



PARACAÍDAS PROGRESIVO DYNATECH/  
DYNATECH PROGRESSIVE SAFETY GEAR/  
PARACHUTE À PRISE AMORTIE DYNATECH/  
BREMSFANGVORRICHTUNG DYNATECH/

## **PR-2000-UD**

INSTRUCCIONES DE USO Y MANUTENCIÓN/  
INSTRUCTIONS FOR USE AND MAINTENANCE/  
INSTRUCTIONS D'USAGE ET ENTRETIEN/  
GEBRAUCHS- UND WARTUNGSANLEITUNG/

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-	The certificate number according to the UNE-EN 81-20, UNE-EN 81-50 and 2014/33/EU Directive is included				Not applicable
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-	The entire manual was reviewed				Not applicable

## CERTIFICADO DE EXAMEN U.E. DE TIPO EU TYPE-EXAMINATION CERTIFICATE

Según el anexo IV parte A de la Directiva 2014/33/UE / According annex IV part A of Directive 2014/33/EU

ATISAE, Organismo de Control Autorizado acreditado por ENAC con acreditación nº OC-I/025

<b>Número de certificado. / Certificate number</b>	<b>ATI / PP / 007</b>	<b>rev: 1</b>
<b>Organismo Notificado. Notified Body</b>	<b>Asistencia Técnica Industrial S.A.E. (ATISAE)</b> Avda. de los Artesanos, 20 E 28760 Tres Cantos MADRID (ESPAÑA) Nº de identificación / ID number <b>0053</b> .	
<b>Clase. Tipo. Product. Type</b>	<b>Paracaídas de acción progresiva (PP)</b> Progressive safety gear	
<b>Modelo / Model</b>	<b>PR 2000 UD</b>	
<b>Fabricante. Manufacturer</b>	<b>DYNATECH. DYNAMICS AND TECHNOLOGY S.L.U.</b> <b>P.I. PINA DE EBRO, SECTOR C PARCELA 9</b> <b>50750 ZARAGOZA.</b>	
<b>Propietario del certificado. Certificate Holder</b>	<b>DYNATECH. DYNAMICS AND TECHNOLOGY S.L.U.</b> <b>P.I. PINA DE EBRO, SECTOR C PARCELA 9</b> <b>50750 ZARAGOZA.</b>	
<b>Fecha de presentación. Date of submission</b>	<b>18/06/2015</b>	
<b>Fecha del examen de tipo. Date of type examination.</b>	<b>21/04/2016</b>	
<b>Laboratorio de ensayo. Test laboratory</b>	<b>(véase en el anexo técnico sección 2.10).</b> <b>(Please refer to technical annex section 2.10)</b>	
<b>Informe de ensayo Test report</b>	<b>(véase en el anexo técnico sección 2.10).</b> <b>(Please refer to technical annex section 2.10)</b>	
<b>Directiva. / Directive.</b>	<b>Directiva 2014/33/UE de 26 de febrero de 2014</b> <b>Directive 2014/33/EU of 26 February 2014</b>	
<b>Norma de referencia. Standard of reference</b>	<b>EN 81-1:1998+A3:2009; EN 81-2:1998+A3:2009;</b> <b>EN 81-20/2014; EN 81-50/2014;</b>	
<b>Informe de ATISAE. / ATISAE report</b>	<b>MD_EVN_110058 (30.05.2011)</b> <b>MD_DEU_111243.003 (30.05.2011)</b>	
<b>Plazo de validez / Expiry date</b>	<b>Indefinido / (véase en el anexo técnico sección 2.12).</b> <b>Indefinite / (Please refer to technical annex section 2.12)</b>	

**Declaración:** El componente de seguridad permite al ascensor sobre el que se instale satisfacer los Requisitos de Seguridad y Salud de la citada Directiva usándose dentro del alcance que queda establecido en el anexo técnico de este certificado, así como con las condiciones de instalación indicadas.

