Elevatori Premontati

ELFO MASONRY MANUAL

SOMMARIO

MASONRY MANUAL

This document is an integral part of the Sales Contract as it commits the Customer to preparing the installation area for the Elfo Lifting Platform.
All work described in this document must be performed before installation begins.
EP is not responsible for installation faults and/or delays caused by the failed or incorrect execution of the masonry.
The information in this document is an integral part of the Order Form and Preliminary Drawing (when provided for).

BUILDING THE ELEVATOR SHAFT

Dimension tolerances

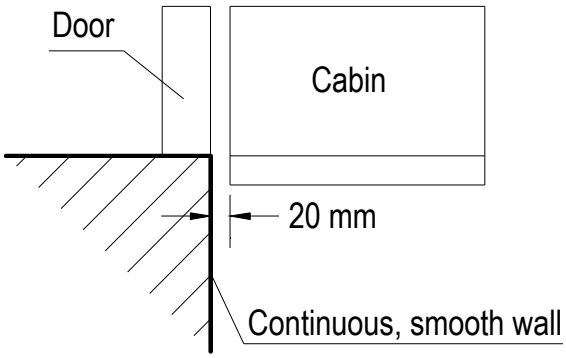
The dimensions of the elevator shaft (Shaft L and D) must have a tolerance of **+/- 5 mm,** net of out of plumb.

Elevator shaft ventilation

In the absence of specific legislation or regulations, we recommend ventilation openings in the top of the elevator shaft, whose surface area is equal to 1% of the horizontal section of the elevator shaft.

Walls – door side

The walls on the side of the door must be smooth and continuous.
The distance between the walls and the cabin must be 20 mm.
Admissible projections can be equal to or less than 1.5 mm and smoothed projections equal to or less than 15°.



Tolerances of continuous smooth wall

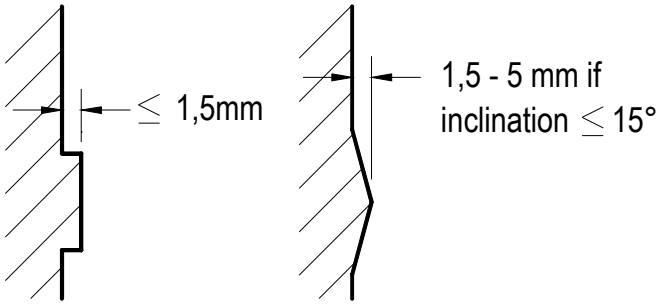


Fig. 1

Wall – mechanical side

The wall on the mechanical side can be entirely or partially built with masonry, reinforced concrete or a metal structure. It must be able to support the stresses indicated in Fig. 2.

Walls – non-mechanical side

The other walls can be realized with any rigid, inflammable and resistant material.

Pit

The pit must be protected against water infiltrations.

LOADS AND FORCES ACTING ON THE ELEVATOR SHAFT

Loads on the wall (mechanical side)

The anchor clamps of the guides to the shaft will be positioned at a max. pitch of 1500 mm.
The wall must be anchored in 2 locations, each of which will bear a horizontal load **F_1** of approximately 4300 N and a horizontal load **F_2** of approximately 700 N.

