



# Pendant Stations LADY Series

 **ravioli**<sup>TM</sup> 



# Single-row Pendant Stations

## LADY Series

### Main Features

The LADY Series single-row push-button stations for auxiliary circuits are the result of Ravioli's long experience in projecting and manufacturing industrial command devices for years. These Pendant Stations are mainly used in the industrial lifting - in order to control cranes, bridge cranes, hoists and winches - or in numerous industrial applications when indoor or outdoor handling of machinery or goods is required.

In designing the product a specific attention was paid to manageability and easy use of the device, whilst maintaining unchanged, in the choice of used materials, the mechanical resistance and reliability which have always been identifying Ravioli's products.

The optimised internal space allows to make easy and quick connections. Bridge connections - available upon request - have been projected in order to reduce cabling time. Available switches with 1 or 2 speed were specifically positioned at the bottom of the pendant station, increasing the endurance to avoid the damage of cables and improving the reliability of the mechanical interlock, together with accelerating cabling time. The rubber sleeve has been expressively oriented in order to enable a better grip to the operator and to allow a more detailed view of the symbols. The bottom is provided by slip-resistant rubbers to ease the use of the device in every condition or environment.

LADY push-buttons station is available in 8 sizes, ranging from 2 to 12 buttons, various controls and switches can be mounted on each type upon request. The emergency stop push-button has been designed according to EN 13850. The NC contacts feature guaranteed opening (EN 60947-5-1) and can be supplied in the 2NC increased safety version as well.

All buttons are marked with international symbols. The switches have self-cleaning sliding contacts in silver alloy. A range of peculiar accessories is available to complete the feasible versions in order to meet all the clients' security and operation requirements.

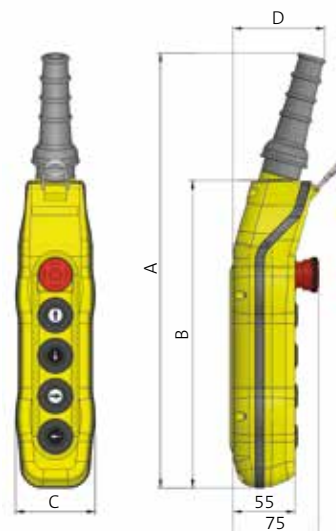


### Caratteristiche tecniche

Compliance with EEC Directives	2014/35/UE	2006/42/CE	2014/30/UE	2011/65/UE
Compliance with Rules	EN 60947-1	EN 60947-5-1	EN 60529	EN 60204-1
	EN 60204-32	EN 13850		
Insulation voltage	660 V~			
Test voltage	2500 V~			
Max. operating voltage	400 V~			
Temperature range	Working - 25° C + 70° C			
	Storage - 40° C + 70° C			
Insulation	Class II (double insulation)			
Protection degree	IP 65			
Operating positions	All positions			
Cable entry	2-3-4 buttons: rubber sleeve D. 12-17 mm			
	5-6-8-10-12 buttons: rubber sleeve D. 15-20 mm			
Approval	CE - CCC - UL only for MK element on demand			

### Dimensions of different versions

No. Push-buttons	Dimensions (mm)				Weight (Kg.)
	A	B	C	D	
2	264	166	66	77	0,280
3	300	202	66	77	0,380
4	336	238	66	77	0,430
5	388	274	71	82	0,570
6	424	310	71	82	0,590
8	496	382	71	82	0,750
10	568	454	71	82	0,880
12	640	526	71	82	1,040





# Single-row Pendant Stations

## MK Switching Element

### Main Features

The MK push-button is an essential element of the LADY Pendant Stations. The case is made of nylon glass, while self-cleaning sliding contacts are in silver alloy and screws and springs are made of stainless steel. High protection and finger-proof accidental contacts. For safety reasons, it is highly recommended not to align the MK11 - 1NO + 1NC - with the mushroom head Emergency Button. Please, do not hesitate to contact our offices for more detailed information. In case of direct control of Inverter or PLC it is recommended to use MK element type S suitable for signal control.



