TECHNICAL DESCRIPTION

Field of application: sliding doors for naval applications.

Scope of the device:
Alcinav ESD-01 device only aims to be an aid to a single leaf sliding door opening, without modify its main features, passive fire resistance and the mode of operation.
Assuming that the door is hold in open position by means of remote controlled electro-magnet during usual operation mode, in an emergency case the door closing is granted and performed by the counterweight, which is part of the door original equipment. The door sliding system, steel ropes, pulleys and all the original equipments of the door are not modified by the ESD-01.
It doesn't facilitate (and it doesn't contrast) the door closing.
In case of failure of the ESD-01, the door can be manually operated, according to the door standard operational mode.
Finally, ESD-01 has to be considered as an aid device and it doesn't compromise the standard operational mode of the door.

Operational mode:
Starting from the condition of door closed (ex. in emergency case), the User presses a button on the wall, just close to the door in order to start the EDS-01 and to open the door.
Since the switch is bistable type, once the door starts to open, it goes on until it is totally opened; in that position a limit switch is placed. When the door gets in touch with it the ESD-01 is turned off and the door mechanically closes by means of the counterweight.
Alternative 1: a timer which stops the ESD-01 device after an established period can be applied.
Alternative 2: ESD-01 can be turned on by an activation switch placed on the door striker plate by means of the touch of the door latch.
Alternative 3: ESD-01 can be remotely switched on by means of a radio remote control (to be confirmed).

ESD-01 kit composition and how it works:
ESD-01 is composed by the following main elements:
    a. Three-phase gearmotor (4 Poles)
    b. Electro-magnetic lamellar clutch
    c. Double grooved, cable winding drum
    d. Adjustable spring tensioner
    e. Electrical panel (with limit switch, single-phase frequency converter 230V)
    f. Pulleys
    g. Supports
    h. Steel made pulling wire
    i. Steel made tensioning wire
    j. Limit switch
Please look at the attached drawing. The core of the ESD-01 device is made by the gear-motor (a), the cable winding drum (c) and the electro-magnetic lamellar clutch which is placed between. The clutch is connected to the slow shaft of the gear-motor by means of chocking.
When the ESD-01 runs, the electro-magnetic clutch (b) drives the cable winding drum (c) which rolls up the pulling wire (h). The wire pulls the door leaf and it opens.
The winding drum (c) has two grooves: one for the polling cable (h) and the other one for the tensioning cable (i); the tensioning cable (i) avoid the loosening of the pulling wire.
During the door closing operation, since ESD-01 is not running, the electro-magnetic clutch (b) is idle and it doesn't run the winding drum (c), so not to contrast the leaf movement.
The gear-motor (a) has to be connected to an electric panel (e) which could be placed in a remote position. A frequency converter is placed into the electric panel, in order to adjust the the door opening speed.
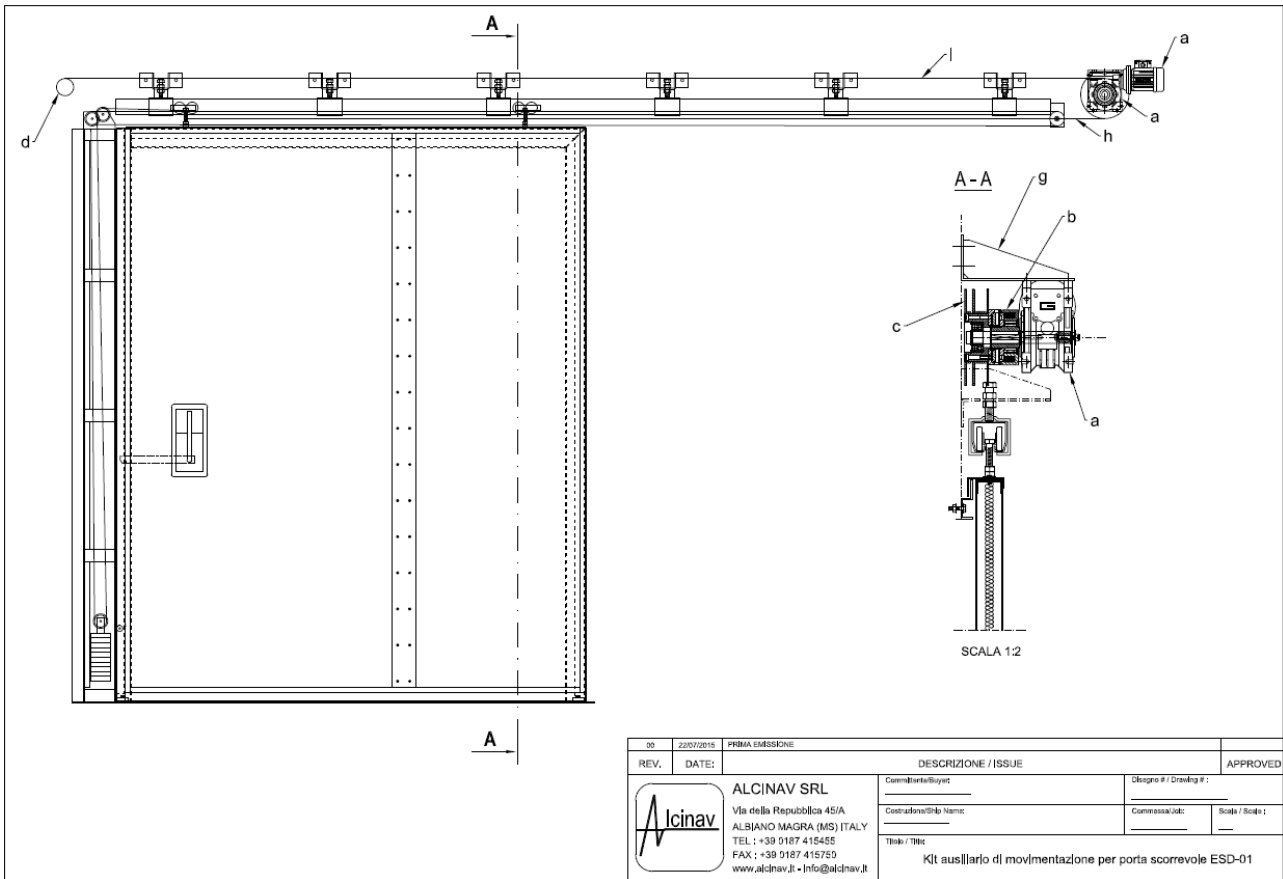If necessary a UPS (Uninterruptible Power Supply) too can be installed into the electrical panel, in order to grant the electrical feeding of the device ESD-01 even if the main feeding system was out of order.
The gear-motor is supported by supporting clamps (g). The position of the gear-motor and of the tensioner can be changed and adjusted according to the installation layout and the disposable place, thanks to the idler pulleys (f), not present in the drawing.
Since the drawing has illustrating purpose, it represents one ideal installation situation.
Alternative: the winding drum (c) could be replaced by a system pinion – chain. The chain replaces the pulling cable (h). In such a case the tensioner (d) and the tensioning cable (i) are no more needed.
That alternative is now on designing phase and maybe it could be applied in a few cases only.

A

a

l

a

d

h

A - A   g

b

c

a

a

SCALA 1:2

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Committente/Buyer:

Costruzione/Ship Name:

Titolo / Title:
Kit ausiliario di movimentazione per porta scorrevole ESD-01

Disegno # / Drawing # :

Commessa/Job:

Scala / Scale :

A