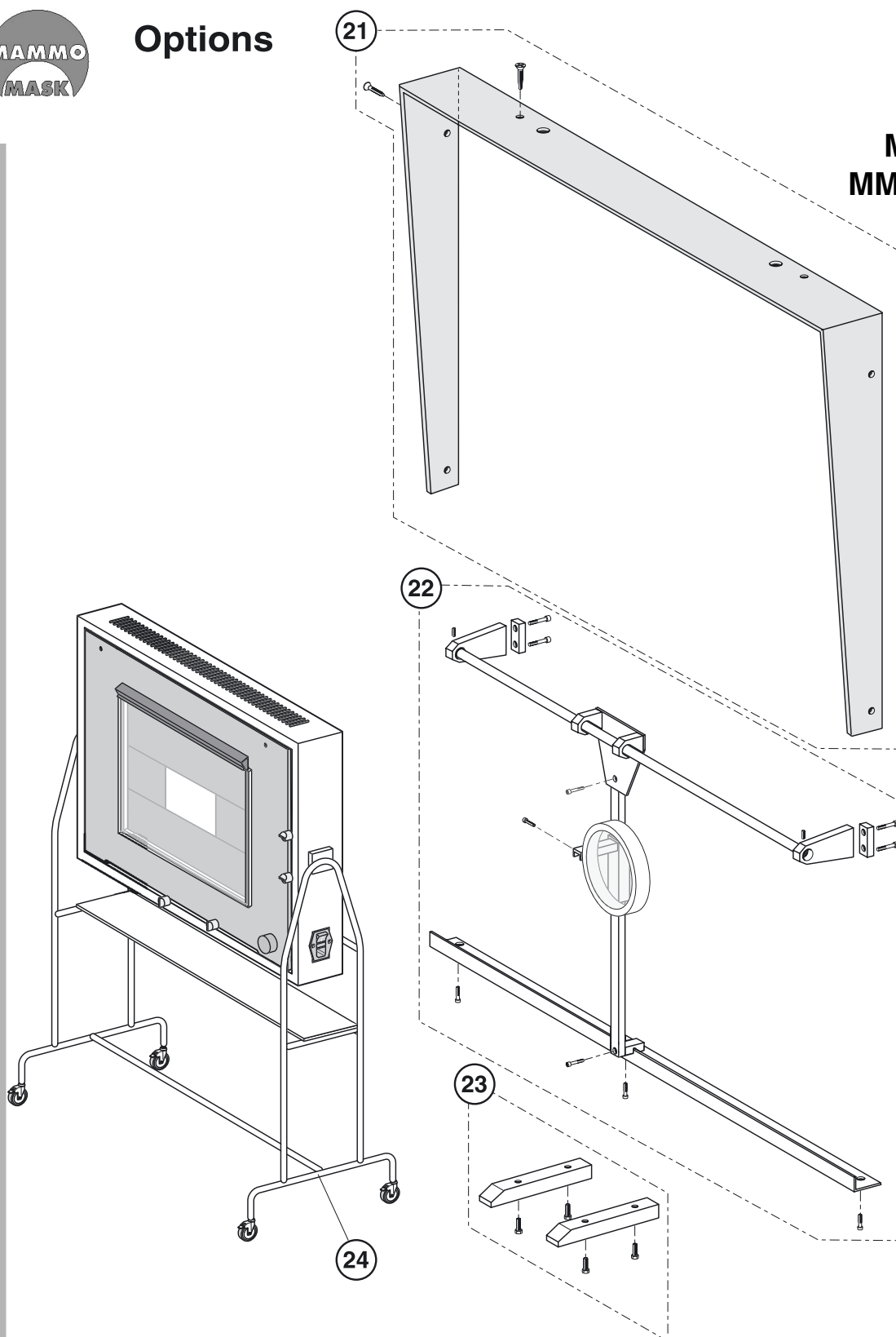


☎ : Contact us



Options

MM4
MM8
MM12
MM12 M





MM4 : Spare parts list

	Description	References
1	Lamp Holder set MM4 & MM8	LHS4/8
2	High Luminance fluorescent tube 18W	L18
3	Not applicable	
4	Ballast - 40 Watt for two 18 Watt lamps	SL40.314
5	Potentiometer - dimmer stern	RHS
6	Rheostat circuit board	RH5
7	Powerd cord	PCMM
8	Fuse	4 amp
9	Starter 18W lamp	FS-2
10	EMI filter	EMI 10 amp
11	Front panel	
12	White beaded chain	CH-4
13	Chain connecting spring	SA-2
14	Top shutter	MMS4-T
15	Left shutter	MMS4-L
16	Right shutter	MMS4-R
17	Shutter Knob	SK
18	Bottom shutter	MMS4-B
19	not applicable (see local glass company)	
20	Not applicable	
21	Not applicable	
22	Not applicable	
23	Desktop mountig supports	DMS
24	Not applicable	



