

ORA ZRX



ORA ZRX Operating instructions



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Device description

ORA ZRX is a motor for awnings, with programmable limit switches, dual-radio control and wired control option.

The limit switches can be adjusted manually, or acquired automatically by the motor, if the roller shutter is equipped with mechanical stop devices, on the up and/or down motion.

The dual-radio control allows, on the one hand, the adjustment of the limit switches and the main functions to be carried out simply and interactively and, on the other hand, to be integrated into a Z-Wave™ network.

The wired control option provides for both programming and motor control, from a simple switch, as an addition or as an alternative to the radio remote control.

This product operates in any Z-Wave™ network with other Z-Wave™/Z-Wave Plus™ certified devices and controllers from any other manufacturer. As a constantly powered node, ORA ZRX will act as repeater regardless of the vendor in order to increase the reliability of the network.

This device is a security enabled Z-Wave Plus™ product that is able to use encrypted Z-Wave Plus™ messages to communicate to other security enabled Z-Wave Plus™ products.

This device must be used in conjunction with a Security Enabled Z-Wave™ Controller in order to fully utilize all implemented functions.

Technical Specification

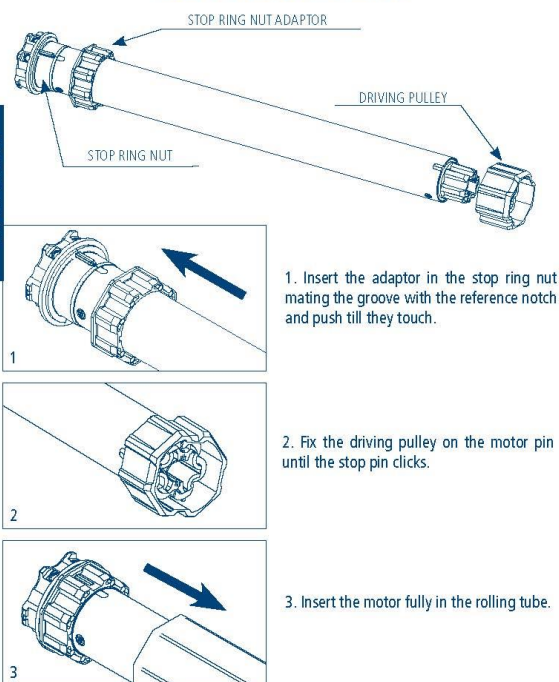
Power supply	230 VAC ±10% 50 Hz
Work temperature	From -10° to 40° C
Power consumption in stand-by	< 1W
Radio frequency	868.4 MHz
Protection system	S2 Security
Maximum distance	up to 100 m outdoor up to 40 m indoor
Compliance	CE, RoHs
Electrical IP Rating	IP44

Contents of the manual

This manual only covers the installation procedures and motor functions related to the Z-Wave™ network. For motor installation, electrical connections, limit switch setting, programming of the main motor functions, please refer to the following manuals:

- Product Installation Manual, p/n A4518_6424
- Installation information sheet, p/n A4516_6F38

HOW TO PREPARE THE MOTOR

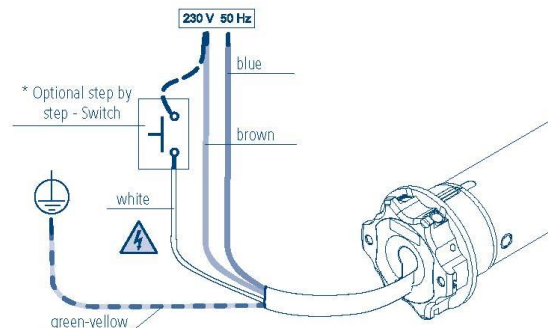


NB: If you use tubes with a round form, the driving pulley must be fixed to the tube, and the installation is to be paid by the person who installs the system. For other tube sections the fitting is optional, but strongly recommended.