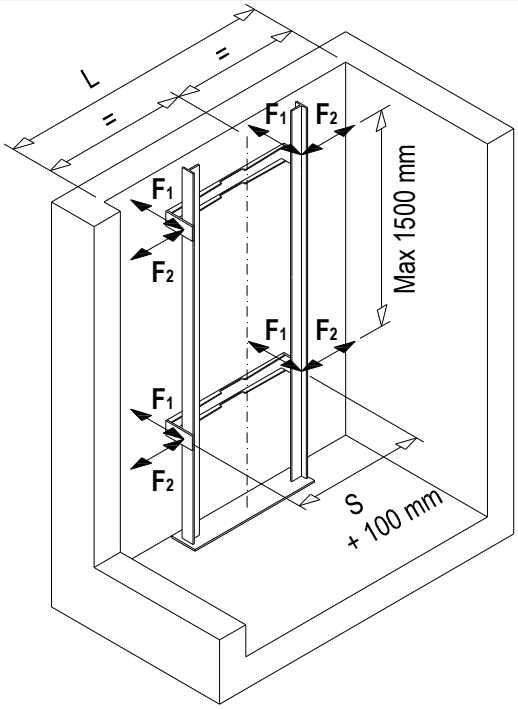


Fig.2

Gauge S (variable depending on the specific machine)
500 mm
700 mm
900 mm

Tab.1

Loads in the pit

Two possible loading conditions can be verify (not simultaneously): "normal exercise" and “safety device intervention”. In this second case, under one guide N1 driving force is applied and under the other the force N2.

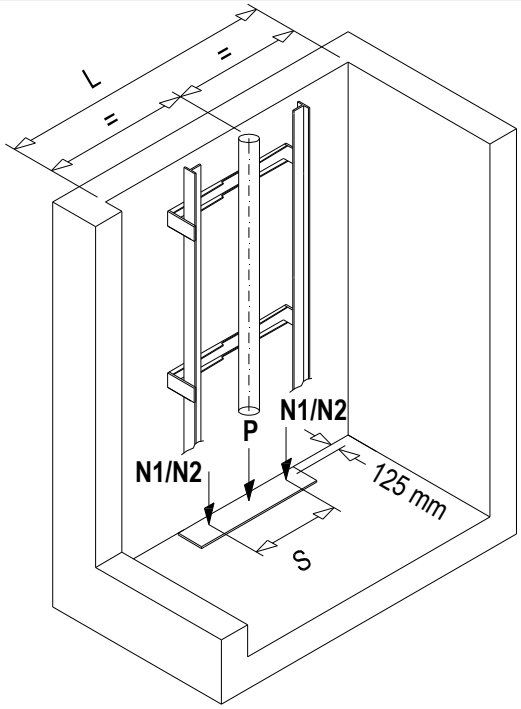


Fig.3

Maximum Loadings (N)				
Normal exercise		**Safety device intervention**		
P	**N**	**P**	**N1**	**N2**
20300	500	1700	1400	23400

Tab.2

Loads on the walls (non-mechanical side)

The strength must be such as to ensure the following do not occur when a perpendicular force (both from the inside and from the outside) of 300 N is applied uniformly distributed over a surface area of 5 cm²:

- permanent set
- elastic strain exceeding 15 mm

MACHINERY LOCATION

The machinery (switchboard, hydraulic control unit) must be located in an area not exposed to severe weather conditions (temperature between -5° to +45°) and whose size allows for easy and correct maintenance.
It must only be accessible to trained and/or authorized personnel.

As a rule, the following should be ensured:

- easy and safe access to the machinery
- sufficient illumination in the machinery area (if necessary, its own lighting)
- at least 700 mm of free space in front of the switchboard and control unit
- a minimum height of at least 1800 mm

