

It's possible to find the most appropriate opening mechanism and handle operator for the required system, referring to the following charts.

### OPENING MECHANISM SELECTION

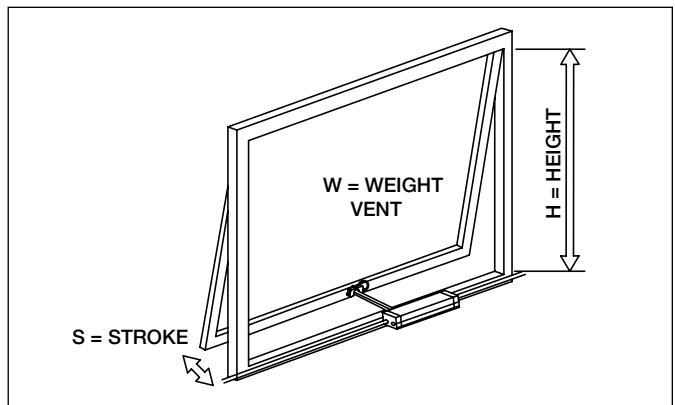
WINDOW TYPE	ADVISED MECHANISM	
	 Chain mechanism	 Cat
	 Chain mechanism	 Cat
	 Chain mechanism	 Locking opener

WINDOW TYPE	ADVISED MECHANISM	
	 Telescopic spindle	 Cat
	 Fork	
	 Fork	

### CONTROL OPERATOR SELECTION

Following charts refer to accurate installation, executed with our tools, with only one 90° bend of the conduit and with no rotary junction box included; the wind load has not been considered. Every additional bend or rotary junction box has to be counted as an additional window. For intermediate window heights refer to the directly lower height; in case of window lower than 750 mm it is necessary to reduce the actuator stroke to 1/3 of the window height. For windows with four-bar hinges the calculation of the necessary force depends on the hinge model. Please contact our Technical Dpt. for any specific application.

**THESE SELECTION GUIDES HAVE TO BE CONSIDERED AS A GENERAL DIRECTION AND MUST BE CHECKED BY THE INSTALLER. FOR ANY SPECIFIC APPLICATION, PLEASE CONTACT OUR TECHNICAL DEPT.**



S = Stroke 250 mm

H WINDOWS	No.	WEIGHT OF THE WINDOW (Kg)									
		10	15	20	25	30	35	40	45	50	60
750 - 1150	1										
	2										
	3										
	4										
	5										
	6										
	7										
1151 - 1400	1										
	2										
	3										
	4										
	5										
	6										
	7										
1401 - 1600	1										
	2										
	3										
	4										
	5										
	6										
	7										

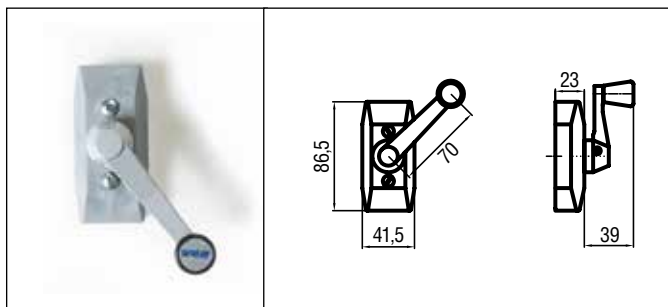
S = Stroke 380 mm

H WINDOWS	No.	WEIGHT OF THE WINDOW (Kg)									
		10	15	20	25	30	35	40	45	50	60
1150 - 1400	1										
	2										
	3										
	4										
	5										
	6										
	7										
1401 - 1600	1										
	2										
	3										
	4										
	5										
	6										
	7										

No.=No.windows+No.rotary junction boxes+No.bends (over 1)

