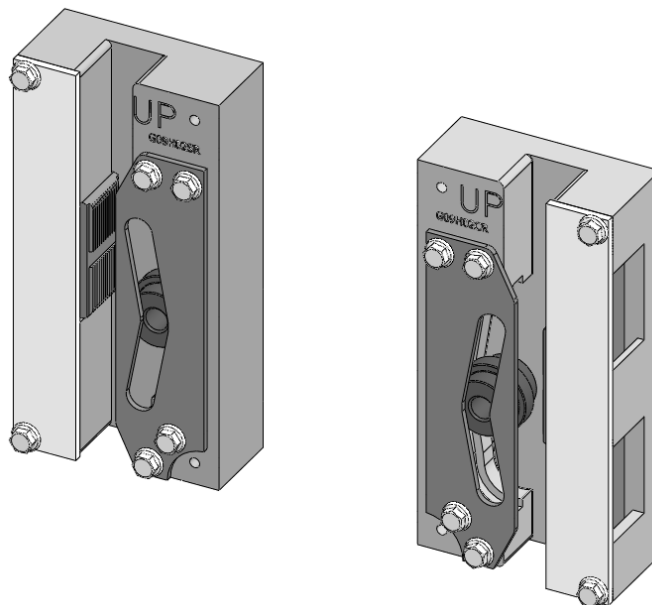


INSTRUCTIONS



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INSTRUCTIONS

1.- GENERAL

1.1 NORMAL USE

The SLC2500 progressive safety gear is a safety component as established by annex III of the directive 2014/33/UE and it is certified according to the said directive. It must therefore be used solely to this purpose. All other uses have not been analysed and are 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 of the materials and assembly in its manufacturing.

This guarantee will not be valid in the following cases:

- *Inappropriate use of the safety gear.*
- *Faulty installation of the safety gear and its accessories.*
- *Superficial impacts.*
- *Inappropriate maintenance.*

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

The sets of safety gears are supplied in accordance with the description of the installation provided by the customer. Under no circumstances may safety gears with different serial numbers be manipulated, combined, assembled or installed in installations with features different from the ones displayed on the plate of characteristics. Any action on the safety gears 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 safety gears will be transported from the factory to their assembly in an appropriate packaging, so that they are protected from bumps, humidity, dirtiness and poor weather conditions at all times.

At reception of the safety gears and just before assembling them, 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.

Safety gears do not have a limited operational life time, 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.



INSTRUCTIONS

1.4 GENERAL FEATURES

The SLC2500 safety gears have been designed and certified to cover a large range of loads, oiled and dry guide rails and various ranges of speeds. The features which have an impact on the adjustment of the safety gears are:

- P+Q (Kg)
- Guide rail thickness.
- Minimal braking width of the guide rail
- Type of guide rail (drawn, machined)
- Lubrication status

The safety gears have S and HS models. These two differ from each other in rated speed, maximum tripping speed as well as in rated loads. Each model, in turn, has two performance ranges. The indications you can find in this manual apply to both models and their features are as follows:

RANGE 1

SAFETY GEAR MODEL	MAX. NOMINAL SPEED (m/s)	MAX. TRIPPING SPEED (m/s)
SLC 2500-S	1,0	1,5
SLC 2500-HS	1,6	2,1
Guide rail thickness	16 - 70 mm	

SLC2500-S DOWNWARD DIRECTION					
GUIDE RAIL SURFACE CONDITION	LUBRICATION	MAXIMUM LOAD (Kg)		MINIMUM LOAD (Kg)	
		Braking width (mm)		Braking width (mm)	
		≥ 24	≥ 20	≥ 24	≥ 20
Machined	Dry	4243	x	499	x
Machined	Oiled	4221	x	482	x

SLC2500-HS DOWNWARD DIRECTION					
GUIDE RAIL SURFACE CONDITION	LUBRICATION	MAXIMUM LOAD (Kg)		MINIMUM LOAD (Kg)	
		Braking width (mm)		Braking width (mm)	
		≥ 24		≥ 24	
Machined	Dry	4295		837	
Machined	Oiled	4259		704	



PROGRESSIVE SAFETY GEAR SLC2500

MI.SLC2500.03EN

Revision 3

18/06/2020

INSTRUCTIONS

SLC2500-S UPWARD DIRECTION					
GUIDE RAIL SURFACE CONDITION	LUBRICATION	MAXIMUM FORCE (N)		MINIMUM FORCE (N)	
		Braking width (mm)		Braking width (mm)	
		≥ 24	≥ 20	≥ 24	≥ 20
Machined	Dry	33232	x	4722	x
Machined	Oiled	33257	x	4526	x

SLC2500-HS UPWARD DIRECTION					
GUIDE RAIL SURFACE CONDITION	LUBRICATION	MAXIMUM FORCE (N)		MINIMUM FORCE (N)	
		Braking width (mm)		Braking width (mm)	
		≥ 24		≥ 24	
Machined	Dry	33563		6518	
Machined	Oiled	34164		5838	

RANGE 2

SAFETY GEAR MODEL	MAX. NOMINAL SPEED (m/s)	MAX. TRIPPING SPEED (m/s)
SLC 2500-S	1,75	2,0
SLC 2500-HS	2,65	3,0
Guide rail thickness	5 - 70 mm	

SLC2500-S DOWNWARD DIRECTION					
GUIDE RAIL SURFACE CONDITION	LUBRICATION	MAXIMUM LOAD (Kg)		MINIMUM LOAD (Kg)	
		Braking width (mm)		Braking width (mm)	
		≥ 24	≥ 20	≥ 24	≥ 20
Cold-drawn	Dry	2739	2250	440	377
Cold-drawn	Oiled	2716	2020	430	371
Machined	Dry	3350	x	499	x
Machined	Oiled	3335	x	482	x

INSTRUCTIONS

SLC2500-HS DOWNWARD DIRECTION					
GUIDE RAIL SURFACE CONDITION	LUBRICATION	MAXIMUM LOAD (Kg)		MINIMUM LOAD (Kg)	
		Braking width (mm)		Braking width (mm)	
		≥ 24		≥ 24	
Cold-drawn	Dry	2704		523	
Cold-drawn	Oiled	2639		522	
Machined	Dry	2866		837	
Machined	Oiled	2812		704	