Overall dimensions – basic supply

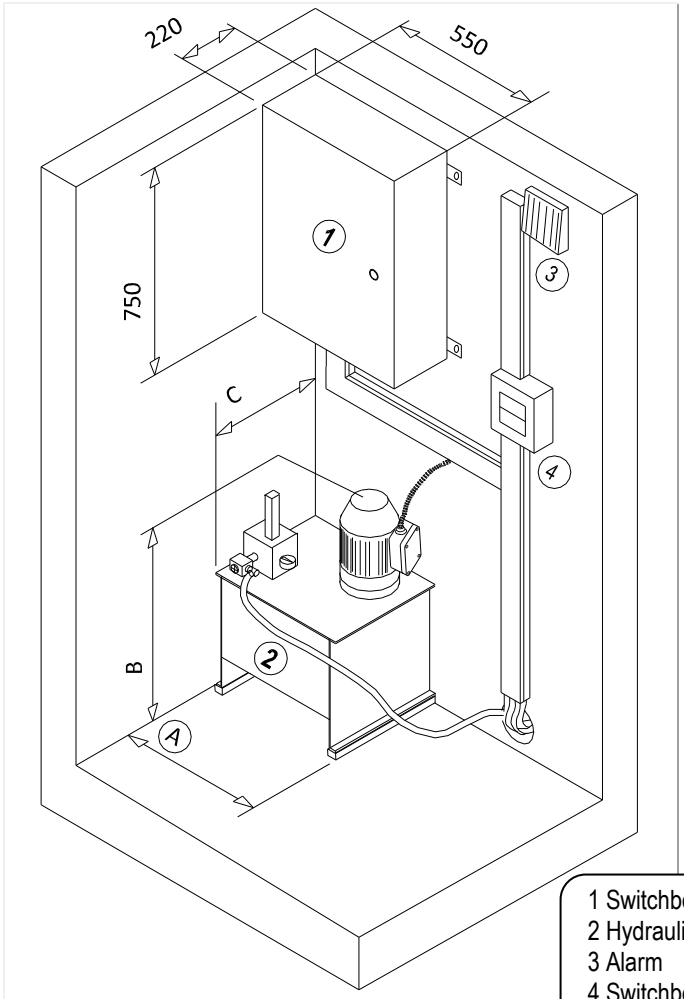


Fig. 4

Overall switchboard/control unit cabinet dimensions (max)

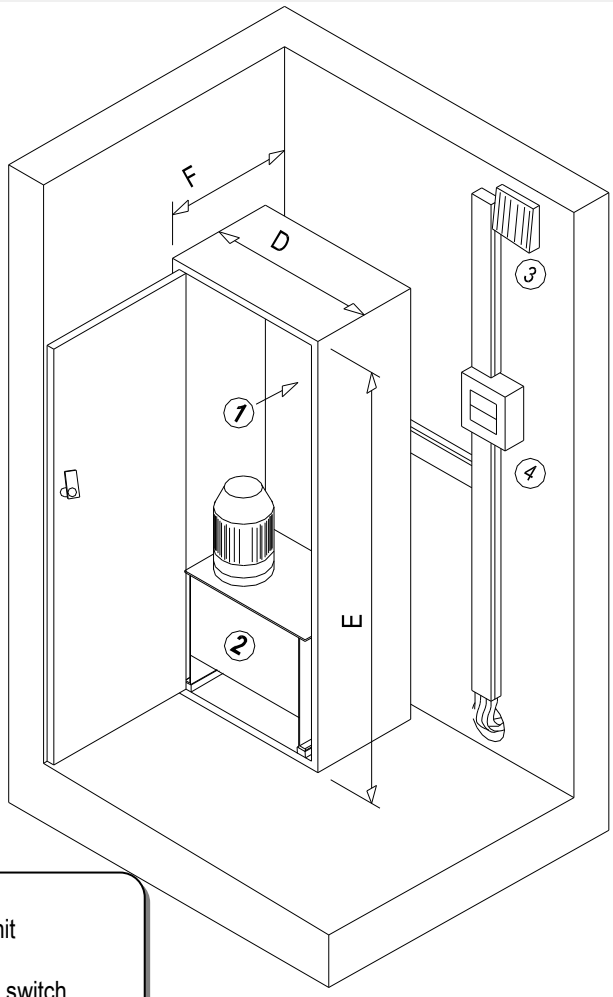


Fig. 5

1 Switchboard
2 Hydraulic Unit
3 Alarm
4 Switchboard switch

The values of the dimensions indicated in the two figures above are shown in the order drawings.

ABSORPTION BY HYDRAULIC CONTROL UNIT

Please refer to the order drawing.

CONNECTING ELEVATOR SHAFT AND MACHINERY ROOM

The diameter of the piping must not be less than 100 mm. The channel must be as straight as possible. Corners with a radius of curvature less than 200 mm must be avoided.
The channel for the hydraulic piping and wiring must be protected and allow for inspections.

When the machinery room is at the bottom floor	When the machinery room is at other floors
The hole in the shaft to allow for the piping must be on the wall on the mechanical side at the height of the pit and approximately 130 mm from the guide axes.	The hole in the shaft must be at the **height of the floor** where the machinery room is located and on the wall on the mechanical side.

