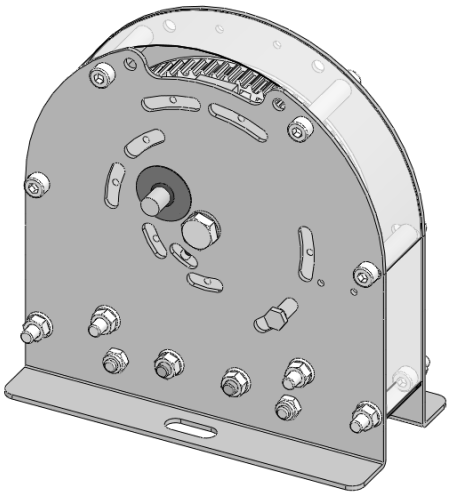


## INDEX

# 1.- GENERAL

## 1.1 NORMAL USE

*The SLC LF 18 CD overspeed governor is a safety component in compliance with annex III of the directive 2014/33/UE and it is certified according to the said directive. It is activated by means of a toothed belt, a system which is not listed in section 5.6.2.2.1.3 of standard EN-81-20. Therefore, an exhaustive analysis of risks has been performed in order for it to be certified.*

*The overspeed governor is aimed to be used solely as a safety component, in compliance with the directive 2014/33/UE. Any other use has not been assessed and is therefore not foreseen.*

## 1.2 GUARANTEE

*LUEZAR-ECO,S.L. guarantees, for the period established by the current legislation, the functioning of its product against any fault in the materials and assembly during its manufacturing.*

*This guarantee will not be valid in the following cases:*

- *Inappropriate use of the overspeed governor.*
- *Faulty installation of the overspeed governor and its accessories.*
- *Superficial impacts.*
- *Faulty electrical connections.*
- *Inappropriate maintenance.*

*And, in general, non-compliance with the instructions described in this handbook.*

*The features of the overspeed governor are regulated and sealed in factory. The original features of the overspeed governors cannot be manipulated or modified under any circumstances. Any action on them must be carried out by LUEZAR-ECO S.L.*

*LUEZAR-ECO S.L. reserves all rights to modify the content of this document without prior notice, thus cancelling the validity of previous revisions.*

## 1.3 TRANSPORT AND STORAGE

*The overspeed governor will be transported from the factory to its assembly in appropriate packaging, so that it is protected from bumps, humidity, dirtiness and poor weather conditions at all times.*

*At the reception of the overspeed governor and before assembling it, it must be checked that the packaging has not been damaged and that the features of the product received coincide with the order and with the characteristics of the installation.*

*Overspeed governors do not have a limited shelf life, but they will be returned to the factory in order to be checked by LUEZAR-ECO,S.L., after agreement, if any superficial damaged caused by bumps or any beginning of rusting is detected when the product is unpackaged.*

### *1.4 FUNCTIONING PRINCIPLE*

*The SLC LF 18 CD overspeed governor detects when the lift surpasses its nominal speed by a certain value and brings it to a standstill, either by directly triggering the safety gear or by stopping the machine via an electrical switch.*

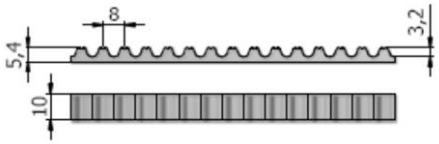
*The full device is composed of a toothed tension pulley, a toothed belt and the overspeed governor itself. The belt engages with the toothed pulley of the overspeed governor and the tensioner and is fixed at its edges to the linkage of the safety gear, so that when the centrifugal overspeed governor trips, it triggers the safety gear.*

*The toothed pulley is fixed by a friction clutch to the centrifugal forces of the governor. Tripping of the overspeed governor occurs due to the blocking of the centrifugal masses and the actuating disk, which activates the linkage of the safety gear. The clutch allows for the toothed pulley to turn freely and limits the effort on the toothed belt and the linkage during the breaking movement of the car.*

### *1.5 GENERAL FEATURES*

*Las características generales del limitador de velocidad SLC LF18 CD son las siguientes:*

- *Permissible tripping speed:* — *0,43 ÷ 3,27 m/s*
- *Permissible nominal speed:* — *≤ 2,84 m/s*
- *Drive:* — *Toothed belt*
- *Type:* — *ISO 13050 R8M*
- *Tensile strength:* — *≥ 5415 N*
- *Maximun permissible length:* — *174,5 m*
- *Diameter tooth wheel:* — *180 mm*
- *Maximun tensioning force of toothed belt:* — *100 N*
- *Tripping force at the toothed belt:* — *450 - 500 N*
- *Functioning temperature:* — *-30ºC ÷ +40ºC*
- *Arrangement:* — *Machine room / Shaft*
- *Permissible application:* — *Progressive safety gear*
  *Instantaneous safety gear*
- *Tripping direction:* — *Upwards-downwards*
  *Only downwards*