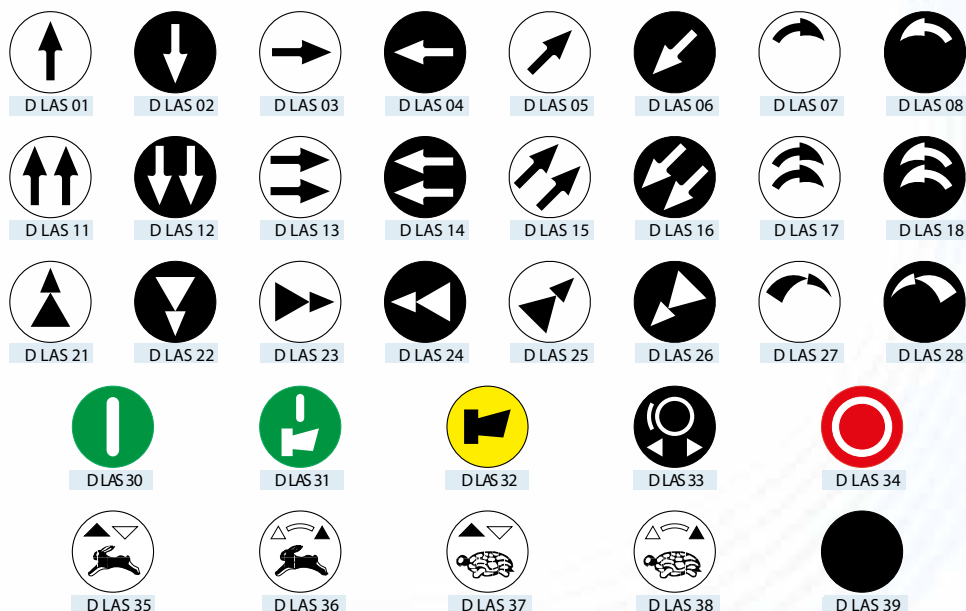
### Technical Features

Compliance with Rules	EN 60947-5-1
Insulation voltage	660 V~
Nominal thermal current	10 A
Mechanical life	3x10 <sup>6</sup> operations
Maximum connectable section cable	2x1,5 mm <sup>2</sup> o 1x2,5 mm <sup>2</sup>
Terminals	Secured clamping screws
Use limits	AC15 Ve (V) 24 48 120 240 400 Ie (A) 10 10 6 3 1,9
	DC13 Ve (V) 24 48 125 250 Ie (A) 2,5 1,25 0,55 0,30
Approval	CE - UL on demand

### MK push-button elements for standard versions

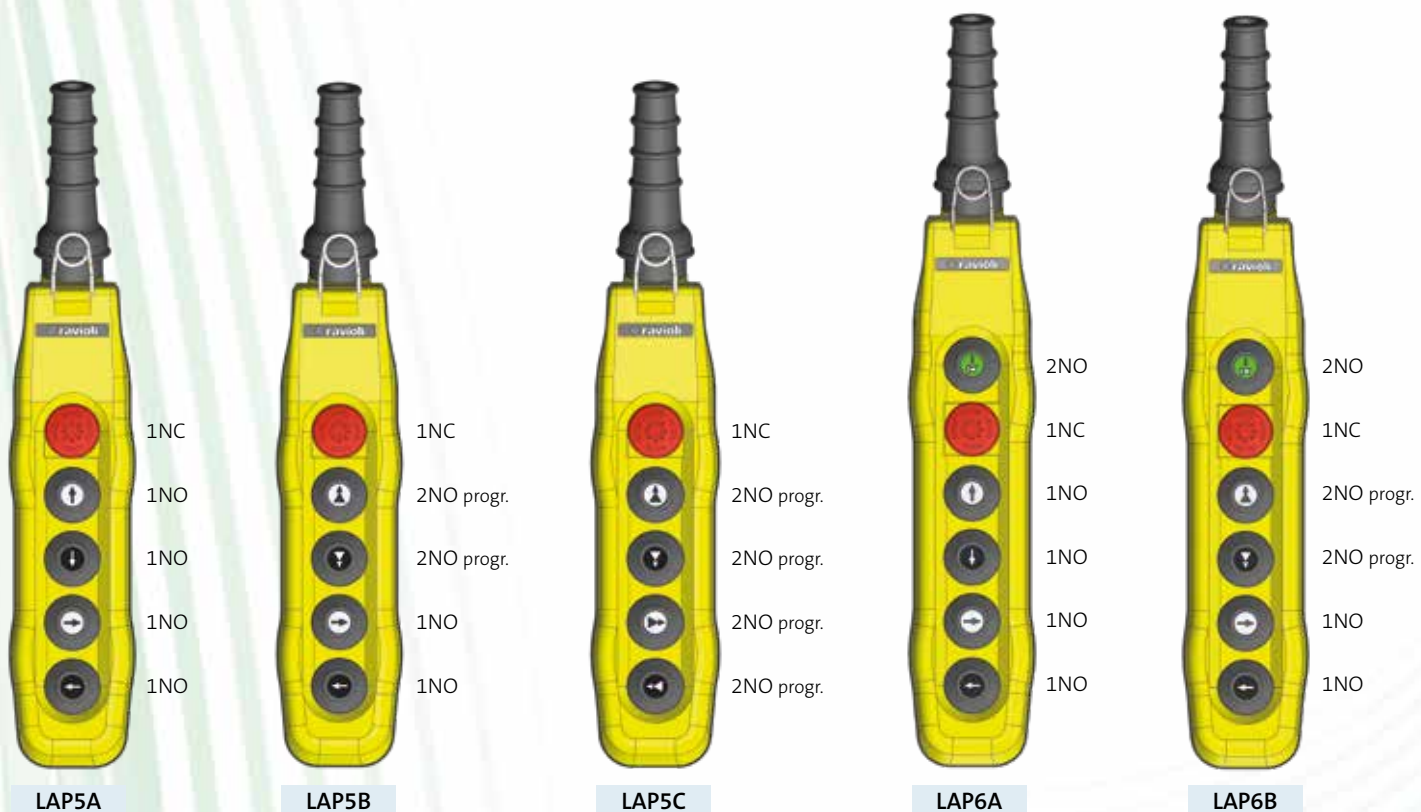
Code	Switching Elements	UL	Signal element
D MK10	Switching Element 1NO	D MKL10	
D MK01	Switching Element 1NC	D MKL01	
D MK11	Switching Element 1NO 1NC	D MKL11	
D MK20CC	Switching Element 2NO Simultaneous	D MKL20CC	
D MK20PR	Switching Element 2NO Progressive	D MKL20PR	D MK20PRS
D MK02CC	Switching Element 2NC Simultaneous	D MKL02	