SLC2500-S UPWARD DIRECTION					
GUIDE RAIL SURFACE CONDITION	LUBRICATION	MAXIMUM FORCE (N)		MINIMUM FORCE (N)	
		Braking width (mm)		Braking width (mm)	
		≥ 24	≥ 20	≥ 24	≥ 20
Cold-drawn	Dry	26325	12943	4067	4329
Cold-drawn	Oiled	25416	12610	3731	3802
Machined	Dry	32360	x	4722	x
Machined	Oiled	31279	x	4526	x

SLC2500-HS UPWARD DIRECTION					
GUIDE RAIL SURFACE CONDITION	LUBRICATION	MAXIMUM FORCE (N)		MINIMUM FORCE (N)	
		Braking width (mm)		Braking width (mm)	
		≥ 24		≥ 24	
Cold-drawn	Dry	26356		5161	
Cold-drawn	Oiled	25785		5022	
Machined	Dry	31362		6518	
Machined	Oiled	31306		5838	

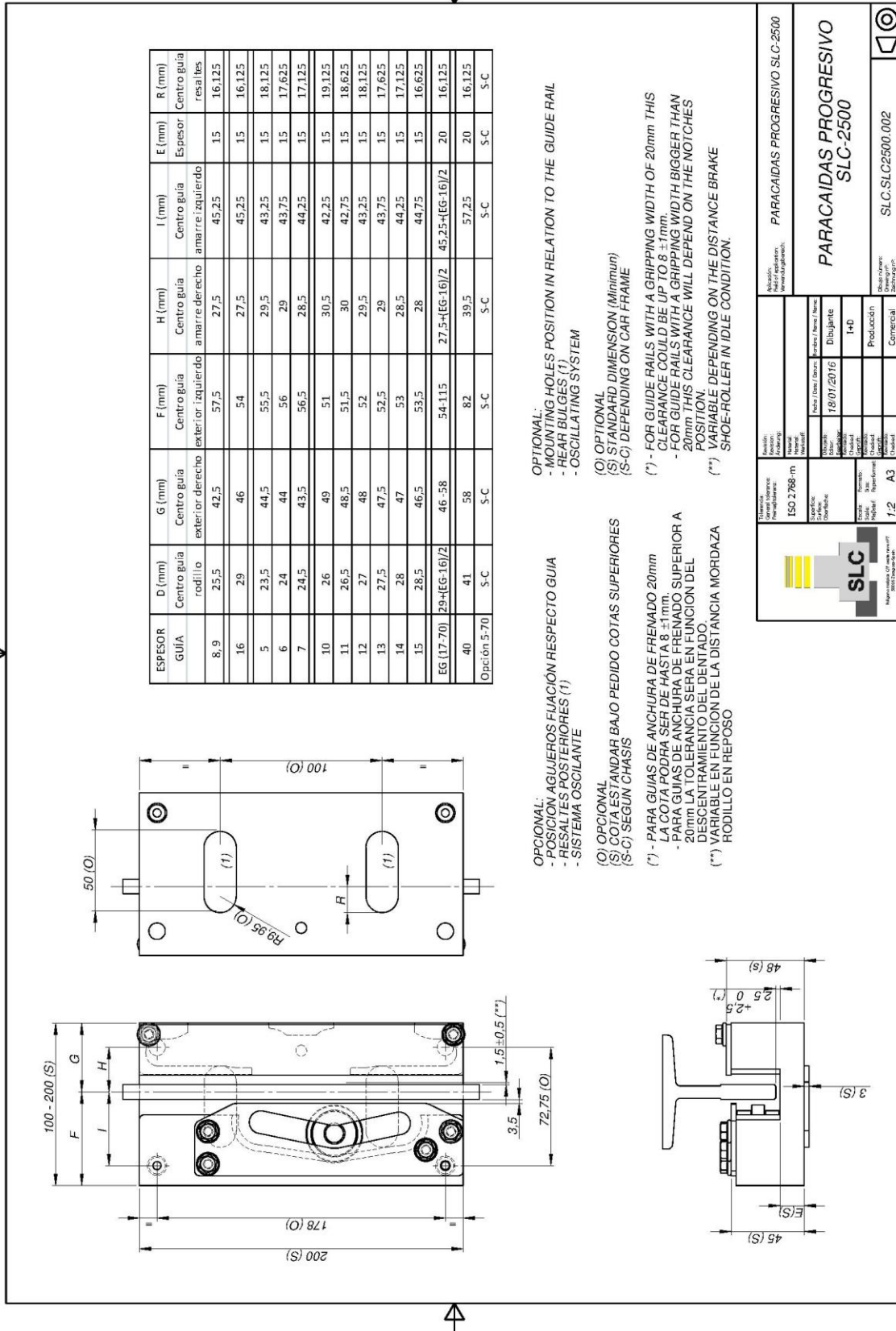
According to section 5.3.4 of standard EN81-50, the declared mass may differ by $\pm 7.5\%$ from the mass allowed.

The functioning temperature is comprised between -30°C & $+50^{\circ}\text{C}$.

The tolerance of the guide rails will be as established by standard ISO 7465.