*TOOTHED BELT ISO 13050 R8M*

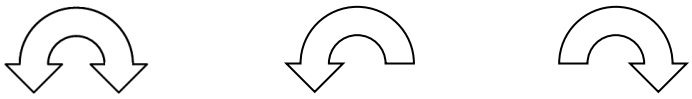
*The tripping speed of the overspeed governor and the activating speed of the overspeed switch are regulated by default at the factory, as shown on the following chart: These adjustment speeds may differ due to the specific needs of the installation, provided they comply with the requirements of section 5.6.2.2.1 of standard EN81-20.*

| Nominal speed NS (m/s) | Overspeed CS (m/s) | Tripping speed TS (m/s) |
|---|---|---|
| 0,3 | 0,37 | 0,43 |
| 0,5 | 0,6 | 0,65 |
| 0,63 | 0,73 | 0,8 |
| 0,8 | 0,95 | 1,05 |
| 1 | 1,2 | 1,3 |
| 1,25 | 1,5 | 1,65 |
| 1,6 | 1,85 | 2 |
| 1,8 | 2,1 | 2,3 |
| 2 | 2,4 | 2,55 |
| 2,5 | 2,9 | 3,15 |

### *1.6 MARKING*

*In compliance with section 5.6.2.2.1.8 of standard EN81-20, the overspeed governor has an identifying label with the manufacturing number (F.Nr.), the date of manufacturing (F-Date), the nominal speed (rated) and the tripping speed of the overspeed governor (tripping), as well as the name of the manufacturer, exam of type certificate number and type of device.*


*The tripping direction of the governor, bi-directional, to the left or to the right, is marked on a label on the blocking disk, with the following symbols:*



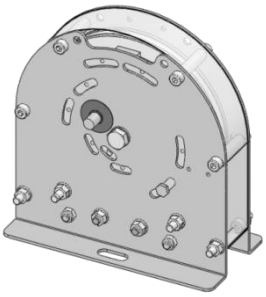
*It is very important to check that the data reflected on the identifying label are in accordance with the characteristics of the installation and that once assembled, the tripping direction of the governor is correct.*

## 2.- ASSEMBLY

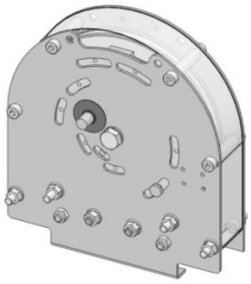
*The instructions described below are for general assembly guidance. There are also specific assembly instructions based on the different devices of each customer.*

### 2.1 OVERSPEED GOVERNOR

*Depending on the installation, the linkage system of the governor may be CAE or CAI*

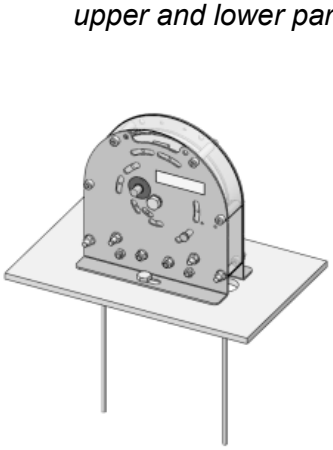


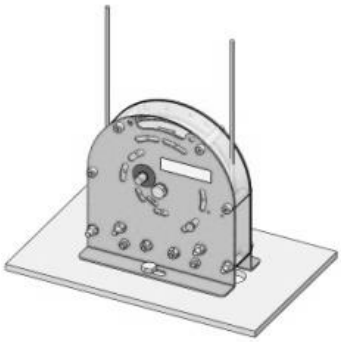
*CAE*

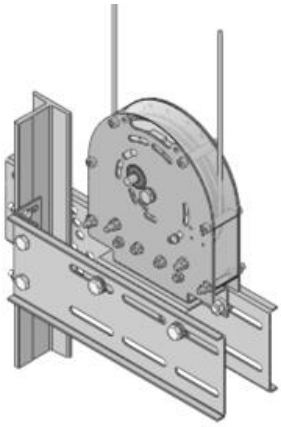


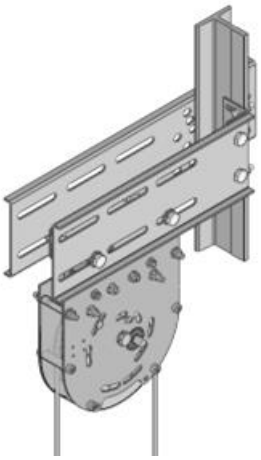
*CAI*

*The governor can be assembled on the slab of the machine room or in the shaft, both at the upper and lower parts. It can also be assembled on the rail.*