**Statement:** The safety component allows the lift on which it is installed to satisfy the health and safety requirements of the Lifts Directive when it is used within the scope, as well as under the installation conditions that are set up in the technical annex to this certificate.



**José Manuel Flórez González**  
Director Técnico Elevación

Este certificado consta de esta portada, un anexo técnico de 3 hojas y 1 plano / documento. Su reproducción carece de validez si no se realiza totalmente.  
This certificate consists of this main page, a technical annex with 3 pages and 1 drawing / document. It shall be reproduced with all its pages to be considered valid.

## ANEXO TECNICO AL CERTIFICADO DE EXAMEN UE DE TIPO ATI / PP / 007 rev 1 TECHNICAL ANNEX TO THE EU TYPE EXAMINATION CERTIFICATE ATI / PP / 007 rev 1

### 1. Campo de aplicación: Scope.

#### 1.1. Paracaídas de accionamiento progresivo (caída libre o sobrevelocidad descendente). Progressive safety gear (free fall or descending overspeed)

El siguiente cuadro resume las características de aplicación del paracaídas.  
The following table summarises the scope for the safety gear.

TIPO TYPE	Tipo guía Guide rail	Espesor Blade width	Masa admisible (kg) Permissible mass	Vn (m/s)	Vd (m/s)	A.F.	Lubricación Oiling condition
PR-2000 UD	A	5 ÷ 16 <sup>(1)</sup>	507 ÷ 1.223	1.70	2.00	≥25	Aceitado/Oiled <sup>(2)</sup>

Distancias dadas en mm / Distances in mm.

Clave de la tabla / Key:

- Tipo de guía: A (estirada) / guide rail surface condition: A (drawn)
- Vn velocidad nominal máxima (véase nota 2.8)/ maximum rated speed (please refer to remark 2.8).
- Vd velocidad de disparo máximo. / maximum tripping speed.
- AF anchura mínima de frenado / minimum gripping width

(1) La actuación del paracaídas con guías de espesor reducido (5 o 6 mm) puede producir daños en la guía. Después de una actuación debe comprobarse el estado de la guía, asegurándose de que es capaz de llevar a cabo su función con normalidad.

The tripping of the safety gear in a given installation, provided with guide rails of reduced blade width (5 o 6 mm) may cause severe damage on the guide rail. After the tripping, the working condition of the guide rail must be checked in order to assure it is able to work with normality.

(2) ISO VG 150 o aceite de características similares /or oil with similar characteristics.

#### 1.2. Dispositivo de frenado (sobrevelocidad en sentido ascendente).

Braking device (ascending overspeed)

El siguiente cuadro resume las características de aplicación como dispositivo de frenado para cabina en sentido ascendente.

The following table summarises the scope as ascending car Braking device.

TIPO TYPE	Tipo guía Guide rail	Espesor Blade width	Fuerza de frenado(N) Braking force	Vn (m/s)	Vd (m/s)	A.F.	Lubricación Oiling condition
PR-2000 UD	A	5 ÷ 16 <sup>(1)</sup>	2.881 ÷ 19.572	1.70	2.00	≥25	Aceitado/Oiled <sup>(2)</sup>

Clave de la tabla y notas / Key and remarks: (véase sección 1.1.) / (please refer to section 1.1)

#### 1.3. Tipo de reglaje: Adjustment:

**Reglaje continuo**  
Continuous adjustment

#### 2. Notas. Remarks.

2.1. Utilización del dispositivo. El dispositivo paracaídas puede utilizarse como medio contra la caída libre y la sobrevelocidad en bajada [5.6.2.1], como dispositivo de frenado para los medios contra sobrevelocidad en subida de la cabina [5.6.6.4.a)] o como elemento de parada del sistema de protección contra el movimiento no intencionado de la cabina [5.6.7.4.a)] (véase 2.14). En estos dos últimos casos solo representa una parte de los medios o sistema. Para [5.6.2.1] y [5.6.6] un limitador de velocidad como establece [5.6.2.2.1] y [5.6.6.10.a)] u otro medio equivalente debe utilizarse para controlar el valor de velocidad. En el caso de [5.6.7] un sistema de control debe detectar el movimiento no intencionado y accionar el elemento de parada (presumiblemente bloqueando el limitador de velocidad).