INSTRUCTIONS

1.5 DIMENSIONS



ESPEJOR GUJA	D (mm)		G (mm)		F (mm)		H (mm)		I (mm)		E (mm)		R (mm)	
	Centro guía rodillo	exterior	Centro guía exterior derecho	exterior izquierdo	Centro guía amarre izquierdo	amarre derecho	Centro guía amarre izquierdo	amarre izquierdo	amarre derecho	Centro guía amarre izquierdo	amarre izquierdo	Centro guía Espesor	amarre izquierdo	amarre derecho
8,9	25,5	42,5	46	57,5	27,5	27,5	45,25	45,25	15	16,125	15	16,125	15	16,125
16	29	46	54	55,5	29,5	29,5	43,25	43,25	15	18,125	15	18,125	15	18,125
5	23,5	44,5	56	29	43,75	43,75	44,25	44,25	15	17,625	15	17,625	15	17,625
6	24	44	56	29	43,75	43,75	44,25	44,25	15	17,625	15	17,625	15	17,625
7	24,5	43,5	56,5	29	43,75	43,75	44,25	44,25	15	17,625	15	17,625	15	17,625
10	26	49	51	30,5	42,25	42,25	42,25	42,25	15	19,125	15	19,125	15	19,125
11	26,5	48,5	30	42,75	15	18,625	15	18,625	15	18,125	15	18,125	15	18,125
12	27	48	52	29,5	43,25	43,25	43,25	43,25	15	18,125	15	18,125	15	18,125
13	27,5	47,5	29	43,75	15	17,625	15	17,625	15	17,625	15	17,625	15	17,625
14	28	47	53	28,5	44,25	44,25	44,25	44,25	15	17,125	15	17,125	15	17,125
15	28,5	46,5	53,5	28	44,75	44,75	44,75	44,75	15	16,625	15	16,625	15	16,625
EG (17-70)	29±[EG-16]/2		46-58		54-115		27,5±[EG-16]/2		45,25±[EG-16]/2		20		16,125	
40	41	58	82	39,5	39,5	39,5	39,5	39,5	39,5	39,5	39,5	39,5	39,5	39,5
Opción 5-70	S-C	S-C	S-C	S-C	S-C	S-C	S-C	S-C	S-C	S-C	S-C	S-C	S-C	S-C

OPCIONAL:
 - POSICION AGUJEROS FIJACION RESPECTO GUJA
 - RESALTES POSTERIORES (1)
 - SISTEMA OSCILANTE

(O) OPCIONAL
 (S) COTA ESTANDAR BAJO PEDIDO COTAS SUPERIORES
 (S-C) SEGUN CHASIS

(*) - PARA GUIAS DE ANCHURA DE FRENADO 20mm
 LA COTA PODRA SER DE HASTA 8 ±1mm.
 - PARA GUIAS DE ANCHURA DE FRENADO SUPERIOR A 20mm LA TOLERANCIA SERA EN FUNCION DEL DESCENTRAMIENTO DEL DENTADO.
 (**) VARIABLE EN FUNCION DE LA DISTANCIA MORDAZA RODILLO EN REPOSO

OPCIONAL:
 - MOUNTING HOLES POSITION IN RELATION TO THE GUIDE RAIL
 - REAR BULGES (1)
 - OSCILLATING SYSTEM

(O) OPTIONAL
 (S) STANDARD DIMENSION (Minimum)
 (S-C) DEPENDING ON CAR FRAME

(*) - FOR GUIDE RAILS WITH A GRIPPING WIDTH OF 20mm THIS CLEARANCE COULD BE UP TO 8 ±1mm.
 - FOR GUIDE RAILS WITH A GRIPPING WIDTH BIGGER THAN 20mm THIS CLEARANCE WILL DEPEND ON THE NOTCHES POSITION.
 (**) VARIABLE DEPENDING ON THE DISTANCE BRAKE SHOE-ROLLER IN IDLE CONDITION.

Norma ISO 2768-m	Material: Acero	Protección: Pintado	Color: Gris	Acabado: Pulido	Forma: Rectangular	Material: Acero	Protección: Pintado	Color: Gris	Acabado: Pulido	Forma: Rectangular	
1/2	A3	1/2	A3	1/2	A3	1/2	A3	1/2	A3	1/2	A3

PARACAIDAS PROGRESIVO SLC-2500

PARACAIDAS PROGRESIVO SLC-2500

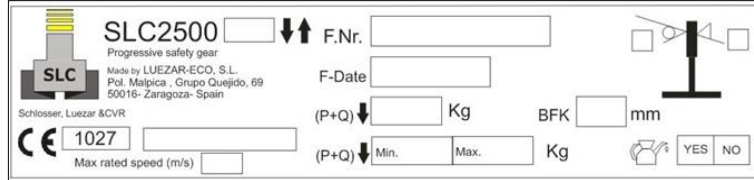
SLC

Modelo de obra nº 10012020000000000000

INSTRUCTIONS

1.6 MARKING

In compliance with section 5.6.2.1.1.3 of standard EN81-20, the safety gear comes with an identifying label with the following details:



SLC2500 (S / HS)	Type of progressive safety gear (S=standard, HS=high speed)
Max rated speed	Maximum tripping speed of the governor
F. Nr	Manufacturing number
F. Date	Manufacturing date
(P+Q)	Lift P+Q
(P+Q) Min-Max	Permitted minimum and maximum P+Q
<input checked="" type="checkbox"/>	Cold-drawn guide rail
<input checked="" type="checkbox"/>	Machined guide rail
<input type="checkbox"/>	Oiled guide rail (<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO); Dry guide rail (<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO)

It is very important to check that the details reflected on the identifying label are in accordance with the characteristics of the installation.

2.- ASSEMBLY

The SLC2500 safety gear can be assembled fixed or oscillating. The most appropriate system is the oscillating one, as it allows for a more accurate adjustment of the safety gear position with regards to the guide rail and it allows the safety gear to adapt to it during braking. The safety gear rear projections are always optional.

The chassis must be resistant enough to support the efforts produced during braking and in the case of a fixed assembly, the chassis itself or the gliders must allow for some deformation when the safety gear trips. .

The SLC2500 set is made of two symmetrical safety gears, each of them is assembled on one side of the chassis and their positions cannot be exchanged. The UP mark must ALWAYS be on the upper part. In this position, if the calliper is on the right-hand side, then we call it a right-hand safety gear and if it is on the left-hand side, a left-hand safety gear.