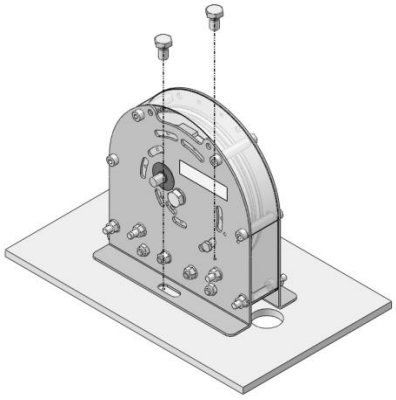


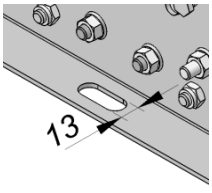


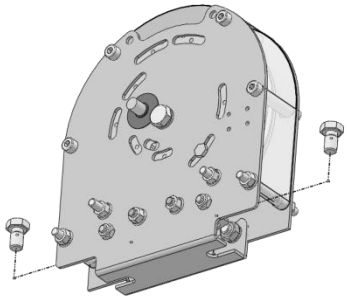




*Firstly, the overspeed governor must be fixed by means of M12 screws, as shown on the figure, depending on whether the model is CAE or CAI. Then, the tension pulley is assembled.*

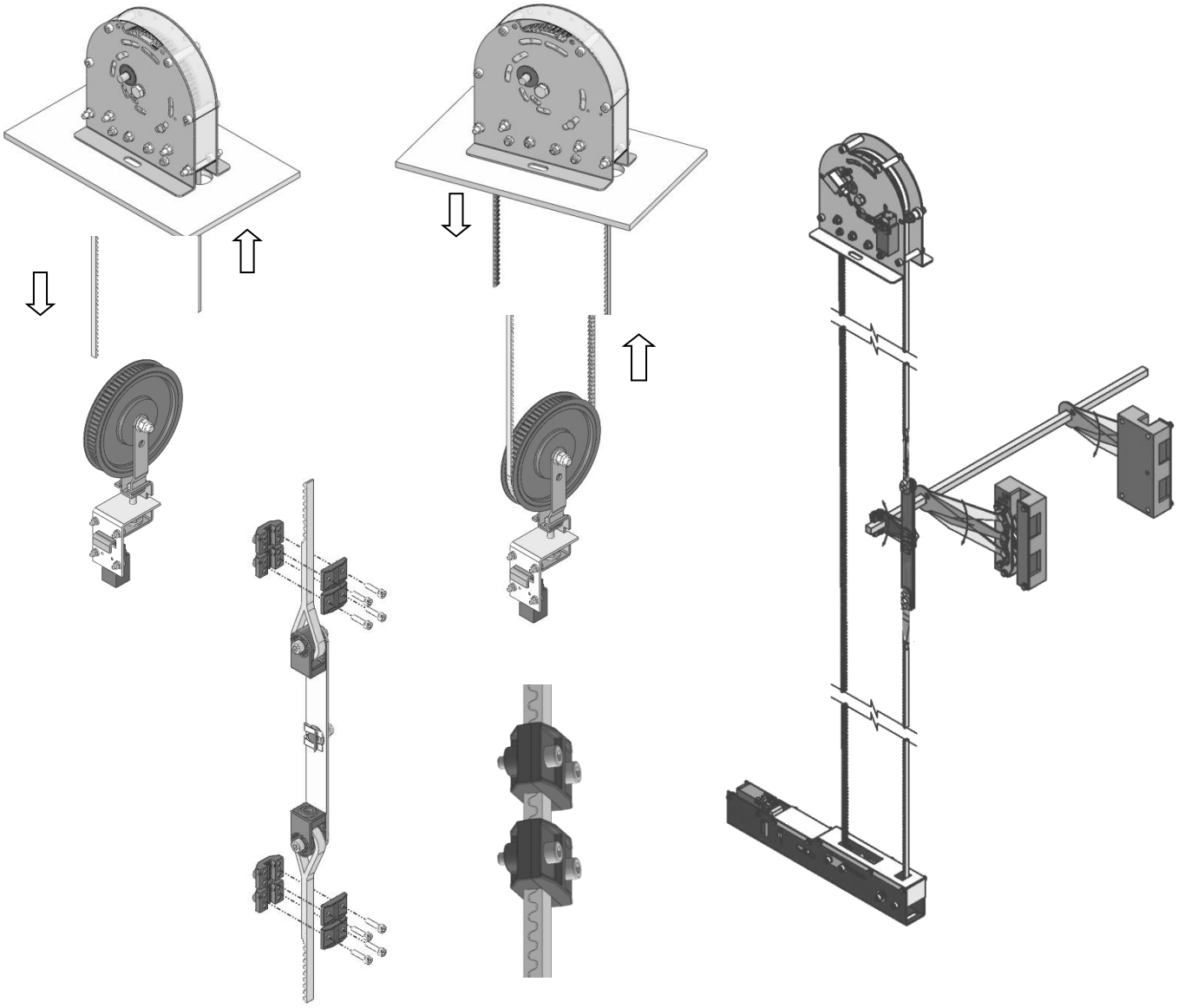




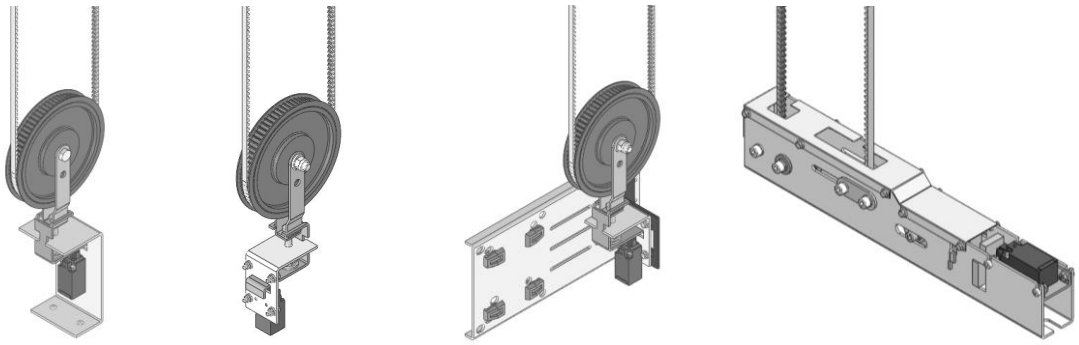



*Next, the toothed belt must go through the pulley of the governor and the tension pulley.*