### Standard push-buttons with international Symbols



# Standard Executions

The types of push-buttons pendant stations shown below are standard versions. A mechanical interlock for opposite movements is provided as standard. Thanks to the versatility of assembly, personalised executions are available upon requests.







2NO  
1NC  
1NO  
1NO  
1NO  
1NO  
1NO  
1NO

LAP8A



2NO  
1NC  
2NO progr.  
2NO progr.  
1NO  
1NO  
1NO  
1NO

LAP8B



2NO  
1NC  
2NO progr.  
2NO progr.  
2NO progr.  
2NO progr.  
1NO  
1NO

LAP8C



2NO  
1NC  
2NO progr.  
2NO progr.  
2NO progr.  
2NO progr.  
2NO progr.  
2NO progr.

LAP8D

**Create your own pendant station**

Available upon request

Button type	Switching element type
<input type="checkbox"/>	Rubber sleeve
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
<input type="checkbox"/>	Rubber sleeve



2NO  
1NC  
1NO  
1NO  
1NO  
1NO  
1NO  
1NO  
1NO  
1NO

LAP10A



2NO  
1NC  
1NO  
1NO  
1NO  
1NO  
1NO  
1NO  
1NO  
1NO

LAP10B



2NO  
1NC  
1NO  
1NO  
1NO  
1NO  
1NO  
1NO  
1NO  
1NO  
1NO  
1NO

LAP12A



# Accessories

LADY Pendant Stations can house a series of accessories:

## Lever or Key Selectors

- DLALS Lever Selector 0-1
- DLALS3 Lever Selector 0-1-2
- D33686 Lever Selector 1-1+2-2
- DLAKS Key Selector 0-1
- DLAKS3 Key Selector 0-1-2

More configurations available upon request.



## Pilot Lamp

- DLAPL Pilot Lamp

Standard colours Red and Green.

Standard voltage V12dc, V48ac, V110ac, V230ac.

More colours and versions are available upon request depending on quantity.



## Safety push-button OFF-ON-OFF

- D33679 Safety push-button OFF-ON-OFF

This push-button is ideal for industrial use and it is projected and manufactured according to the main Safety Directives.

It provides a high security standard level based on human behaviour attitudes. In case of imminent danger, the operator can easily push or release the button to stop immediately the operating machine.