LEFT HAND

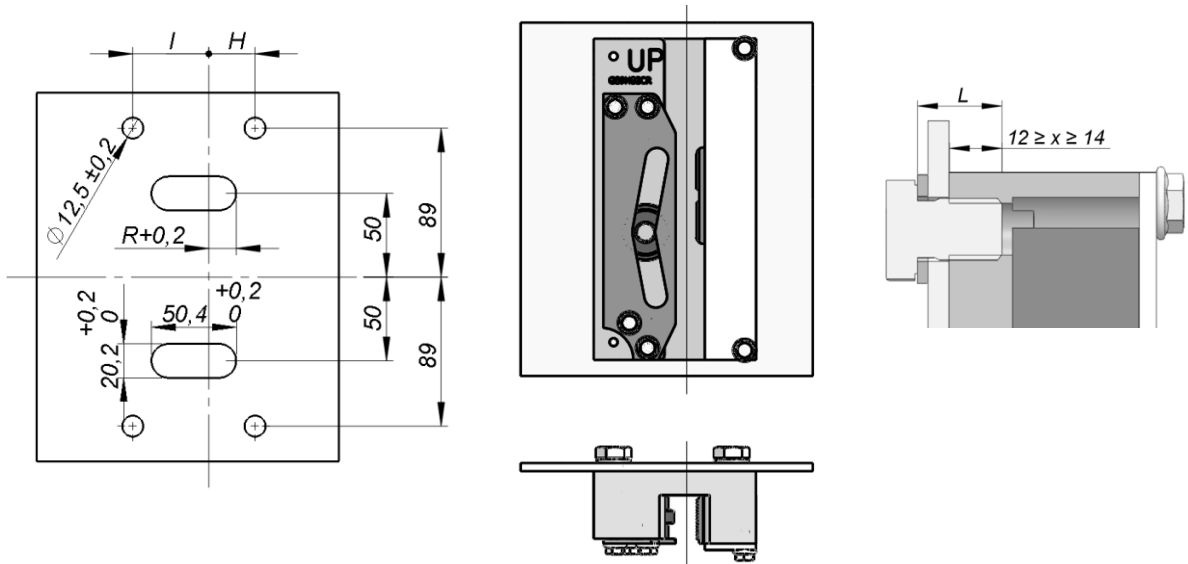


RIGHT HAND

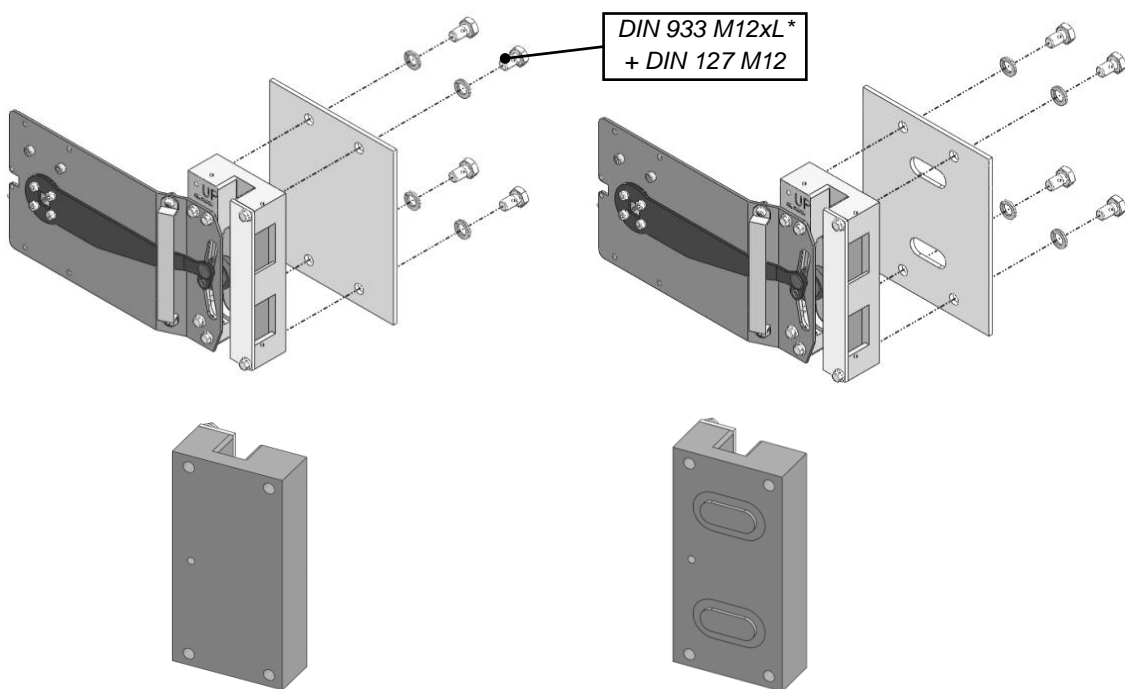
INSTRUCTIONS

2.1 FIXED SYSTEM

Taking into account section 1.5 DIMENSIONS, the drill holes to be made in the chassis or in its finished (carved, painted,...) fixing plate will be as shown in the drawing below. If the safety gear does not have any projections, then the two elongated holes will be omitted



Each safety gear will be fixed to the chassis by means of four M12 screws quality 8.8 DIN 933 and DIN 127 grower washers or similar in the threaded holes of the safety gear. In all cases, the length (L^*) of the screws must be such that the threaded length in the safety gear is neither higher than 14mm nor lower than 12mm.