Intended use of the device. The safety gear device can be used as means against the free fall and descending overspeed [5.6.2.1], as braking device for the ascending car overspeed protection means [5.6.6.4.a)] or as stopping element for a protection against unintended car movement system [5.6.7.4.a)] (see remark 2.14). In these both cases it only represents a part of the means or system. For [5.6.2.1] and [5.6.6], an overspeed governor as set forth [5.6.2.2.1] and [5.6.6.10.a)], or equivalent means, shall be used to control the speed of the car. For [5.6.7] an additional system shall control and detect the unintended movement of the car and trigger the stopping element (presumably by blocking the governor).

2.2. La construcción del dispositivo pone a disposición, en un único bloque, las prestaciones de frenado en ambas direcciones (bajada/subida). Los valores de masa admisible (1.1) y fuerza de frenado (1.2) actuando el dispositivo como medio de frenado, pueden regularse de forma independiente, no obstante el componente se suministra con una regulación única para los requerimientos de una determinada instalación.

The arrangement of the device makes available, in one single block, the braking performance for both directions (downwards / upwards). The figures of permissible mass (1.1) and braking force (1.2.) when used as braking device can be adjusted independently, however the safety component is supplied with one single adjustment for a particular installation.



- 2.3. No existen sub-tipos.**  
There are not sub-types.
- 2.4. La certificación afecta a los elementos de frenado y no incluye a los elementos de conexión, timonería, ni a la actuación del dispositivo eléctrico.**  
The certificate affects to the gripping elements and does not include either the connection elements, safety gear rods, or the actuation of the electric safety device.
- 2.5. Cuando el dispositivo se utilice como dispositivo de frenado contra sobrevelocidad en subida [5.6.6], las fuerzas de frenado admisibles del dispositivo deberán utilizarse de modo que no se produzca una deceleración superior a 1gn con la cabina vacía en movimiento ascendente, responsabilidad que recae en el instalador del ascensor. Además la deceleración deberá ser suficiente para que en el peor de los casos el contrapeso pueda llegar a sus amortiguadores a velocidad no superior a la nominal.**  
When the device is used as braking device against ascending overspeed [5.6.6], the permissible braking force of the device shall be used in such a way that the retardation of the car does not exceed 1 gn with empty car moving upwards. The responsibility to comply with this premise is under the installer of the lift. Furthermore the retardation must be enough to achieve the counterweight hits its buffers at a speed not higher than the rated speed.
- 2.6. Cuando el dispositivo se utilice como elemento de parada [5.6.7], las fuerzas de frenado admisibles del dispositivo deberán utilizarse de modo que no se produzca una deceleración superior a 1gn con la cabina vacía en movimiento ascendente, responsabilidad que recae en el instalador del ascensor. Además la deceleración deberá ser suficiente para que la cabina sea detenida dentro de la distancia de parada establecida en [5.6.7.5]. También se asegurará esto último para la distancia de parada en bajada.**  
When the device is used as stopping element [5.6.7], the permissible braking force of the device shall be used in such a way that the retardation of the car does not exceed 1 gn with empty car moving upwards. The responsibility to comply with this premise is under the installer of the lift. Furthermore the retardation must be enough to achieve the car to be stopped within the stopping distance set forth in [5.6.7.5]. This last premise shall also be ensured for the descending stopping distance.
- 2.7. La masa total declarada puede diferir de la masa total admisible en  $\pm 7,5\%$ .**  
The mass stated may differ from the permissible mass by 7.5 %.
- 2.8. La utilización del dispositivo se realizará según las condiciones dadas en la norma EN 81-20. La velocidad nominal indicada en el apartado 1.1 es la máxima admisible pero debería tenerse en cuenta lo indicado en [5.6.2.2.1.1.a)4)] con relación a la velocidad de disparo recomendada para una velocidad nominal dada cuando esta es mayor de 1.0 m/s.**  
This device must be used according the conditions given in EN 81-20. The rated speed in section 1.1 is the maximum permissible, but should be taken into account what stated in [5.6.2.2.1.1.a)4)] regarding the recommended tripping speed for a given rated speed when it is greater than 1.0 m/s.
- 2.9. Sobre el dispositivo debe colocarse una placa con los datos indicados a continuación:**  
It shall be placed an identifiable plate on the device with the following items.