*After that, both edges of the belt are fixed to the linkage of the safety gear, by means of the connecting rods. The toothed belt goes through the hook of the support, so that the teeth face each other, and it is fixed with the belt fixings made of 2 pieces which already have the nuts and 8 DIN912 M5x20 screws.*



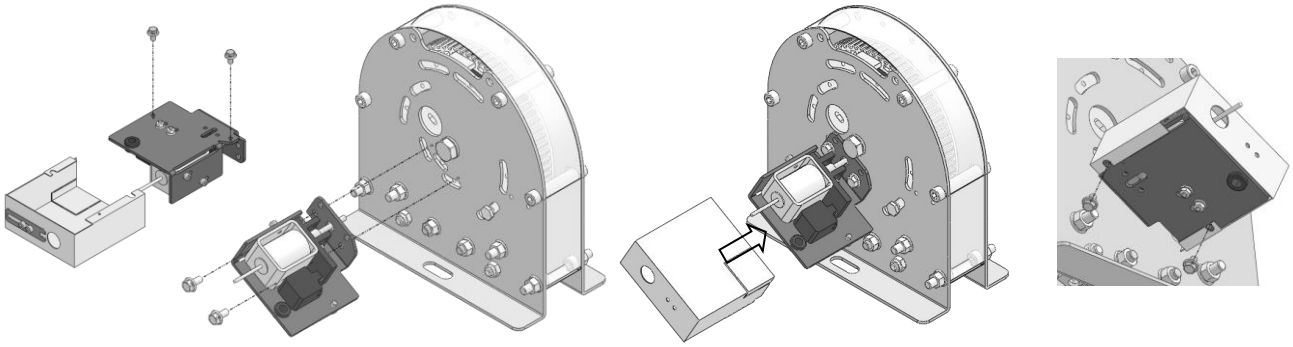
*Different models of tensioners can be used, depending on the installation.*



### 2.2 AD 10V ANTI-SLIDING PROTECTION

*If the overspeed governor is equipped with AD10V anti-sliding protection, which due to packaging reasons is supplied disassembled, then the procedure is as follows:*