SAFETY GEAR WITHOUT PROJECTIONS

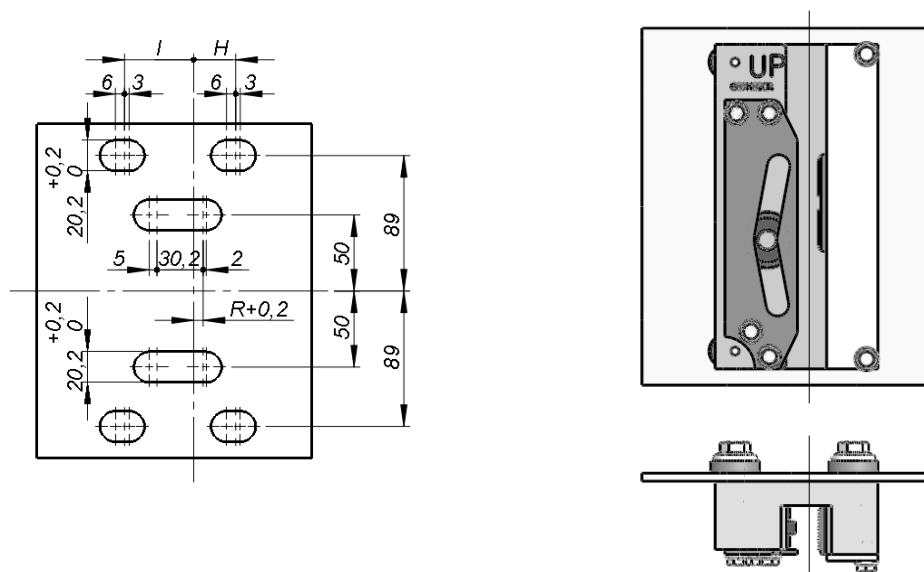
SAFETY GEAR WITH PROJECTIONS

INSTRUCTIONS

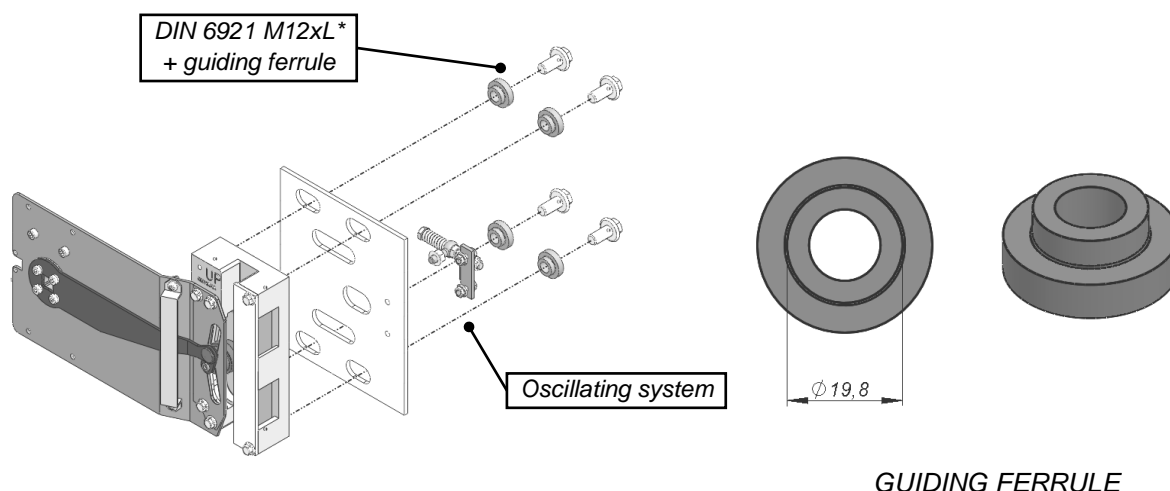
2.2 OSCILLATING SYSTEM

Taking into account section 1.5 DIMENSIONS, the drill holes to be made in the chassis or in its finished (carved, painted,...) fixing plate will be as shown in the drawing below. If the safety gear does not have any projections, then the two elongated holes will be omitted.

Additionally, we must make the drill holes to assemble the oscillating system. Its dimensions depend on the model of system and they must allow for a minimum movement of 5mm in the direction the calliper approaches the guide rail and 3mm in the opposite direction.



Each safety gear will be fixed to the chassis by means of four M12 screws quality 8.8 DIN 6921 and guiding ferrules in the threaded holes of the safety gear. The dimensions of the ferrules depend on the thickness of the plate and they allow for the safety gear to move laterally. In all cases, the length (L*) of the screws must be such that the threaded length in the safety gear is neither higher than 14mm nor lower than 12mm.

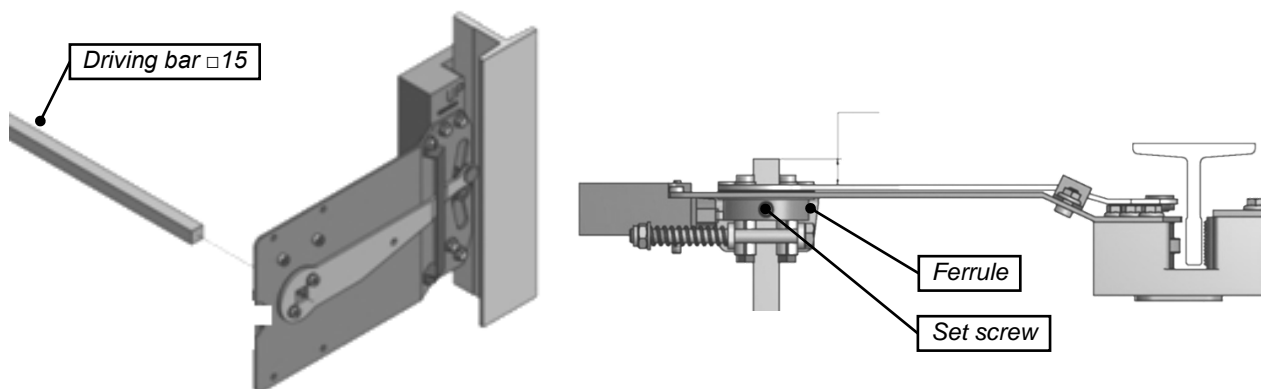


GUIDING FERRULE

INSTRUCTIONS

2.3 DRIVING BAR

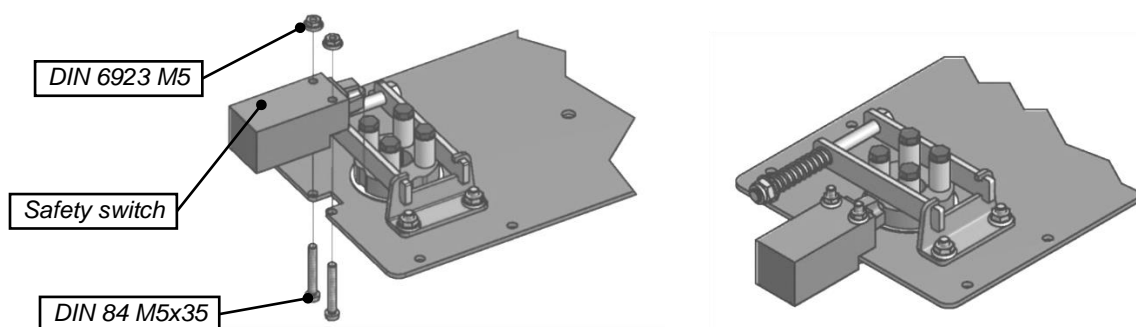
Once the safety gear is fixed, we must assemble the driving bar, which must be a square of 15x15mm at both ends. Loosen the set screws and insert the bar through the ferrules of both linkages. Place the bar so that it surpasses at least 15mm from each side and tighten the set screws to fix the bar.