N.B. If it is not possible to make a hole on the mechanical side, indicate the side on the Order Form.

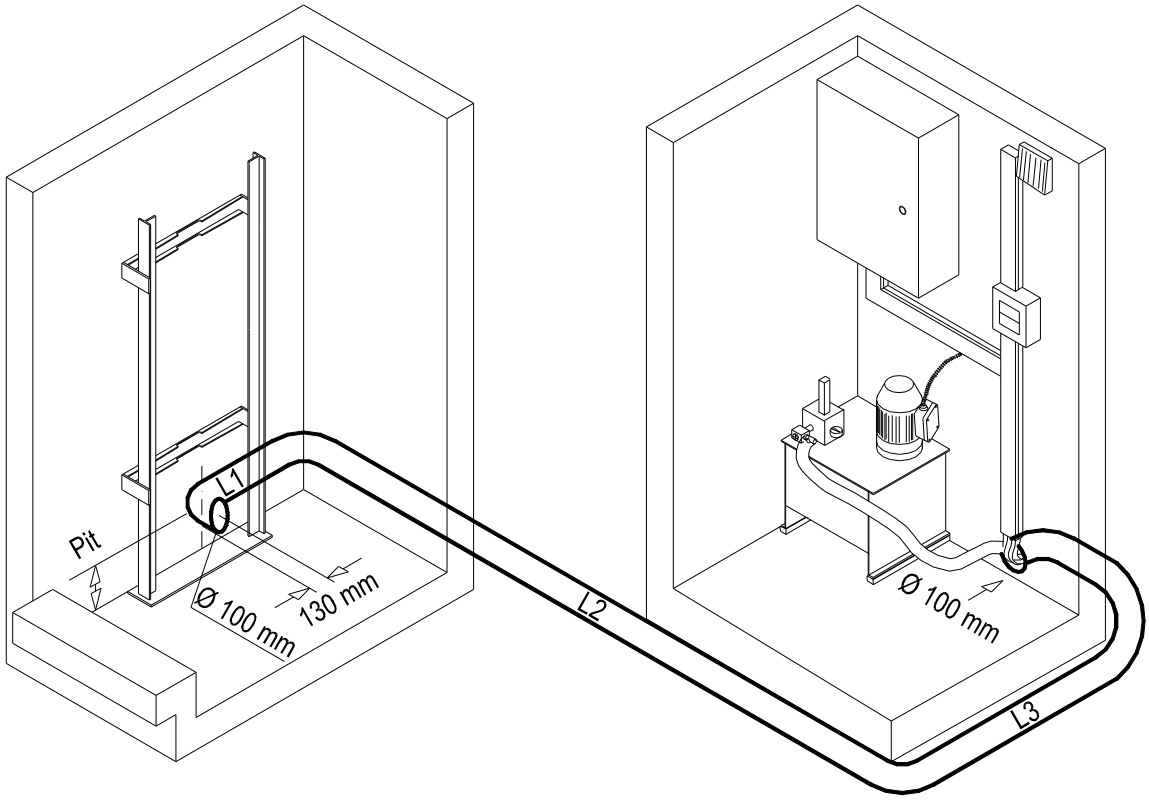


Fig. 6

Length of piping

The Order Form must indicate the **length** of the piping channel (see L1+L2+L3 in Fig. 6) and the **floor** on which the machinery room is located.

OVERALL PISTON DIMENSIONS AND WEIGHT

Overall piston dimensions and weight based on the system travel								
TRAVEL (mm) →	**3850**	**4850**	**5850**	**6850**	**7850**	**8850**	**9850**	**10850**
Standard piston (mm)	2300	2800	3300	3800	4300	4800	5300	5800
2-piece piston (mm)	1250	1500	1750	2000	2250	2500	2750	3000
Weight (kg)	80	90	100	110	120	130	140	150
TRAVEL (mm) →	**11850**	**12850**	**13850**	**14850**	**15850**	**16850**	**17850**	**19450**
Standard piston (mm)	6300	6800	7300	7800	8300	8800	9300	10100
2-piece piston (mm)	3250	3500	3750	4000	4250	4500	4750	5200
Weight (kg)	160	170	180	190	200	210	220	240

Tab. 5

DOOR RABBET

The shaft **rabbet** (MVM, MVO, MVS, MVD) must be built by **removing 10 mm** from the dimension indicated in the DIMENSIONING AND ELEVATOR SHAFT section of the Order Form or on the Preliminary Drawing (when provided for).