Nombre del fabricante  
Manufacturer's name

Nº del certificado de examen de tipo <sup>(1)</sup>  
Type-examination certificate number

Rango de P+Q admisible o parámetro de regulación <sup>(2)</sup>  
Permissible load range or adjustment parameter

Tipo de guía para el que se encuentra adaptado <sup>(3)</sup>  
guide rail type for which the device is adapted

- (1) El marcado del dispositivo se realiza como parte del sistema de protección al que pertenece (véase 2.1 y 2.14). El marcado CE corresponderá únicamente a la parte relativa a los medios de protección contra caída libre [5.6.2.1] y medios de protección contra sobre-velocidad en subida [5.6.6].  
The marking of the device is done as part of the protection system to which it belongs (please see 2.1 and 2.14). The CE marking shall only be taken into account the part concerning the means of protection against free fall [5.6.2.1] and against ascending car over-speed [5.6.6].
- (2) Si en vez del valor de P+Q se marca el parámetro de regulación, debe quedar disponible en el manual de instrucciones la relación existente entre este parámetro y el valor de P+Q.  
In case the marking of the device shows the adjustment parameter instead of the load range, it shall be made available in the instruction manual the relation between this parameter and the load range.
- (3) Con objeto de adaptar el dispositivo a distintos espesores existen diferencias constructivas. En el marcado del dispositivo debe aparecer bien el tipo de guía (por su referencia) o el espesor de guía para el que está adaptado el dispositivo.  
In order to adapt the device to different blade widths there are constructive differences. The marking shall include either the guide rail type (by its reference) either the blade rail width for which the device is adapted.

**2.10. Laboratorio de ensayo.**  
Test laboratory

AIMME – Instituto Tecnológico Metalmecánico  
Parque Tecnológico. Avda. Leonardo Da Vinci, 38  
46980 Paterna (VALENCIA)

**Informe de ensayo**  
Test report

S00-00730 (12.07.2000)



**2.11. Se adjunta a la presente certificación el siguiente documento:**

The following document is enclosed to this certificate.

NÚMERO	FECHA	LEYENDA
Number	Date	Title
DYN 07.C002.00	13.07.2015	CONJUNTO PR-2000-UD

**Este documento se adjunta con objeto de proporcionar identificación e información sobre el diseño básico del componente de seguridad.**

This document is enclosed in order to provide identification and information about the basic design of the safety component.

**2.12. Este certificado no tiene fecha límite de validez salvo que se produzcan: cambios de diseño, cambios en la legislación o en la normativa aplicable. El fabricante deberá poner en conocimiento de este Organismo Notificado cualquier cambio de diseño previsto.**

This certificate has not expiry date except in case of design modifications, changes in the applicable legislation or standards. The manufacturer must communicate to this Notified Body any envisaged change of design.

**2.13. Este certificado es la adaptación del certificado ATI/LD-VA/M105A-1/11 emitido por ATISAE con fecha 30.05.2011, a la referencia de las normas EN 81-20 y EN 81-50. El componente certificado se corresponde idénticamente, por lo que puede ser utilizado en caso de sustitución.**

This certificate is the adaptation of the certificate with number ATI/LD-VA/M105A-1/11 issued on 30.05.2011 by ATISAE, to the standards with references EN 81-20 and EN 81-50. The component is the same so it can be used in the event of replacing.