3.- CONNECTION

In compliance with section 5.6.2. 1.5 of standard EN81-20, fix an electrical safety switch to the linkage of the safety gear or directly to the chassis, so that it can command the stop of the machine if the safety gear trips.

Fix the safety switch to the linkage or chassis by means of 2 DIN 84 M5x35 screws and DIN 6923 M5 nuts and then connect it to the series of safeties, in the position of normally closed.



The electrical safety switch is Pizzato FR615-S13 (1NC, 1NO) or similar, and its features are as follows:

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



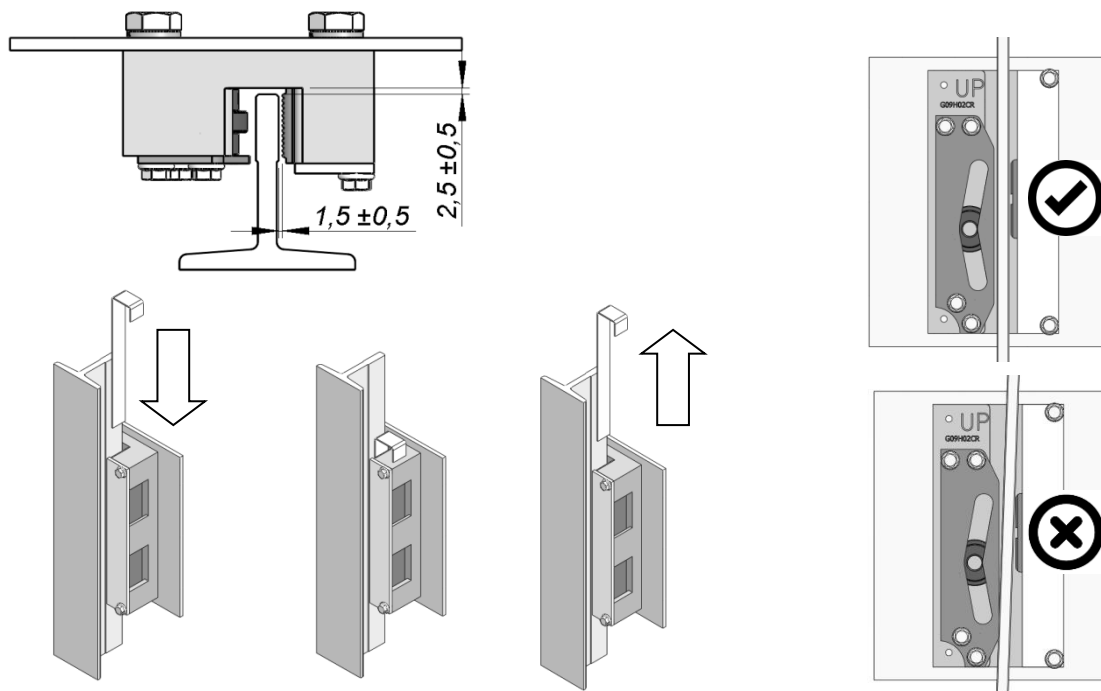
To check its correct functioning, act manually on the lever of the linkage and see that the lift cannot possibly work.

INSTRUCTIONS

4.- ADJUSTEMENT

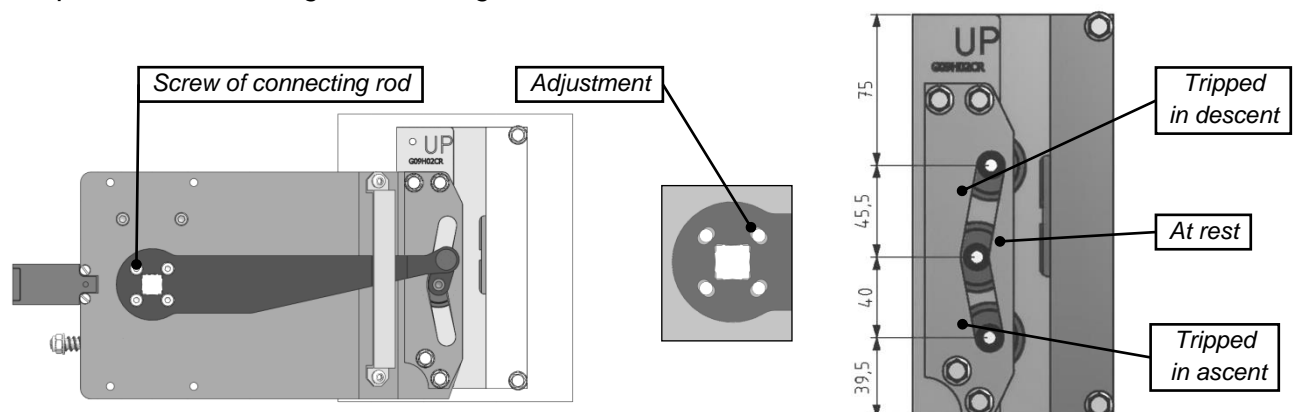
4.1 SAFETY GEAR

With the help of gauges, check the position of the safety gear and check the two measures shown in the drawing below. If the measures are out of tolerance in any of the directions, loosen the screws of the safety gear and, with the gauge placed as shown in the image, adjust the safety gear, tighten the screws again and remove the gauge. It is very important to check that the safety gear is lateral and frontally parallel to the guide rail.