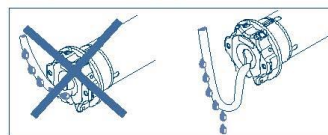
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ELECTRICAL CONNECTIONS

- In order to prevent dangerous situations or malfunctioning, the electrical command elements wired to the motor must be sized according to the motor's electrical features.
- Means for disconnection must be incorporated in the fixed wiring in accordance with the national installation standards.
- For outdoor use, provide the appliance with a supply cable with designation H05RN-F containing at least 2% of carbon.
- If not used, the white wire must be insulated. It is dangerous to touch the white wire when the motor is powered.



* Installing this button is optional. The connection can be done differently using the brown wire or the blue wire. The button affords the possibility to command the motor in stepping mode (up, stop, down, stop, up, stop, down, stop...)



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Device Installation

- 1) Carry out motor preparation and installation on the awning.
- 2) Making electrical connections.
- 3) Program the limit switches, adjustments and sensor associations as described in the product installation manual.
- 4) Include the device in the Z-Wave™ network.

It is advisable to carry out all the preparation, installation and adjustment operations before including the motor in the Z-Wave™ network. Although it is possible to include the motor in a Z-Wave™ network, most features will not be active until the limit switches are adjusted. In particular, the following are not active:

- Movement commands and position reporting
- Sending notifications
- Movement requested by Command class indicator

These limitations are necessary to limit the possibility of damage to the fabric and awning structure and to protect the safety of the installer.

Add/Remove the device into a Z-Wave™ network (classic)

ORA ZRX is compatible with all Z-Wave™/Z-Wave Plus™ certified controllers. The device supports both the **Network Wide Inclusion** mechanism (which offers the ability to be included in a network, even if the device is not directly connected to the controller) and **Normal Inclusion**.

By default, the inclusion procedure starts in **Normal Inclusion** mode and after a short timeout the procedure continues in **Network Wide Inclusion** mode that lasts for about 20 Seconds.

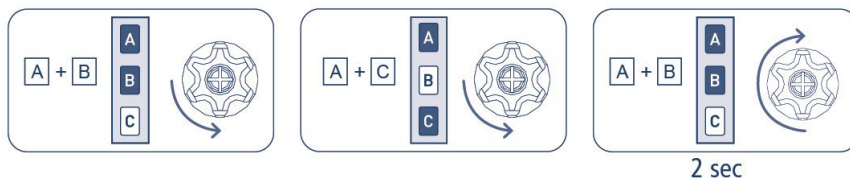
Only a controller can add the device into the network. After activating the inclusion function by the controller, the device can be added by setting it in **Learn Mode**.

Standard Inclusion (add/remove)

Make sure that the motor is powered and possibly connected to an up/down button if you wish to use the wired programming sequence, or have a remote control already saved in the motor. To make the inclusion, make sure that the motor is not already included in a Z-Wave™ network; if it is already included, perform the procedure described below, a first time to make the exclusion, and then a second time to make the inclusion.

The sequence of operations for inclusion/exclusion procedures is as follows:

- 1) Preparing the Z-Wave™ controller for inclusion (or exclusion) of a device (see your controller's instructions).
- 2) On the motor, run the programming sequence for inclusion/exclusion:
 - a. From the remote control: AB - AC - AB (2 seconds), wait for confirmation movements.

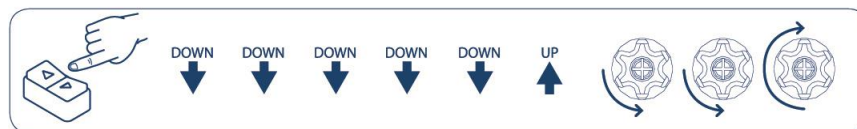


- - b. From the button (if the end stops are not adjusted, you can use either sequence indifferently):