Rabbet key	
Door on side B or D	
MVM	Shaft rabbet mechanical side
MVO	Shaft rabbet opposite side
Door on side C	
MVS	Shaft rabbet on the left
MVD	Shaft rabbet on the right

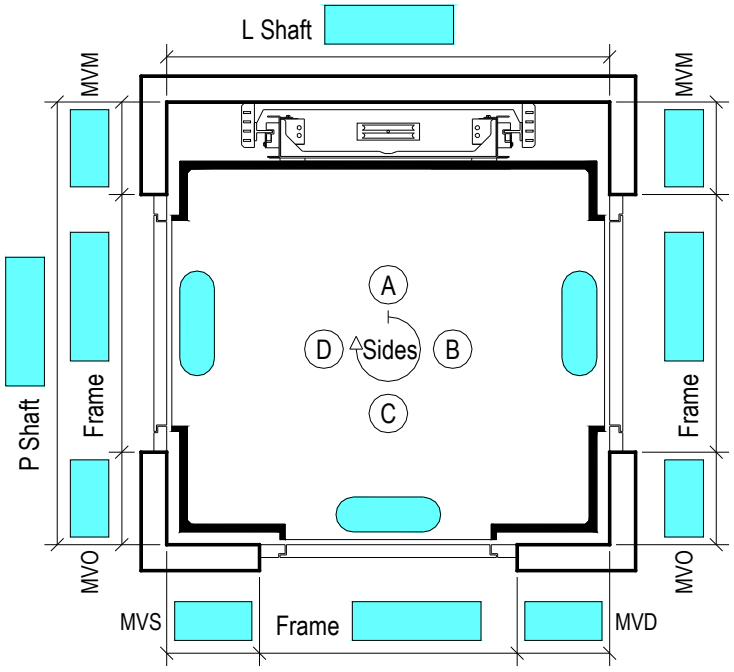


Fig. 7

The **height** of the door recess must be built by **adding 20 mm** to the height of the frame indicated in the FLOOR DOORS section of the Order Form or the Preliminary Drawing (when provided for).