MM8 : Spare parts list

	Desription	References
1	Lamp Holder set MM4 & MM8	LHS4/8
2	High Luminance fluorescent tube 18W	L18
3	Not applicable	
4	Ballast - 40 Watt for two 18 Watt lamps	SL40.314
5	Potentiometer - dimmer stern	RHS
6	Rheostat circuit board	RH5
7	Powerd cord	PCMM
8	Fuse	6.25 amp
9	Starter 18W lamp	FS-2
10	EMI filter	EMI 10 amp
11	Front panel	
12	White beaded chain	CH-4
13	Chain connecting spring	SA-2
14	Top shutter	MMS8-T
15	Left shutter	MMS8-L
16	Right shutter	MMS8-R
17	Shutter Knob	SK
18	Bottom shutter	MMS8-B
19	not applicable (see local glass company)	
20	Adjustable center film grip	A
21	Viewing canopy	V-8
22	Sliding adjustable magnifier	SM-8
23	Desktop mountig supports	DMS
24	Mobile stand	P-8



MM12 : Spare parts list

	Description	References
1	Lamp Holder set MM12 & MM12M	LHS12
2	High Luminance fluorescent tube 36W	L36
3	Knurled button	K12
4	Ballast - 40 Watt for one 36 Watt lamp	SL40.314
5	Potentiometer - dimmer stern	RHS
6	Rheostat circuit board	RH5
7	Powerd cord	PCMM
8	Fuse	10 amp
9	Starter 36W lamp	FS-4
10	EMI filter	EMI 10 amp
11	Front panel	
12	White beaded chain	CH-4
13	Chain connecting spring	SA-2
14	Top shutter	MM12-T
15	Left shutter	MM12-L
16	Right shutter	MM12-R
17	Shutter Knob	SK
18	Bottom shutter	MM12-B
19	not applicable (see local glass company)	
20	Adjustable center film grip	A
21	Viewing canopy	V-12
22	Sliding adjustable magnifier	SM-12
23	Desktop mountig supports	DMS
24	Mobile stand	P



MM12M : Motorized MM12M : Spare parts list

	Description	References
1	Lamp Holder set MM12 & MM12M	LHS12
2	High Luminance fluorescent tube 36W	L36
3	Knurled button	K12
4	Ballast - 40 Watt for one 36 Watt lamp	SL40.314
5	Potentiometer - dimmer stern	RHS
6	Rheostat circuit board	RH5
7	Powerd cord	PCMM
8	Fuse	10 amp
9	Starter 36W lamp	FS-4
10	EMI filter	EMI 10 amp
11	Front panel	
12	White beaded chain	CH-4
13	Chain connecting spring	SA-2
14	Top shutter	MM12-T
15	Left shutter	MM12-L
16	Right shutter	MM12-R
17	Shutter Knob	SK
18	Bottom shutter	MM12-B
19	not applicable (see local glass company)	
20	Adjustable center film grip	A
21	Viewing canopy	V-12
22	Sliding adjustable magnifier	SM-12
23	Desktop mountig supports	DMS
24	Mobile stand	P
25	Vertical shutters motor	MS-1
26	Stainless steel sprocket drive	SD-M
27	Directional shutter switch	SK-M
28	Horizontal shutter knob	MS-2
29	Power supply	HB24-1.2-A



Technical specifications

MM4

Weight : 21 Kg / 46,3 lb

Dimensions :

Length. x height. x depth. : 60 x 72 x 13 cm
..... 23,6 x 28,3 x 15,1 in

Illuminated area :

Length. x height. : 38 x 45 cm

Electrical specifications

Rated voltage : 120V / 60Hz

Power consumption : 90 W

Consumed current : 1,5 A

UL listed

Technical specifications

MM8

Weight : 37 Kg / 81,6 lb

Dimensions :

Length. x height. x depth. : 103 x 72 x 13 cm
..... 40,6 x 28,3 x 15,1 in

Illuminated area :

Length. x height. : 73 x 45 cm

Electrical specifications

Rated voltage : 120V / 60Hz

Power consumption : 300 W

Consumed current : 5 A

UL listed

Technical specifications

MM12

Weight : 50 Kg / 110,2 lb

Dimensions :