- i. With the motor on the high limit switch: UP-UP-UP-UP-UP-DOWN



- ii. With the motor on the low limit switch: DOWN-DOWN-DOWN-DOWN-DOWN-UP

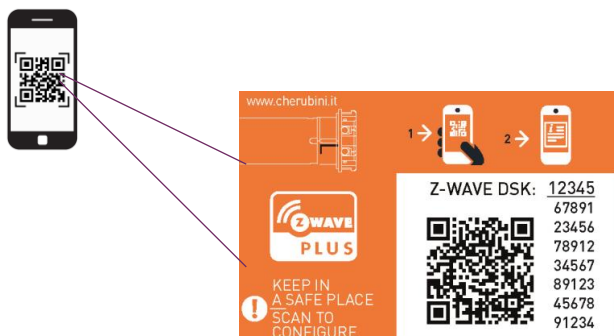


- - 3) The motor performs a few short movements to indicate that the inclusion (or exclusion) procedure is in progress.
 - 4) Checking the controller make sure that the procedure was successful

SmartStart Inclusion

Z-Wave™ SmartStart aims to shift the tasks related to inclusion of an end device into a Z-Wave™ network away from the end device itself, and towards the more user-friendly interface of the gateway.

Z-Wave™ SmartStart removes the need for initiating the end device to start inclusion. Inclusion is initiated automatically on power-ON, and repeated at dynamic intervals for as long as the device is not included into a Z-Wave™ network. As the new device announces itself on power-ON, the protocol will provide notifications,



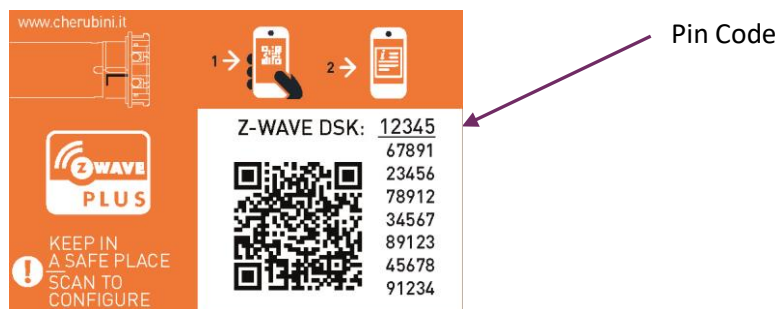
and the gateway can initiate the inclusion process in the background, without the need for user interaction or any interruption of normal operation. The SmartStart inclusion process only includes authenticated devices.

ORA ZRX can be added into a Z-Wave™ network by scanning the Z-Wave™ QR Code present on the product with a controller providing SmartStart inclusion. No further action is required and the SmartStart product will be added automatically within 10 minutes of being switched on in the network vicinity.

The QR code and DSK in the numerical format are shown on the label on the motor cable. The PIN is the first group of 5 digits printed underlined. To facilitate consultation of these codes, the label has a detachable, self-adhesive part, which can be kept in the instruction manual, or applied in an easily accessible place on the roller shutter (box or final blade).

S2 Secure inclusion

When adding ORA ZRX to a Z-Wave™ network with a controller supporting Security 2 Autenticated (S2), the PIN code of the Z-Wave™ Device Specific Key (DSK) is required. The unique DSK code is printed on the product label. The first five digits of the key are highlighted and underlined to help the user identify the PIN code.



Supported Command Classes

Command Class	Version	Non-Secure CC	Secure CC
COMMAND_CLASS_ZWAVEPLUS_INFO	2	x	
COMMAND_CLASS_APPLICATION_STATUS	1	x	
COMMAND_CLASS_DEVICE_RESET_LOCALLY	1		x
COMMAD_CLASS_INDICATOR	3		x
COMMAND_CLASS_ASSOCIATION	2		x
COMMAND_CLASS_MULTI_CHANNEL_ASSOCIATION	3		x
COMMAND_CLASS_ASSOCIATION_GRP_INFO	3		x
COMMAND_CLASS_TRANSPORT_SERVICE	2	x	
COMMAND_CLASS_VERSION	3		x
COMMAND_CLASS_MANUFACTURER_SPECIFIC	2		x
COMMAND_CLASS_POWERLEVEL	1		x
COMMAND_CLASS_CONFIGURATION	4		x
COMMAND_CLASS_SECURITY_2	1	x	
COMMAND_CLASS_SUPERVISION	1	x	
COMMAND_CLASS_FIRMWARE_UPDATE_MD	5		x
COMMAND_CLASS_BASIC	2		x
COMMAND_CLASS_WINDOW_COVERING	1		x
COMMAND_CLASS_SWITCH_MULTILEVEL	4		x
COMMAND_CLASS_NOTIFICATION	8		x
COMMAND_CLASS_PROTECTION	2		x