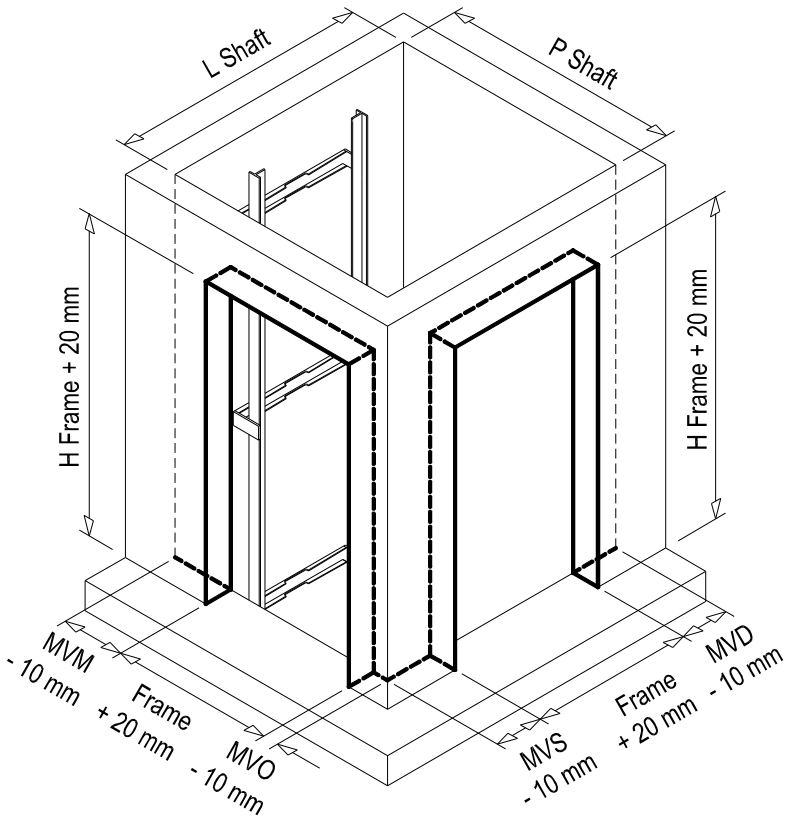


Fig. 8

INSTALLING REI DOORS

The REI door must be installed by embedding the uprights (Fig. 9) and the lintel (Fig. 10) as indicated.