*1º) Remove the cover of the AD10V system, by removing the M5x8 DIN6921 screws.*
*2º) Assemble the AD10V system with two M6x12 DIN6921 screws, by placing its pivot in the slanted hole of the governor cover.*
*3º) Re-assemble the cover of the AD10V system.*



## 3.- CONNECTION

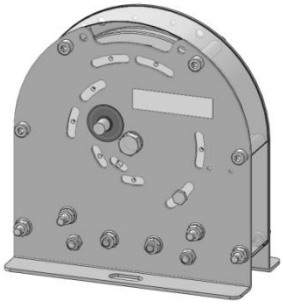
### 3.1 REMOTE TRIPPING

*In compliance with section 5.6.2.2.1.4 c) 1) of section EN81-20, the governor has a remote tripping system, composed of an electromagnet that acts directly on the centrifugal masses and triggers the governor tripping.*

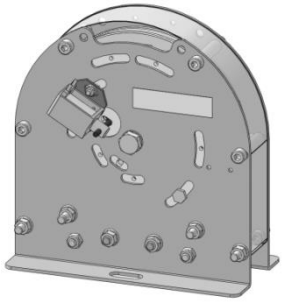
*The model of electromagnet used is Nafsa ER30/C. It must be assembled as shown on the figure and its characteristics are as follows:*

| | |
|---|---|
| *Duty-cycle* | *ED25%* |
| *Consumption* | *30W* |
| *Max. excitation time* | *30 s* |
| *Standardised tensions:* | *24Vdc; 48Vdc; 110Vdc; 190Vdc; 230Vac* |
| *Nominal intensities:* | *1.2A; 0.5A; 0.27A; 0.16A; 0.28A* |

*Connect the electromagnet to the electrical installation, taking into account the values of voltage and intensity. The electromagnet is only supplied when manually activating the device that performs the tripping test and for a lapse of time no longer than the maximum excitation time.*



*MANUAL TRIPPING*

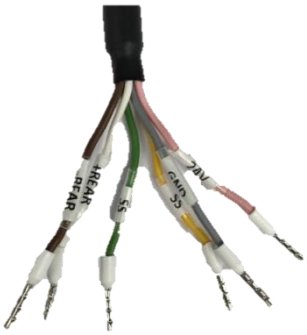


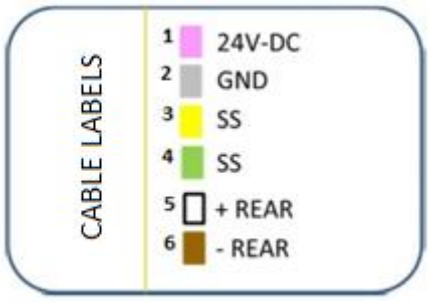
*REMOTE TRIPPING*

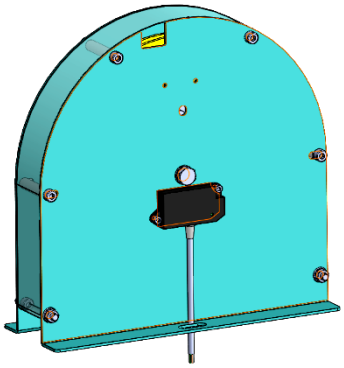
### 3.2 SEL-20 OVERSPEED SWITCH

*In compliance with section 5.6.2.2.1.6 a) of standard EN81-20, the governor has an electrical safety switch that commands the stop of the machine before reaching the tripping speed. If the nominal speed of the lift is not higher than 1m/s, then this device is not necessary, since the safety switch of the safety gear linkage can carry out this function when reaching the tripping speed of the governor.*

*SEL-20 device is fitted with 6 terminals and is supplied as shown in the following picture.*

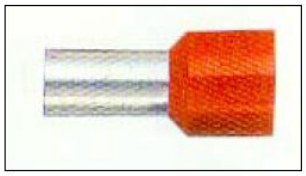


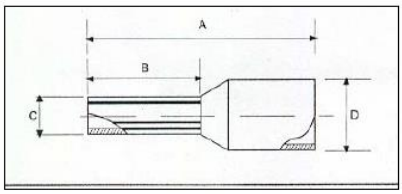


*Terminals of the device supplied are pin-shaped. The cable ends are marked according to the colour code described in the top right image.*