Supporting Command Class Basic

The basic command classes are mapped into the Switch Multilevel Command Class.

Basic Command received	Mapped Command (multilevel Switch)
Basic Set (0xFF)	Multilevel Switch (0xFF)
Basic Set (0x00)	Multilevel Switch (0x00)
Basic Set (1, 0x63)	Multilevel Switch (1, 0x63)
Basic GET	Basic Report (Current Value, Target Value, Duration) Current Value and Target Value MUST be set to 0xFE if not position aware

Supporting Command Class Indicator

The device supports the Command Class Indicator V3 (ID 0x50). When the device receives an indicator set, the motor will perform opening and closing movements of the awning. The number of movements will be a maximum of 15, with a minimum stroke time of 0.5 s, and a minimum pause time of 0.5 s. **Note:** to prevent damage to the fabric and tent structure, movements are only performed if the end switches have been saved.

Notification Command Class Support

The device is able to send a System notification based on the information provided by the sensors linked to the motor:

- Rain: A520016 Rugiada
- Wind: A520007 Windtec, A520008 Windtec Lux, A520012 Mistral
- Solar: A520008 Windtec Lux

Notification Event Code	The meaning associated to the event
9 (Digital Input State)	Wind above a threshold
10 (Digital Input State)	Light above a threshold
11 (Digital Input State)	Rain above a threshold
3 (System Error Failure)	This notification is sent when the motor reaches an obstacle during its operation. The parameter event associate to this event is 1 Byte with the following meaning: 1) collision during opening 0) collision during closing

Notification Command Class Control

The motor reacts by opening/closing and setting the protection, when it receives a System Notification.

The logic of processing notifications is as follows:

Notification Event Code	The meaning associated to the event
9 (Digital Input State)	Wind above a threshold
10 (Digital Input State)	Light above a threshold
11 (Digital Input State)	Rain above a threshold

- If the wind blows above the threshold: closing of the awning, activation of the movement lock
- If the wind blows below the threshold: after 8 minutes, deactivation of the movement lock and reopening of the awning to the position before the wind alarm activation, if the motor has been programmed to perform this operation.
- With wind under the threshold:
 - If rain is present: closing of the awning.
 - If no rain: no operation
- With wind under the threshold and no rain:
 - If the light goes above threshold: opening of the awning.
 - If the light goes under the threshold: closing of the awning.

Device control

Controlling ORA ZRX by remote control and external switches

ORA ZRX can also be controlled by radio remote control, and by wired button.

The radio remote control is extremely useful when installing the motor on the awning, to set the limit switches and perform all programming and association functions with the climate sensors. After the first installation, the remote control can still be used as a local control point. All information regarding compatible devices and programming methods are described in the product installation manual. From the remote control, you can execute the basic commands:

- Closing the awning: press and release the UP button
- Opening the awning: press and release the DOWN button
- Stop the awning: press and release the STOP button

ORA ZRX can also be controlled by a wired button, both single and a double-action (up/down).