Uprights

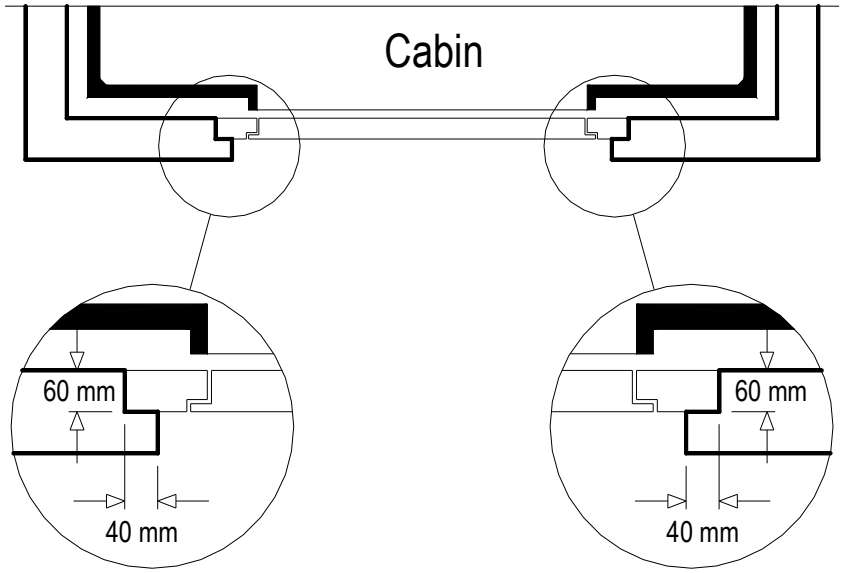


Fig. 9

Architrave

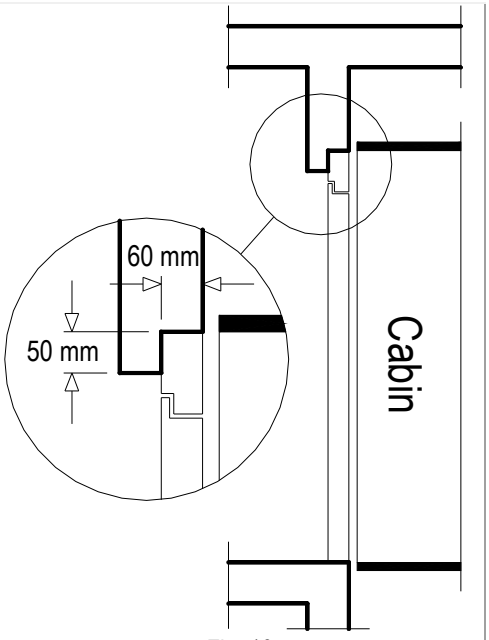
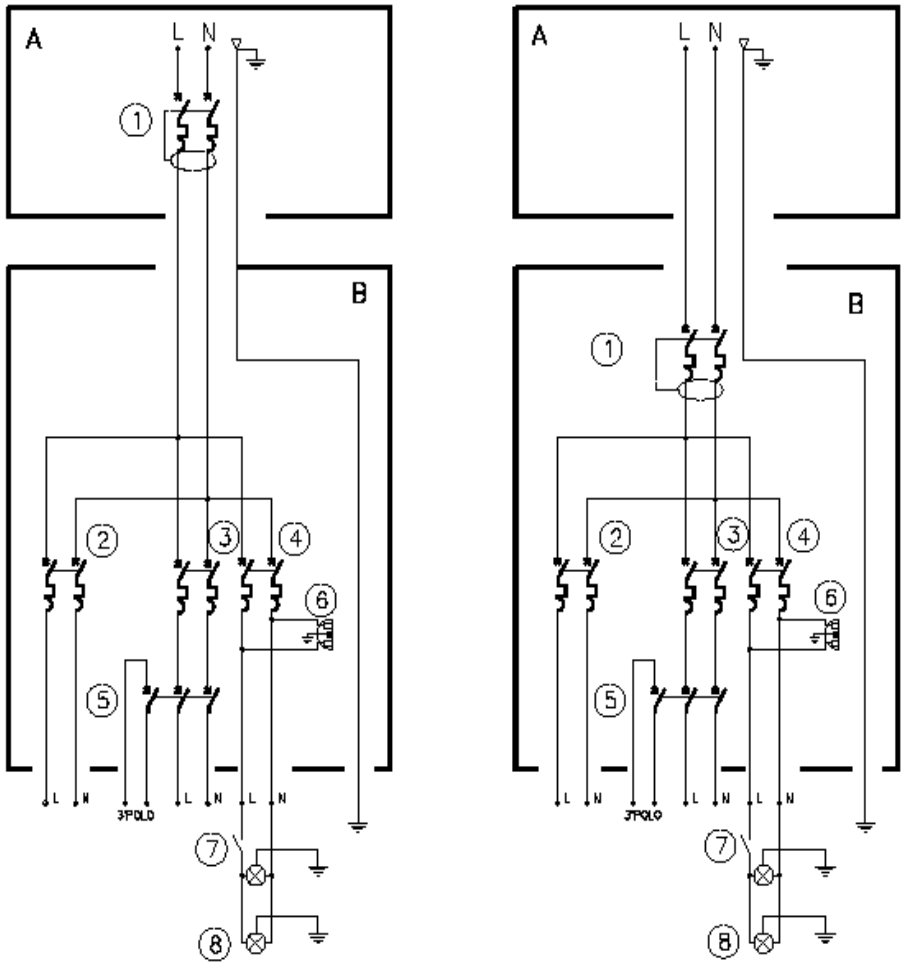


Fig. 10

230V INPUT – WIRING DIAGRAM

SOLUTION 1 **SOLUTION 2**

Originating from the building main line



LEGEND

A Building main switchboard
B System switchboard
1 Differential circuit breaker to protect single-phase line 2 x **A Idn 0.03A.
2 Single-phase circuit breaker 2 x 10A to protect control unit valve heating power line.
3 Circuit breaker to protect single-phase power line 230V for motor and controller 2 x **A
4 Circuit breaker 2 x 10A to protect single-phase for elevator shaft and machinery room illumination line and outlet socket 2P + T 10A 230V installed.
5 Disconnecting switch 3 poles to open 230V main line and disable automatic blackout descent (in series to rotative switch contact inside control box)
6 Outlet socket 2P + T 10A 230V installed in system switchboard.
7 Illumination system control device.
8 As a rule, the elevator shaft illumination device should have a light at 0.5 m from the bottom of the pit, a light at 0.5 m from the highest point of the elevator shaft and intermediate lights with a max pitch of 7 m.