- FLAT OPERATOR
- SIMPLE, MINI, CONCEALED OPERATOR
- GEARED OPERATOR

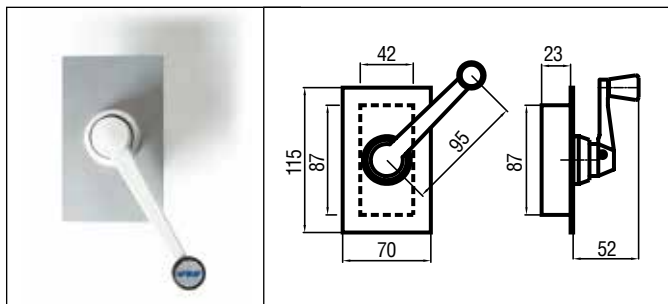
# CONTROL OPERATORS TRANSMISSION



## FLAT OPERATOR

PART No.	White	31560R
	Black	37161J
	Grey	40133A

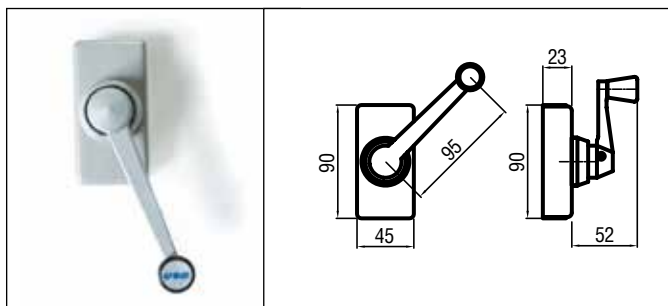
- It can be used with the 25 cm and 38 cm chain openers and with the locking opener for single bottom hinged windows.
- The inside mechanism and the handle are made in metal and the cover in plastic.
- Maximum cable length: 6 m. The spent travel tube is external.



## CONCEALED OPERATOR

PART No.	30745X
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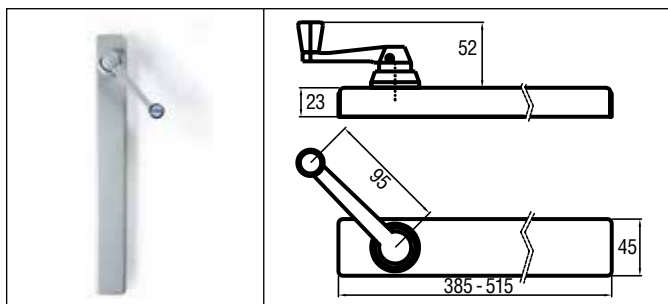
- It can be used with all opening mechanisms.
- It can be concealed into the wall or into the aluminium frame together with the spent travel tube.
- Completely made in metal with painted handle and aluminium anodized cover.



## MINI OPERATOR

PART No.	White	RAL 9010	30748C
	Black	RAL 9005	36964S
	Grey	RAL 9006	36813E

- It can be used with all opening mechanisms.
- Completely made in metal. The spent travel tube is external.

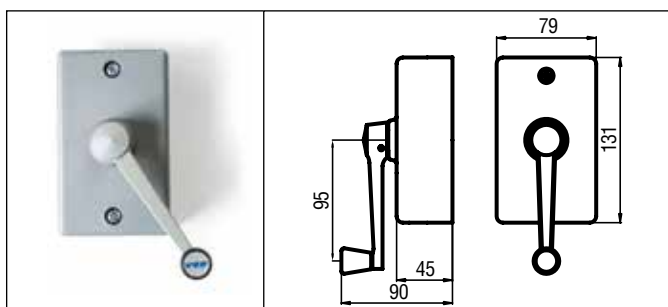


## SIMPLE OPERATOR - EXTENDED SIMPLE OPERATOR

PART No.	STROKE 250 mm
	STROKE 380 mm

White	RAL 9010	30750U	41344K
Black	RAL 9005	32594G	41345L
Grey	RAL 9006	37035E	41346M

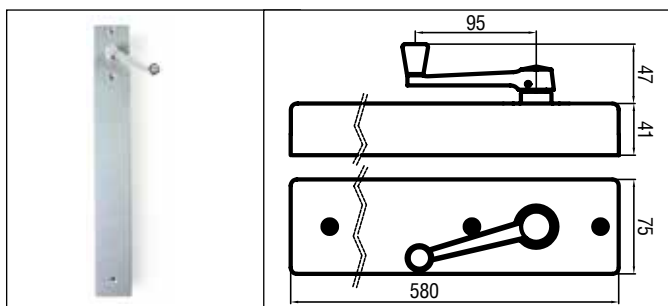
- Style and efficiency are the main features of this operator.
- It incorporates the antitorsion spent travel tube which allows a maximum stroke of 25 cm or 38 cm.
- Completely made in metal.



## GEARED OPERATOR

PART No.	White	RAL 9010	40517S
	Black	RAL 9005	40543T
	Grey	RAL 9006	40544V

- Ratio: 5:1
- It can be used with all opening mechanisms.
- Particularly suitable for operating many windows simultaneously and moving heavy windows.
- The inside mechanism and the handle are made in metal. The front cover is made in plastic. The spent travel tube is external.