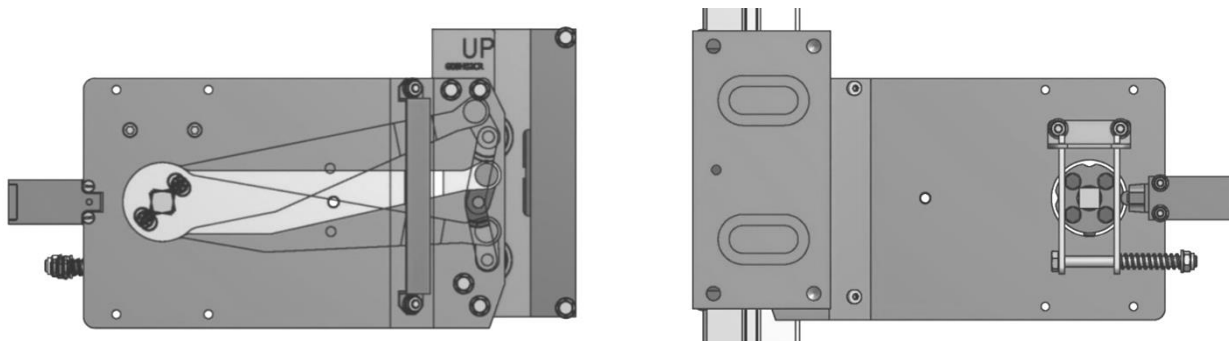
4.2 DRIVE

Check that the connecting rods in both linkages lie on the lower screw and that the rollers are located in the lower lodging. Otherwise, loosen the screws of the connecting rod, adjust their position and then tighten them again.



INSTRUCTIONS

By manually acting on the linkage in both directions, check that the rollers reach their extreme positions, that there are no interferences of the linkage with any element in the installation and that the linkage recoverer can return the roller to its neutral position. Otherwise or if the linkage is too rigid, adjust the recoverer by turning its adjustment nut, taking into account that in the extreme positions of the roller the spring should not be totally compressed.



5.- TESTS

The tests described in this document will be performed following the instructions of standard EN 81-20 Section 6.3 "Inspections and tests before the implementation", 6.3.4 "Car lift safety gears" and 6.3.5. "Counterweight safety gears".

That is to say, to do the tests of the car lift safety gear, the car must be loaded with 125% of the nominal load and it must move at nominal speed. For the tests of the counterweight safety gear, the car must be empty and it must move at nominal speed.

5.1 BEFORE THE TEST

Perform the following operations before the test:

- Check that the guide rails and the safety gears are clean and free from foreign bodies.
- Check that the guide rails do not have marks from previous brakings.
- Check that the linkage rotates and returns to its original position correctly.
- Travel the lift several times at reduced speed and check that there is no noise produced by the friction of the safety gears with the guide rails.

Otherwise, clean and oil the guide rails if required for the installation, grind down the braking marks until they are removed and adjust the linkage.

INSTRUCTIONS

5.2 TEST

There will be nobody in the shaft, on or inside the car during the tests.

In order to unload the car more easily, the tests will be performed at the level of one of the landing doors.

In addition, the following points must be taken into consideration:

- *The brakes of the machine must not get activated during the braking of safety gear.*
- *No mechanical or electric elements must interfere by generating forces on the system.*

Any interference in the braking of safety gear can corrupt the results and thus lead to miscalculation of braking distances.

The test itself will be performed as follows:

5.2.1 CAR LIFT SAFETY GEAR

- *Load the car lift uniformly with 125% of the nominal load.*
- *Bridge the relay that controls the brakes of the machine.*
- *Bridge any switch connected to safety circuits to prevent the machine from stopping during braking, safety gear switch, overspeed governor switch and tensioner, etc.. The machine stop must be executed manually immediately after the braking of safety gear.*
- *Activate the governor speed remotely when the car is at one of the lower floors, but never at the lowest.*

5.2.2 COUNTERWEIGHT SAFETY GEAR

- *Completely unload the car.*
- *Bridge the relay that controls the brakes of the machine.*
- *Bridge any switch connected to safety circuits to prevent the machine from stopping during braking, safety gear switch, overspeed governor switch and tensioner, etc.. The machine stop must be executed manually immediately after the braking of safety gear.*
- *Remotely activate the governor speed or the system that simulates the breaking of the suspension organs when the car is at one of the upper floors, but never at the highest.*

5.3 AFTER THE TEST

Check that the inclination of the car is not higher than 5%. If the inclination is higher, then the test will not be valid.

Perform the following operations after the test:

- *If the car safety gear has been tested, unload the car and travel it to the floor immediately above.*
- *If the counterweight safety gear has been tested, travel the car to the floor immediately below.*
- *Check if the safety gear, the linkage or other components are damaged.*
- *Measure the braking mark and check that it is similar in both guide rails.*
- *Grind down and clean until the braking mark is erased.*
- *Return the manoeuvre-governor-linkage system to its original position and leave it ready for normal functioning.*