With the single action button, the operation is as follows:

- Each time the button is pressed/released, the motor will perform the following operations in sequence: Closing, Stopping, Opening, Stopping and so on

With the double-action button:

- Closing the awning: press and release the UP button
- Opening the awning: press and release the DOWN button
- Stop the awning: press and release the UP or DOWN button while the motor is moving

When leaving the factory:

- No remote control is associated with the motor. The motor can be controlled via a wired button, but until the limit switches are set, it moves in 'dead man' mode: when the button is released, the motor stops.
- As long as the limit switches are not set, the direction of movement of the motor may be reversed, compared to the remote control and the wired double-action button. The direction is correctly identified automatically by the motor itself when the limit switches are set and cannot be changed.

Further information on the operation of the remote control, and the wired button, can be found in the product installation manual.

Controlling ORA ZRX by a Z-Wave™ controller

ORA ZRX can be controlled by any Z-Wave™/ Z-Wave Plus™ certified controller available in the market. In the figure below, is represented an example of a *control panel interface* that shows how the device will appear once included into the Gateway



By moving the cursor in the scrollbar is possible to regulate the opening level of the awning.

Associations

The device supports 4 association groups, each of which supports the association of up to 5 devices (nodes):

Group ID	Group Name	N° of max node supported in the group	Description	Command sent
1	Lifeline	8	Lifeline Group	Windows Covering report, Switch Multilevel report, Device Reset Locally Notification, Notification Report, Protection Report, Indicator Report, Configuration Report,
2	Follow-me	8	Nodes belonging to this group will follow the device level. The parameter Id sent by this command can be configured by using parameter 32.	Basic Set
3	Scene Activation	8	Nodes belonging to this group receive an activation Scene ID if an obstacle is reached during its operation. The scene Id can be defined by using parameters 30, 31	Scene Activation Set
4	Follow-me Weather	8	Nodes belonging to this group will follow the device level if the change is due by the weather conditions	Windows Covering Set

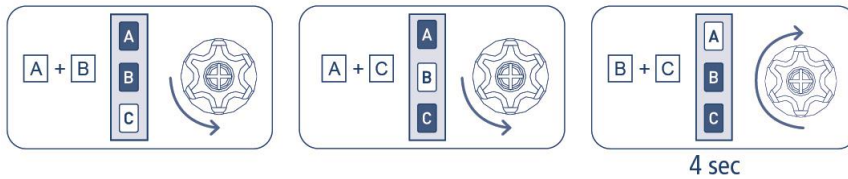


INFO: Association ensures direct transfer of control commands between devices, and is performed without participation of the main controller.

Reset to the factory settings

The Z-Wave™ configuration of the ORA ZRX motor can be reset to the original factory values with the following programming sequence:

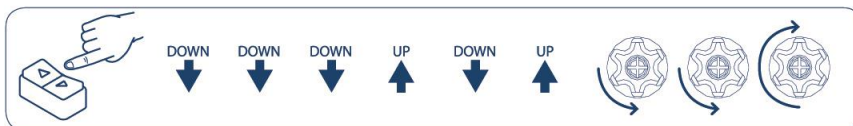
- 1) From the remote control: AB - AC - BC (4 seconds), wait for confirmation movements to be executed.



- 2) From the button (if the end stops are not adjusted, you can use either sequence indifferently):
 - a. With the motor on the high limit switch: UP-UP-UP-DOWN-UP-DOWN



- b. With the motor on the low limit switch: DOWN-DOWN-DOWN-UP-DOWN-UP



Please use this procedure only when the network primary controller is missing or otherwise inoperable.



INFO: If the reset is performed while the device is still part of a network, it notifies the other devices in the Lifeline Group that it has been removed (***Device Reset Locally Notification***).

Firmware Update

The system supports over-the-air firmware updates that do not require the device to be removed from its location. The firmware update can be activated from all certified controllers supporting version 2 of the Firmware Update function.



WARNING: The system will be rebooted at the end of the firmware update procedure. It is advisable to carry out the firmware update procedure only when necessary and following careful planning of the intervention.