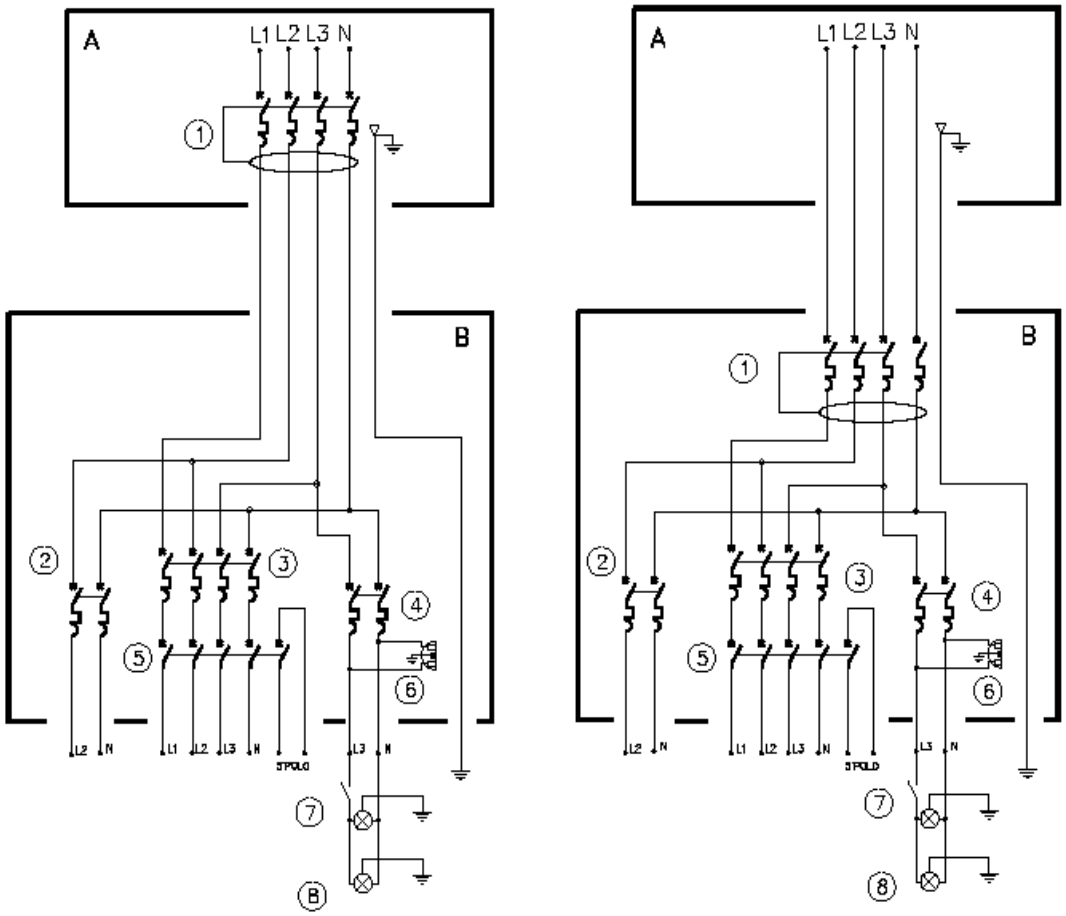
** the size of the breakers and disconnecting switch depend from hydraulic unit motor power.

Telephone line : with phone or automatic dealer in delivery it is **necessary** to arrange a telephone line for the connections.

400V INPUT – WIRING DIAGRAM

SOLUTION 1 **SOLUTION 2**

Originating from the building main line



LEGEND

A Building main switchboard

B System switchboard

1 Differential circuit breaker to protect three-phases+neutral line 4 x **A Idn 0.03A.
2 Single-phase circuit breaker 2 x 10A to protect control unit valve heating power line.
3 Circuit breaker to protect three-phases+neutral power line 400V for motor and controller 4 x **A
4 Circuit breaker 2 x 10A to protect single-phase for elevator shaft and machinery room illumination line and outlet socket 2P + T 10A 230V installed.
5 Outlet socket 2P + T 10A 230V installed in system switchboard.
6 Illumination system control device.
7 As a rule, the elevator shaft illumination device should have a light at 0.5 m from the bottom of the pit, a light at 0.5 m from the highest point of the elevator shaft and intermediate lights with a max pitch of 7 m.

** the size of breakers and disconnecting switch depend from hydraulic unit motor power.

Telephone line : with phone or automatic dealer in delivery it is **necessary** to arrange a telephone line for the connections.