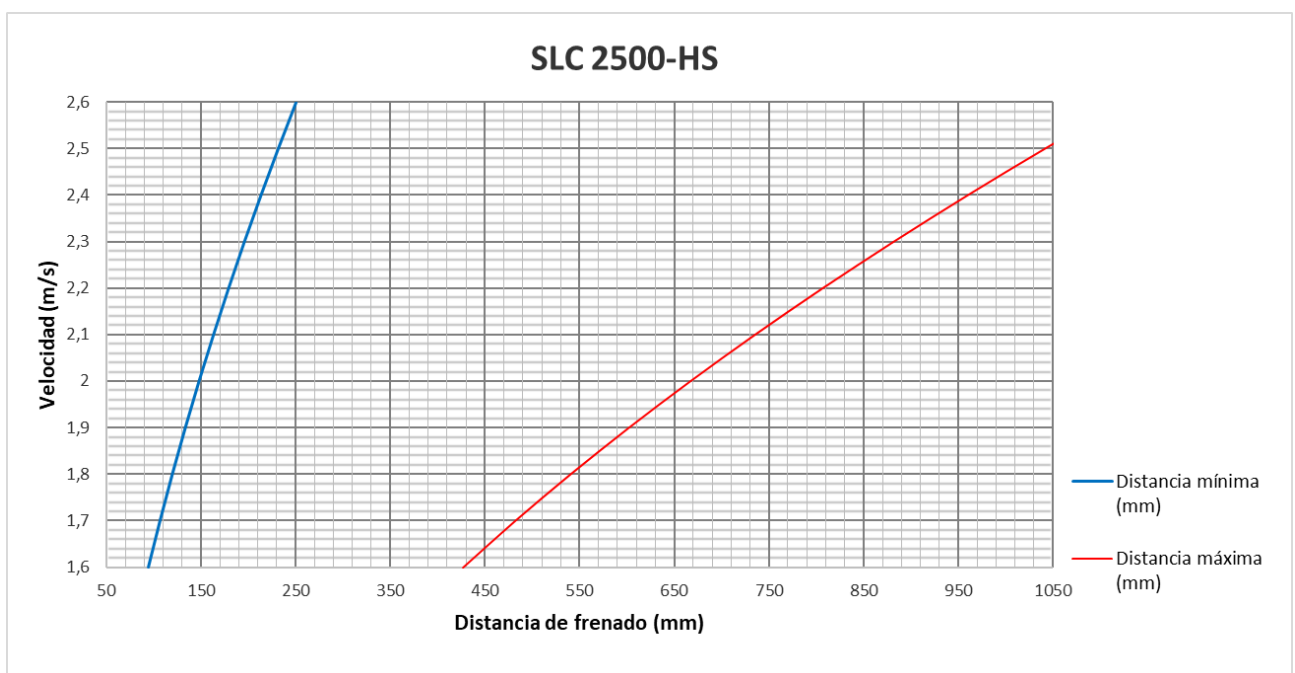
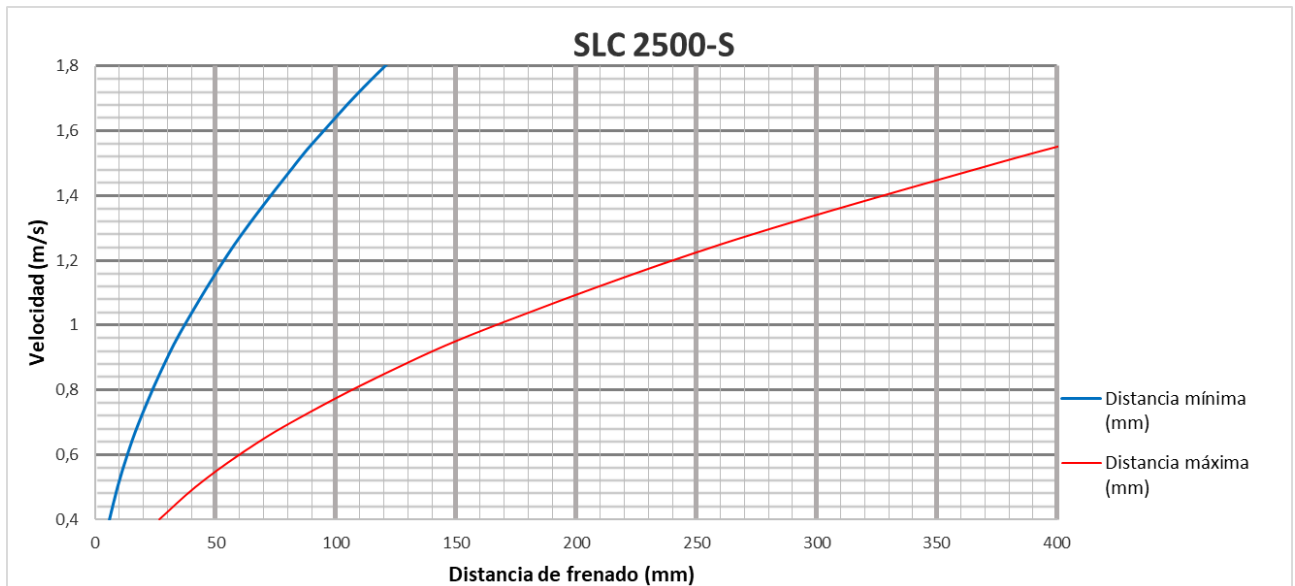
INSTRUCTIONS

The existence of faults in the safety gears or a difference of over 20mm in the braking marks will also make the test void.

5.4 BRAKING DISTANCE. BRAKING CURVES

In order to check that the safety gear brakes as required by section 6.3 of standard EN 81-20, take the lowest and highest values of both braking marks and check that both values are between the maximum and minimum braking curves.

For speeds lower than or equal to 1.7m/s, choose the curve corresponding to the SLC 2500-S safety gear and for speeds higher than 1.7m/s, the curve corresponding to the SLC 2500-HS safety gear.



INSTRUCTIONS

6.- MAINTENANCE

To guarantee the correct functioning of the safety gears all along their useful life, we must perform a functioning test of the safety gears annually. The test will be similar to the one described in section 5, but the car lift will be empty and it will move at inspection speed.

In addition, we shall annually perform the following maintenance tasks:

6.1 AFTER TRIPPING THE SAFETY GEAR

The company in charge will make available at the installation the instructions to release the safety gear after its engagement.

In order to guarantee a correct release of the safety gear, the personnel in charge of maintenance will proceed as in section 5.3 "After the test", following the instructions described above. These operations could be performed under any situation of load if it is not possible to unload the car lift.

In all cases, the said personnel will release the safety gear.

6.2 SAFETY GEAR AND GUIDE RAILS

- *Check that no foreign body is located between the safety gear and the guide rail or in the linkage and its accessories.*
- *Perform a visual inspection of all the equipment in order to detect possible superficial damage or the effects of corrosion.*
- *If the guide rails are oiled, lubricate them with oil type ISO VG 68 or similar.*
- *Look for any possible marks as a consequence of tripping. If any is found, grind them down, so as to restore the braking area of the guide rail.*

6.3 USEFUL LIFE

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

Thanks to the periodical tests, it is not necessary to replace the braking elements unless the braking distance is abnormally high. However, after real action of the safety gear in free fall, it is recommended to check all the elements and, if any fault is detected, it is recommended to replace the faulty part.

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