## GEARED OPERATOR WITH LONG METALLIC COVER

PART No.	White	RAL 9010	40777R
	Black	RAL 9005	40778S
	Grey	RAL 9006	40779T

- Version of geared operator with inner anti-torque spent travel tube and metal cover

# TRANSMISSION ELEMENTS

In the manual window remote control systems MEC LINE, the transmission elements are the connection between the control operator, a manually moved mechanism through which it is possible to transmit the motion, and the opening mechanism which is directly connected to the window frame and it allows the opening. The transmission elements and accessories required for a correct application are the following:



## HELICAL CABLE

PART No. 30764A

It runs inside the conduit and it is the real transmission element. It is supplied in 50 meters reels.

## CONDUIT

PART No. White	40205V
Black	40206A
Grey	36383B

It is supplied in 3 meters steel rods externally coated in white, black or grey PVC. The internal tube is in polyethylene to make the cable sliding easier.



## END PLUG

PART No. White	40139I
Black	40174J
Grey	40191O

It fixes the spent travel tube to the wall.



## FIXING SADDLE

PART No. White	30767D
Black	35446R
Grey	40134B

It is the element used to fix the conduit to the wall. It has to be placed one every meter and anyway one before and one after every bend.



## CONNECTOR

Part. no. White metal	41079W
Black metal	41078Z
Grey metal	41080A

The junction between two conduit rods.



## ROTARY JUNCTION BOX

PART No. White	30768G
Black	37040B
Grey	40135C

It is used to transfer the movement of the cable from the main line to the auxiliary ones; it is essential for systems with more than one locking opener, forks or chain openers (only if installed on windows placed upon others).



## LOCK SPRING

PART No. 30770Y

It has to be screwed at the end of the helical cable, near the control operator.



## TOOL FOR CONDUIT PREPARATION

PART No. 40097R

Necessary to prepare conduit ends.



## CONDUIT BENDER

PART No. 30790G

Bending radius 100 mm. To form the conduit in such an even radius allowing regular operation of the cable.

## CONDUIT BENDER FOR KIT WITH ROPE

PART No. 40153E

Bending radius 50 mm.

# CHAIN OPENERS

Opening mechanisms for top and bottom hinged windows



- Available with 250 mm or 380 mm stroke.
- Suitable for bottom hinged, top hinged and centre hinged windows.
- Versatility and simplicity of installation.
- Quick connection of the conduit to the chain opener: it's not necessary to work the conduit.
- Provided with quick release connector for an easy window cleaning.
- Minimum size: the minimum space for the mounting is 16 mm for top hinged windows and 36 mm for bottom hinged windows.
- The window opening stroke cannot exceed 1/3 of the window height. The chain stroke can be adjusted acting on the lock spring.
- The installation must be carried out in order to allow the cable working in pull action during the load operation (ex. in closing phase for bottom hinged windows and the opening phase for top hinged windows).
- In installations with two or more windows placed side by side, rotary junction boxes mechanism are not required.
- On windows wider than 1,5 m or anyway with a large area, for better stability to wind, it is suggested to install two or more chain openers.