*Pin connectors dimensions are as follows:*





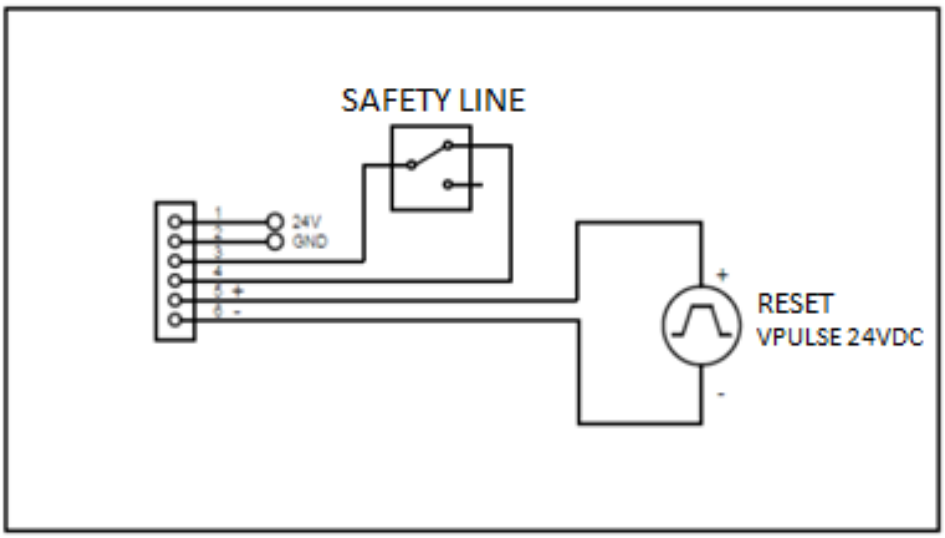

DIN 46228/4

| INSULATED PIN CONECTORS | SECTION mm² | A | B | C | D | COLOUR System "T" |
|---|---|---|---|---|---|---|
| TE-0,50 | 0,50 | 14.0 | 8.0 | 1.0 | 2.6 | White |

*The device can be supplied with connectors upon prior agreement with the client.*

*The following table contains electrical data on the connections of the device.*

| Colour | Terminal | Description |
|---|---|---|
| **Pink** | **1** | Device power supply 24 Vdc (+) |
| **Grey** | **2** | Device power supply 0 Vdc (-) |
| **Yellow** | **3** | Safety circuit contact |
| **Green** | **4** | Safety circuit contact |
| **White** | **5** | Device reset power supply 24Vdc (+) |
| **Brown** | **6** | Device reset power supply 0 Vdc (-) |



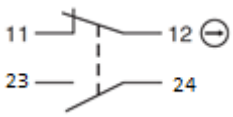

### *3.3 TRIPPING SWITCH*

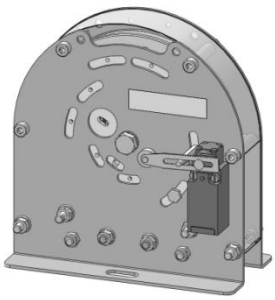
*In compliance with section 5.6.2.2.1.6 b) of standard EN81-20, the overspeed governor has an electrical safety switch which prevents the lift from moving if the overspeed governor is not in its on position after triggering the safety gear.*

*The model of electrical safety switch is PIZZATO FR 655-S7 (1NC, 1NO) or similar. It must be connected to the series of safeties in the position of normally closed and its return can be manual or automatic.*

*Its features are as follows:*

*AC-15 6A/240Vac*
*DC-13 0,4A/250Vdc*
*IP67*



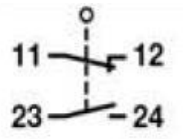



### *3.4 ANTI-SLIDING PROTECTION*

*Optionally and in compliance with section 5.6.7 of standard EN81-20, the overspeed governor can include the AD 10V or AD 20HR device. These components may be an integral part of the means to protect the uncontrolled movement of the car.*

*The system is composed of:*

- *Mechanical blocking system*
- *PIZZATO VF B602 (1NC, 1NO) safety electrical switch.*
  - *AC-15 6A/240Vac*
  - *IP20*

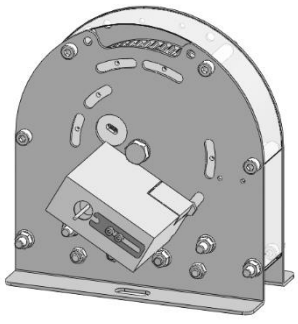



- *NAFSA ERC45-50/XX/C Electromagnet*
  - *Duty-cycle* *ED100%*
  - *Consumption* *12W*
  - *Max. excitation time:* *α*
  - *Standardised tensions:* *24Vdc; 48Vdc; 190Vdc; 230Vac*
  - *Nominal intensities* *0.47A; 0.24A; 0.06A; 0.10A*