Length. x height. x depth. : 131 x 87 x 13 cm
..... 51,6 x 34,3 x 15,1 in

Illuminated area :

Length. x height. : 108 x 27 + 108 x 27 cm

Electrical specifications

Rated voltage : 120V / 60Hz

Power consumption : 420 W

Consumed current : 8 A

UL listed

Technical specifications

Motorized MM12

Weight : 54 Kg / 119 lb

Dimensions :

Length. x height. x depth. : 131 x 87 x 13 cm
..... 51,6 x 34,3 x 15,1 in

Illuminated area

Length. x height. : 108 x 27 + 108 x 28,5 cm

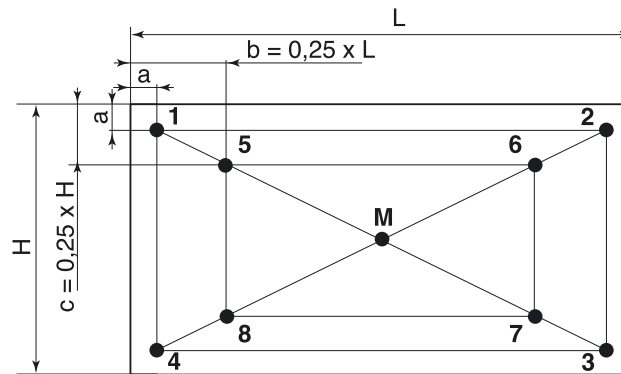
Electrical specifications

Rated voltage : 120V / 60Hz

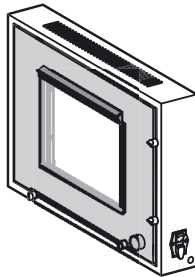
Power consumption : 420 W

Consumed current : 8,1 A

Not UL listed

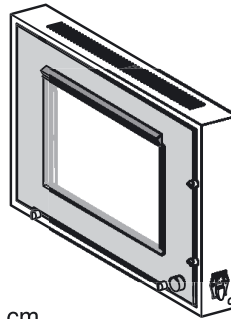


MM4



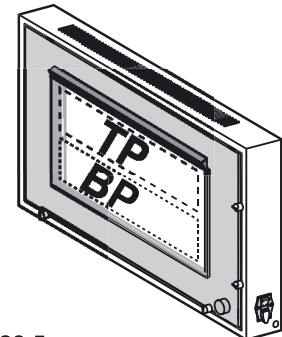
$a = 8 \text{ cm}$
 $b = L / 4 = 9,5 \text{ cm}$
 $c = H / 4 = 10 \text{ cm}$

MM8



$a = 8 \text{ cm}$
 $b = L / 4 = 18,25 \text{ cm}$
 $c = H / 4 = 10,75 \text{ cm}$

MM12



$a = 8 \text{ cm}$
 $b = L / 4 = 28,5 \text{ cm}$
 $c = H / 4 = 10 \text{ cm}$

TP

Top panel

BP

Bottom panel

Brightness control

✓ Adjust the dimmer control to maximum, leaving the lights on at least 30 minutes before test is performed.

✓ Measure brightness at the center point M.

✓ Measure the brightness at the four angles shown above.

✓ For MM12, perform the luminance test on each panel (TP and BP).

Criteria : $\Delta = (L_i - L_m) / L_m$

Where : L_i : luminance value at measured point (in Cd/m^2)
 L_m : luminance value at center point (in Cd/m^2)

✗ Suggest testing in accordance with DIN 6856, European protocol as follows :

a = 8 cm

$L_m > 2000 \text{ Cd/m}^2$

Points 1-2-3-4 : écart maximum/maximum deviation $\Delta < 30\%$

Points 5-6-7-8 : écart maximum/maximum deviation $\Delta < 15\%$



General specifications

Class I medical product according to appendix IX of 93/42/EEC.

Meet the provisions of the 93/42/ECC Council Directive for Medical Devices and comply with applicable part of the following standards :

EN 60-601-1 (1990)

EN 60-598 (1989)

DIN 6856

Meet the provisions of the 89/336/ECC Concil Directive for Electromagnetic Compatibility and comply with the following standards :

EN 60-601-1-2 (1993)

CEI 60-601-1-2 (2001)

Electrical class : I type A.

Storage and use :

	Storage	Use
Temperature °C	-10°C à/to +40°C	+15°C à/to +30°C
Humidity %	20% à/to 90%	20% à/to 90%