## PART No.

WHITE RAL 9010  
BLACK ANODIZED  
SILVER ANODIZED

## Stroke 250 mm

37566D  
37565C  
37564B

## Stroke 380 mm

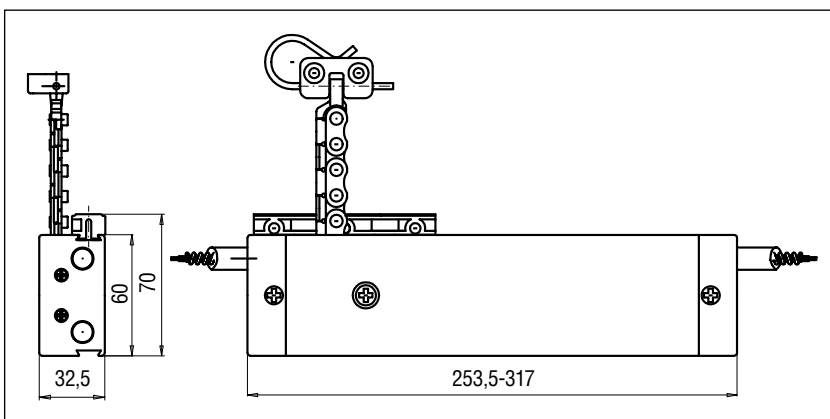
37569I  
37568H  
37567E



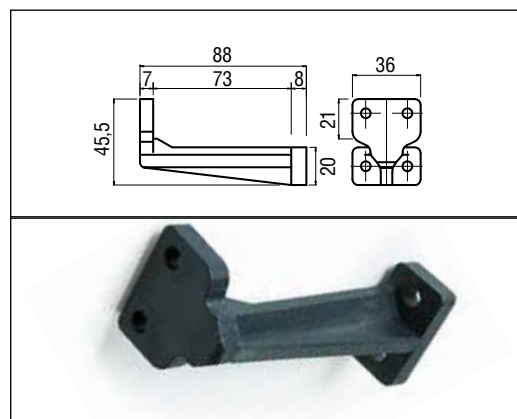
The instructions for a safe installation are included in the section "SECURITY WARNINGS".  
On bottom hinged windows for safety reasons always install side checks.



Bracket for top hinged window (included)

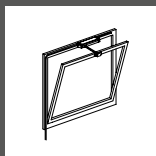


Mechanism dimensions

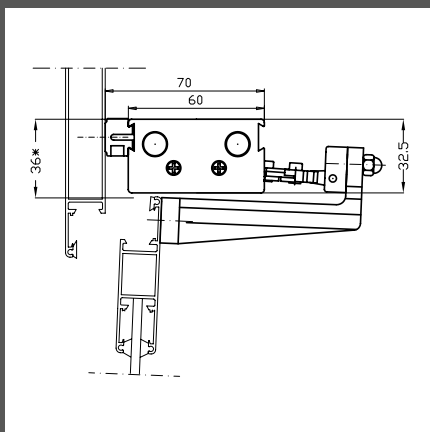


Bracket for bottom hinged part No. 37616T

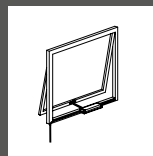
## Exemples of multiple installations



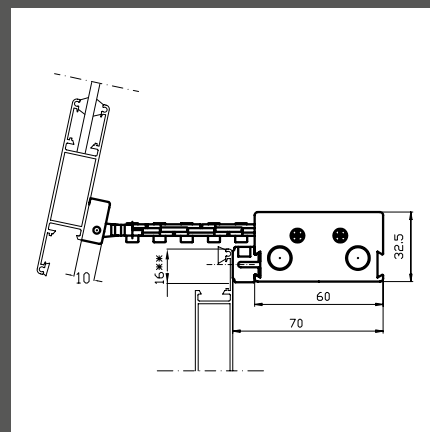
Bottom hinged windows



On window frame with included bracket and bracket for bottom hinged window part No. 37616T. Necessary space for installation 36 mm\*

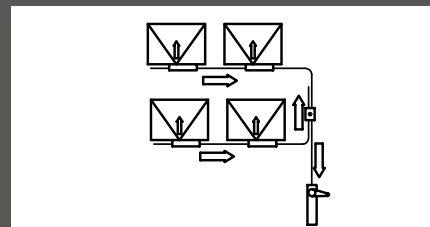
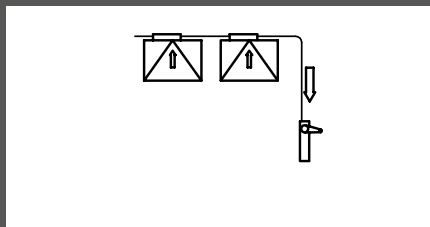
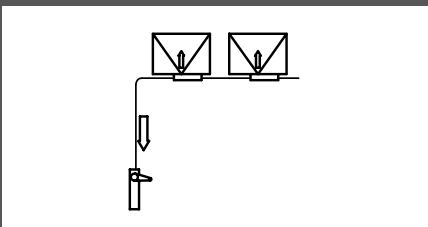


Top hinged window



On window frame with included bracket. Necessary space for installation 16 mm\*\*