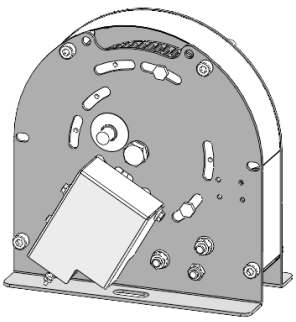
*Connect the electromagnet to the electrical installation, taking into account the values of voltage and intensity, so that the electromagnet is permanently supplied during the normal movement of the lift.*

*Connect the series of safeties to the safety electrical switch in the position of normally closed when the electromagnet is supplied, so that in the absence of the electrical supply or when the electromagnet stops being supplied, the mechanical system triggers and the safety electrical switch is open. When the coil is supplied again, the system returns to its original position.*

*From the moment the electromagnet stops being supplied until the governor trips, the lift can travel between 42mm and 143mm. The minimum travel avoids undesired tripping in load and unload operations.*

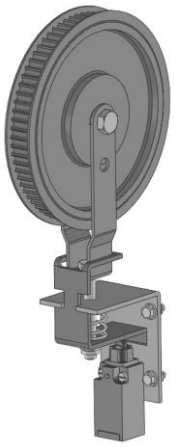


*AD10 V*



*AD20HR*

### *3.4 TOOTHED BELT LOOSENING CONTACT*

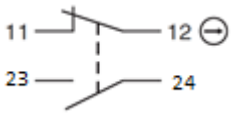


*As an equivalent measure to section 5.6.2.2.1.6 c) of standard EN81-20, the tensioners of the toothed belt have a safety electrical switch which brings the machine to a standstill if it is broken or too stretched.*

*The model of safety electrical switch is PIZZATO FR 515-S18 (1NC, 1NO) or similar and it will connect to the series of safeties in the position of normally closed.*

*Its features are as follows:*

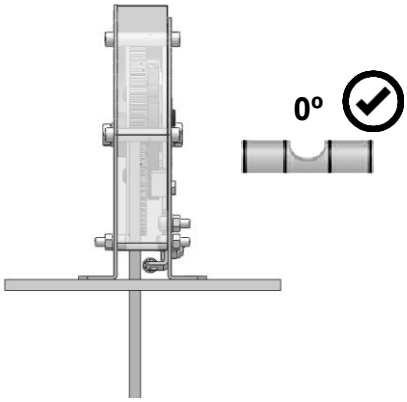
*AC-15 6A/240Vac*
*DC-13 0,4A/250Vdc*
*IP67*

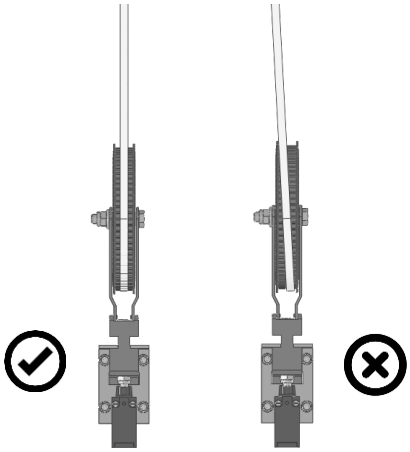



*By acting manually on the safety electrical switches of the upper and lower tensioners, check that the lift cannot move.*

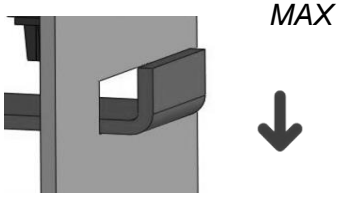
## *4.- ADJUSTEMENT*

*First of all, check that the governor is level and then verify the verticality between the toothed pulley of the governor and the tensioner one.*



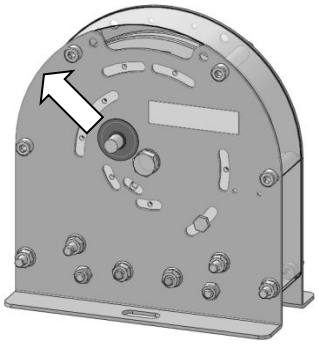



*Finally, adjust the lower tensioner of the installation by turning the nut of the tensioner and by compressing the spring until the actuator beam of the switch reaches its limit. The final tension of the belt must be approx. 100N.*