Configurations

Parameter Number	Size	Parameter Name	Default Value	Description
30	2	OPEN_COLLISION_SCENE_ID	0	Scene id sent if a collision is detected during opening operation. 0 no scene ID is sent
Parameters Values		Min: 0Max: 254		
Value	Description			
0	Do not send the scene activation			
1- 254	The scene Id sent for the collision during Opening			

Parameter Number	Size	Parameter Name	Default Value	Description
31	2	CLOSE_COLLISION_SCENE_ID	0	Scene id sent if a collision is detected during closing operation. 0 no scene ID is sent
Parameters Values		Min: 0Max: 254		
Value	Description			
0	Do not send the scene activation			
1- 254	The scene Id sent for the collision during Closing			

Parameter Number	Size	Parameter Name	Default Value	Description
32	1	PARAM_ID	13	Parameter Id used by the window covering set on group: Follow me weather
Parameters Values		Min: 0Max: 23		
Value	Description			
0-23	Send the Window covering set using this parameter ID			

Parameter Number	Size	Parameter Name	Default Value	Description
33	1	MOVEMENT_TRIGGER	0	Read-only parameter. Used to describe the reason of the last movement
Parameters Values		Min: 0Max: 3		
Value	Description			
0	requested by the user			
1	Wind			
2	Sun			
3	Rain			

Parameter Number	Size	Parameter Name	Default Value	Description
34	1	AUTOMATION_CONFIG	5	Used to define for which event the automation is active.
Parameters Values		Min: 5Max: 7		
Value	Description			
1	Wind Automation is active (always active, cannot be disabled)			
2	Sun Automation			
4	Rain Automation (always active, cannot be disabled)			
The value of this parameter is the sum of wind, sun, rain status. Since Automation for Wind and Rain are always activated the only valid value are: 5 to disable the SUN automation 7 to enable the SUN automation				

Parameter Number	Size	Parameter Name	Default Value	Description
35	1	SENSOR_ACTIVATION_STATUS	0	Read-only parameter. Used to describe which sensor has been associated to the motor
Parameters Values			Min: 0	Max: 7
Value	Description			
0	No sensors are associated to the motor			
1	Wind Sensor			
2	Sun Sensor			
4	Rain Sensor			
The value of this parameter is the sum of wind, sun, rain status.				

Parameter Number	Size	Parameter Name	Default Value	Description
36	1	LOST_LIFE_SIGNAL	0	Read-only parameter. Used to describe if the motor has lost the connection with its sensors
Parameters Values			Min: 0	Max: 1
Value	Description			
0	Connection with the sensors is alive			
1	Connection with the sensors has been lost			

Parameter Number	Size	Parameter Name	Default Value	Description
37	1	LEVEL_REPORT_PERIOD	5	Used to define the level report frequency.
Parameters Values			Min: 2	Max: 60
Value	Description			
2-60	Define the time frequency from a level report to the next ones (<i>expressed in seconds</i>)			

Parameter Number	Size	Parameter Name	Default Value	Description
38	1	COLLISION_STATUS	2	Read-only parameter. Used to tell if a collision happened in the last movement.
Parameters Values		Min: 0Max: 2		
Value	Description			
0	Collision During opening operation			
1	Collision During closing operation			
2	No collision			

SAFETY INSTRUCTIONS TO SAVE

GB TRANSLATION OF THE ORIGINAL INSTRUCTIONS

These safety instructions supplement the drive instructions. Please give these instruction to the final user after installation.

WARNING: IMPORTANT SAFETY INSTRUCTIONS.

It is important for the safety of persons to follow these instructions. Save these instruction.

⚠ WARNING: the motor shall be disconnected from its power source during cleaning, maintenance and when replacing parts.