## Closure Element

- DLACL Closure Element with rubber gasket



## Bridge Connections

- DLACC2SQ 2 Pins Bridge Connection 90°
- DLACC4 4 Pins Bridge Connection



## Kit Versions to be assembled by the customer

This set has been studied to allow each customer to assemble Ravioli's Pendant Stations according to their own specific needs. The set is provided with all the standard and common elements of the pendant station, while symbols and internal contacts can be bought and assembled as spare parts.

Please contact our office for any further information.



# For Your Safety

Single-row LADY Pendant Stations comply with the present Directives and Safety Rules, and in particular:

2006/42/CE	Machine Directive
2014/35/UE	Low Voltage Directive
2014/30/UE	EMC Directive
EN 60204-32	Lifting Machinery Safety Regulations
EN 60947-1	Low-voltage Switchgear and Control-gear
EN 60947-5-1	Low-voltage Switchgear and Control-gear: Control Circuit Devices and Switching Elements
EN 13850	Safety of the Machinery - Emergency Stop
EN 60529	Degrees of Protection Provided by Enclosures



Single-row LADY Series Pendant Stations are guaranteed by our EC Certificate of Conformity, available upon request, in which it is declared that such product was manufactured by RAVIOLI in compliance with defined and recognised Safety Regulations, and according to the quality standards stated in our UNI EN ISO 9001:2008 Quality System Certificate.

## In respect for People and Environment

Ravioli is actively involved in the full observance of People and Environment respect, manufacturing products according to the Company's standards defined in its Code of Ethic Behaviour. All our products are projected in order to increase Occupational Safety for final users and are completely free of harmful substances for the Environment.

## Installation and maintenance instructions

### INSTALLATION

The push-button Pendant Stations must be installed by a qualified staff, according to Safety Regulations. Electrical current must be switched off before cabling. Internal cabling must be carried out in strict compliance with the electrical drawings of the controlled machinery.

After installing, a test of the emergency stop as well as all other push-buttons activated by the Pendant Station, must be duly executed. It is highly recommended to avoid prolonged use of oils and acidic substances during usage. We remind that for safety reasons, it is forbidden to align the MK11 - 1NO + 1NC - with the mushroom head Emergency Button. Please contact our offices for more detailed information in case of need.

### CABLING

Cabling should be carried out as follows:

- remove cover (2) by loosening the screws
- remove wire clamp by loosening the screws holding it in place
- assess diameter of available cable and cut rubber sleeve (3) so that, once the cable has been inserted, the device will be perfectly water- and dust-proof
- tighten the wire clamp, ensuring that the cable is securely fixed
- carry out cabling procedure with clamp tightening torque 0,7 Nm
- if required, move the push-buttons' symbols and place them in the right position
- close Pendant Station paying attention to correctly positioning the rubber gaskets. Housing tightening torque 1 Nm

### MAINTENANCE

In order to ensure properly and perfect working of the Pendant Station, a programmed periodic maintenance is highly recommended.

All operations must be carried out by authorised staff and the exclusive use of original spare parts is to be considered mandatory.

Any part showing signs of wear or defects must be replaced immediately, even beyond - and in addition to - ordinary maintenance, in order to ensure maximum operation safety at all times.

In particular, it is necessary to:

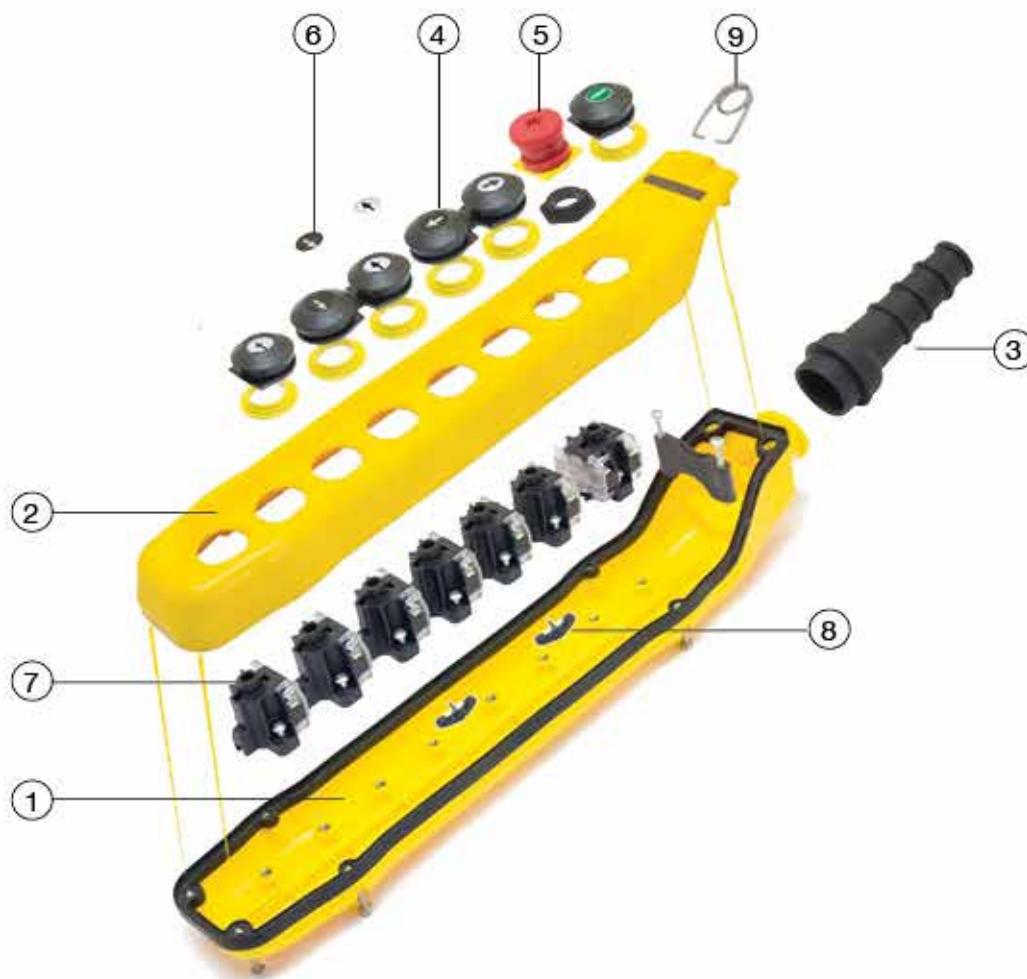
- clean push-button Pendant Station periodically, using non-aggressive products and compressed air on external parts, and compressed air only on internal parts
- check that all screws on pack are tightened
- check internal cabling and that connecting terminals are tightly closed
- check that the housing is in good conditions
- check correct operation of the equipment by carrying out a series of test manoeuvres

*Any alteration of the parts of the push-button Pendant Stations will make the manufacturer's warranty expire.*

**RAVIOLI S.p.A.** declines any responsibility for damages deriving from incorrect installation or improper use of the product.



# Spare Parts



Pos.	Code	Description
1	D LA02FON	Bottom for 2 buttons station
	D LA03FON	Bottom for 3 buttons station
	D LA04FON	Bottom for 4 buttons station
	D LA05FON	Bottom for 5 buttons station
	D LA06FON	Bottom for 6 buttons station
	D LA08FON	Bottom for 8 buttons station
	D LA10FON	Bottom for 10 buttons station
	D LA12FON	Bottom for 12 buttons station
2	D LA02COP	Cover for 2 buttons station
	D LA03COP	Cover for 3 buttons station
	D LA04COP	Cover for 4 buttons station
	D LA05COP	Cover for 5 buttons station
	D LA06COP	Cover for 6 buttons station
	D LA08COP	Cover for 8 buttons station
	D LA10COP	Cover for 10 buttons station
	D LA12COP	Cover for 12 buttons station

Pos.	Code	Description
3	D LAMC	2÷4 buttons pendant station rubber sleeve
	D LAML	5÷12 buttons pendant station rubber sleeve
4	D LAGUA2	Rubber gasket for 2 push-buttons with ring
5	D LAEM	Mushroom head emergency stop button (without push-button element)
6	D LASXX	Buttons with international symbols (page 3)
	D MK10	Switching Element 1NO
	D MK01	Switching Element 1NC
	D MK11	Switching Element 1NO 1NC
	D MK20CC	Switching Element 2NO Simultaneous
7	D MK20PR	Switching Element 2NO Progressive
	D MK02CC	Switching Element 2NC Simultaneous
8	D PKBLMEC	Mechanical interlock
9	D LAGAN	Suspension hanger

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