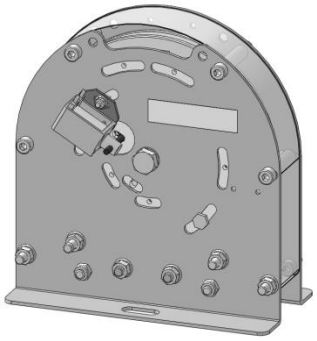



*In order to check the adjustment, travel the lift several times, paying special attention to the correct entry and exit of the toothed belt in the governor and the deviating wheels all along the travel path, as well as to possible noises and vibrations produced by them. In most cases, failures in the final functioning are produced by an incorrect plumbing of the toothed belt, the overspeed governor or both.*

*Finally, when carrying out the tests described in section 6.3 "Inspections and tests before implementation" and specifically section 6.3.4 "Shaft safety gear" of standard EN81-20, activate the overspeed governor, either manually or remotely, and check the correct functioning of the overspeed governor-safety gear unit.*



*MANUAL TRIPPING*



*REMOTE TRIPPING*

## *5.- MAINTENANCE*

*In order to guarantee the correct functioning of the overspeed governor all along its useful life, the following maintenance tasks must be performed with the suggested frequency.*

*In addition, visual inspections shall be performed annually so as to detect possible superficial damage of components and specifically of the toothed belt.*

### *5.1 OVERSPEED GOVERNOR TRIPPING*

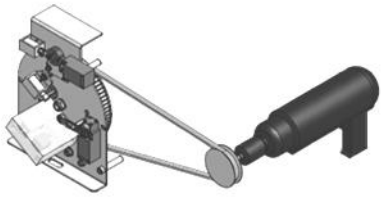
*This maintenance task is aimed at checking that the governor works properly at the tripping speed that appears on the plate of characteristics. The task shall be performed once every five years.*

*Use the following tools:*

- A closed toothed belt.
- *A drill/motor with a toothed pulley.*
- *A tachometer*

*The procedure is as follows:*

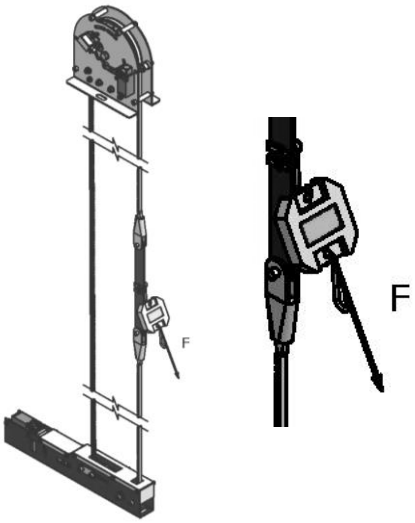
1) *Remove the toothed belt from the installation of the governor.*
2) *Engage the closed toothed belt in the governor.*
3) *Fit a toothed pulley to the drill. It must be suitable for the pass and profile of our toothed belt. Engage the closed toothed belt in the toothed pulley of the drill.*



4) *Turn slowly the drill and progressively increase the spins.*
5) *Place the wheel of the tachometer on the toothed belt and write down the speed at which the governor trips.*
6) *Check that the tripping speed does not differ more than 5% with regards to the one displayed on the plate of characteristics.*
7) *If the governor includes an overspeed switch, check that it actuates before the mechanical tripping of the governor.*

### *5.2 CLUTCH FORCE*

*This maintenance task is aimed at checking that the governor clutch is able to transfer double of the effort required to activate the safety gear. The test only needs to be done in one direction. The task shall be performed once every five years.*




*With the aid of a dynamometer, check that:*

1) *There is no dirtiness or oil in the governor.*
2) *When the governor is tripped, check that the force of the governor clutch is enough to trigger the safety gear. Release the connection of the governor's belt to the linkage and pull the said connection with the dynamometer, checking that the value obtained is higher than established in 5.6.2.2.1.1.d) EN-81-20.*

### *5.3 SAFETY SWITCHES AND COILS*

*We shall check every year that the safety switches of the tension pulley, the SEL-20 overspeed switch, safety switch and coil of the anti-sliding system, the tripping switch and the remote tripping coil work correctly.*

### *5.4 USEFUL LIFE*

*The useful life of the overspeed governor cannot be defined with regards to a specific period of time; the overspeed governor can work provided the results of the maintenance tests above are satisfactory.*

*Otherwise, only LUEZAR-ECO,S.L can repair the said overspeed governor or supply a new one, based on the manufacturing number (F.Nr.) displayed on the characteristics plate.*

*The useful life of the coil is 3,000,000 manoeuvres.*
*The number of hours of minimum functioning (system in motion) of the toothed belt is 25,000h.*