- The tubular motors have been designed for the automation of solar protections like roller shutters, screen, awnings, vertical awnings a.s.o. Any other use is improper. Special applications shall be submitted to Cherubini S.p.A.'s analysis and approval. Useful suggestions on motor choice are available on the website www.cherubini.it.
- Only professional technicians must perform installation, complying with all safety instructions, especially those regarding electrical connections.
- This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and if they understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.
- Do not allow children to play with fixed control devices. Keep remote controls out of the reach of children.
- Shutters: watch the moving shutter and keep people away until the shutter is completely closed. Care should be taken when operating the manual release with shutter open since it may fall rapidly due to weak or broken springs.
- Awnings: do not operate the awning when maintenance, such as window cleaning, is being carried out in the vicinity.
- Disconnect the automatically controlled shutter/awning from the supply when maintenance, such as window cleaning, is being carried out in the vicinity.

- Frequently examine the installation in order to detect any out-of-balance condition and signs of wear or damage to cables and springs. Do not use if repair or adjustment is necessary.
- The acoustic emission level of Cherubini S.p.A. motors is lower than 70dBA: $L_{pA} < 70\text{dBA}$.
- The choice of the motor, based on its application requirements, shall be compatible with the data written on the motor label. The trade name of the product is printed on the label. Every motor model is identified by a part number on the packaging label. The part number is described in the motor catalog available on the website www.cherubini.it.
- This instructions can be also asked on the website www.cherubini.it.

WARNINGS FOR INSTALLER

WARNING: Important safety instructions.

Follow all instructions, since incorrect installation can lead to severe injury.

- The choice of the motor, in its use application, must be compatible with the rating marked on the motor itself. For further technical information, refer to product data sheet on the website www.cherubini.it or contact your local Cherubini representative (see the last page of this manual for the addresses).
- The mass and the dimension of the driven part shall be compatible with the rated torque and related operating time. Nominal torque and operating time are given on the motor rating label, in Nm and min. units respectively.
- The minimum diameter of the tube on which the motor can be installed is related to its proper external diameter. The values to be considered are the first two part number digits (e.g. AMP35xxxxxx, AME45xxxxxx, AME58xxxxxx). The tube must have a minimum diameter not lower than the following values: 40 mm (for motors with 35), 50 mm (45), 70 mm (58).
- Outdoor exposure of motor with H05VV-F (60227 IEC 53) designated cord: provide to protect the supply cord by inserting it into a cable duct or into an UV resistant sheath. Where that is not possible, motor with H05RN-F (60245 IEC 57) designated supply cord shall be installed.
- Before installing the drive, remove any unnecessary cords and disconnect

any equipment not required for powered operation.

- Before each maintenance intervention, installation or window cleaning switch off the motor power supply.
- Unprotected moving parts of the motor shall be installed higher than 2,5 m above the floor level that could be provide access to it or any other surface from which access to the drive is gained.
- The actuating member of a biased-off switch is to be located within direct sight of the driven part but away from moving parts. It is to be installed at a minimum height of 1,5 m and not accessible to the public. Fixed controls shall be clearly visible after installation.
- For motors incorporating a manual release device, the actuating means (e.g. a crank) must be installed at a height less than 1,8 m.
- Fixed controls have to be clearly visible after installation.
- For drive for projecting awnings with an edge at height $< 2\text{m}$ from the ground or any other access level, maintain a horizontal distance of at least 0,4 m between the fully unrolled driven part and any permanent object.
- If the supply cord is damaged, it must be replaced by Cherubini Service in order to prevent any risk.
- Connection devices, supports and adaptors are not supplied with our motors but separately. For use and choice consult the Cherubini "Tubular motors" catalogue (see www.cherubini.it).
- A suitable multi-pole switching device must be incorporated upstream in the fixed wiring in accordance with the wiring rules.

WARNINGS FOR USER

- Only professional technicians must perform maintenance and repairs.
- ⚠ - If the supply cord is damaged please call the assistance centre or qualified technical staff, in order to avoid any hazard.
- The tubular motor is designed to work non-stop for a maximum of 4 minutes.
- Do not squash, crush, drop or wet the tubular motor with any kind of liquid; do not pierce and do not apply any screw along the tubular section.
- The guarantee does not cover any damage caused by misuse, straining, tampering or incorrect connections.