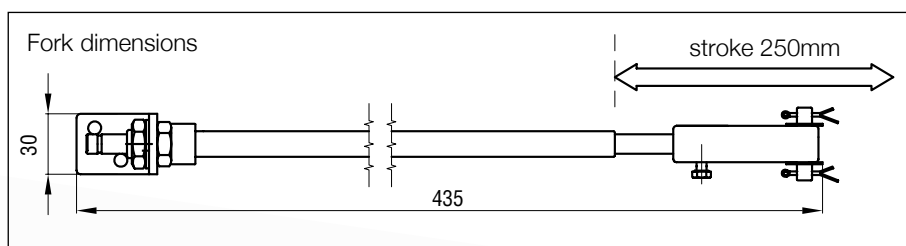
## Example of multiple installation



The arrows show direction of cable run during window opening

## FORKS

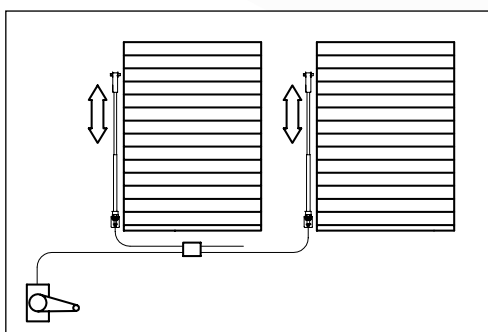
### Opening mechanisms for louvres



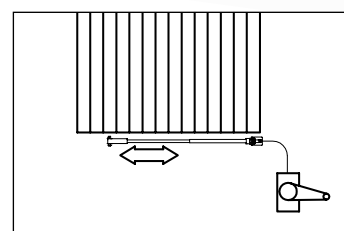
### FORK AND SWIVEL - HEAVY DUTY (travel 250 mm)

PART No. 30758E

- Suitable for horizontal or vertical sun louvre blades, both for one or more windows.
- Made in stainless steel, it's suitable both for internal and external installations.
- A geared operator should be used for sun-blades and vertical louvres with more than 10 blades or for horizontal louvres with more than 14 blades.
- For installation with more than one window, rotary junction boxes have to be used.



On horizontal louvre blades



On vertical sun blades

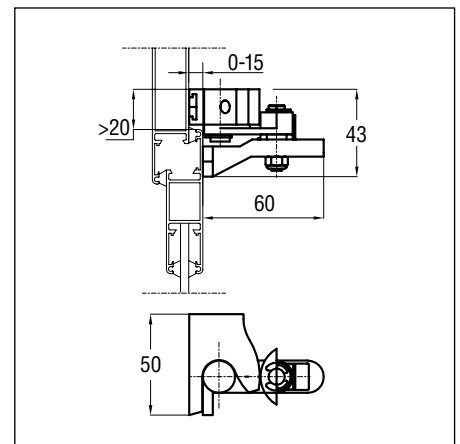
# LOCKING OPENERS

Opening mechanisms for bottom hinged windows

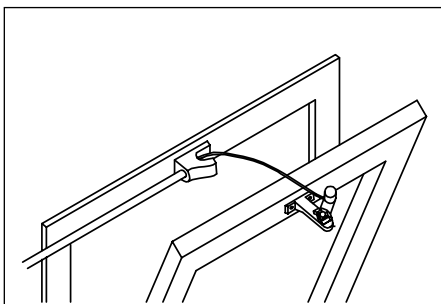


<b>PART No.</b>	WHITE	RAL 9010 30754Y
	BLACK	RAL 9005 37156M
	GREY	RAL 9006 37239Q

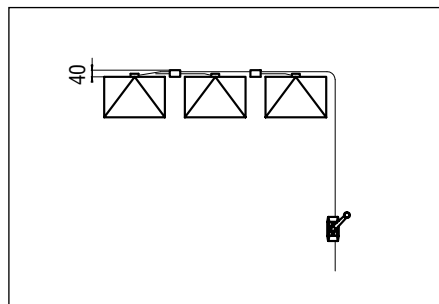
- It can only open bottom hinged windows which not require pushing force for the opening.
- Minimum size; the needed space for the installation is 20 mm from the vent external limit
- Maximum opening stroke: 25 cm; it can be adjusted on the end stroke spring placed in correspondence of the control operator.
- For windows with height inferior to 50 cm it is necessary to reduce the stroke to 1/3 of the window height.
- It is not necessary to work the conduit.
- In systems with more windows it is necessary to use rotary junction boxes to transmit the cable movement from the main line to the auxiliary ones.
- For windows wider than 1,5 m it is necessary to apply two or more thrust points.



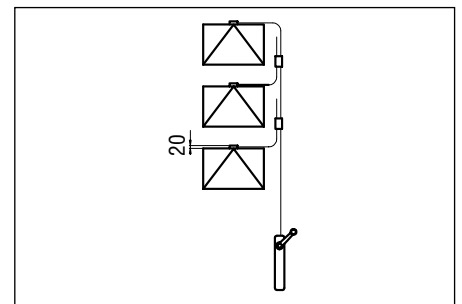
Locking opener dimensions



Examples of single installation



Examples of multiple installation  
The dimension are measured from the external limits of the vent and show the minimum necessary space



**⚠** The instructions for a safe installation are included in the section "SECURITY WARNINGS".  
On bottom hinged windows for safety reasons always install side checks.