**2.14. La mención a la utilización como elemento de parada dentro del sistema de protección contra movimiento no intencionado (UCM) se realiza en base a las provisiones establecidas por la norma EN 81-20.**

The mention to its use as stopping element within the protection system against unintended car movement (UCM) is done with the basis of the provisions given by EN 81-20.

**Sobre el uso del dispositivo como elemento de parada se puede señalar:**

Regarding the use of the device as stopping element it should be noted:

- a) **La capacidad de detención de cabina del dispositivo ha sido comprobada a distintas velocidades incluidas velocidades bajas permitiendo asegurar la obtención de una fuerza de frenado que permite la detención de la cabina. No es posible facilitar una única distancia de parada debido a que esta es función de las características del sistema suspendido y de la velocidad alcanzada en el momento de iniciar el frenado.**

The stopping ability of the device has been tested at different speeds, including at low speed so a braking force able to stop the car can be achieved. It is not possible to provide a single stopping distance because this is a function of the characteristics of the hoisting layout and the speed reached at the moment when the braking starts.

- b) **No se ha demostrado para el dispositivo el mantenimiento de la fuerza de frenado a distintas velocidades. Se pueden producir frenadas más enérgicas o más suaves, lo cual deberá ser valorado en los ensayos de conjunto del sistema UCM.**

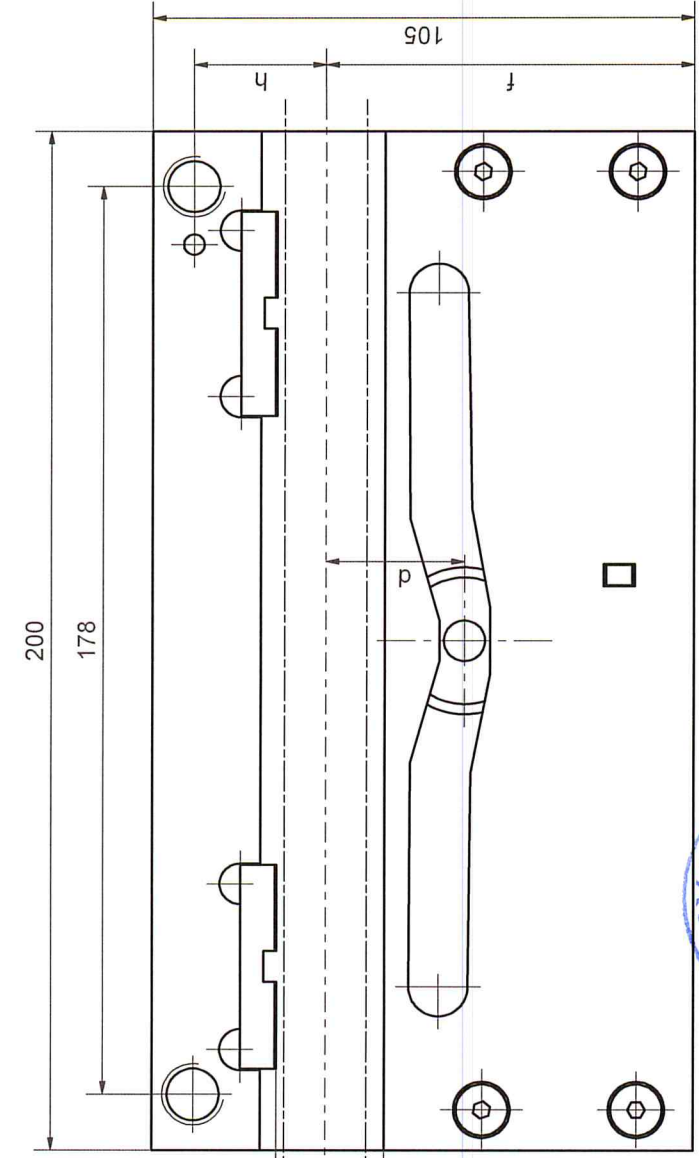
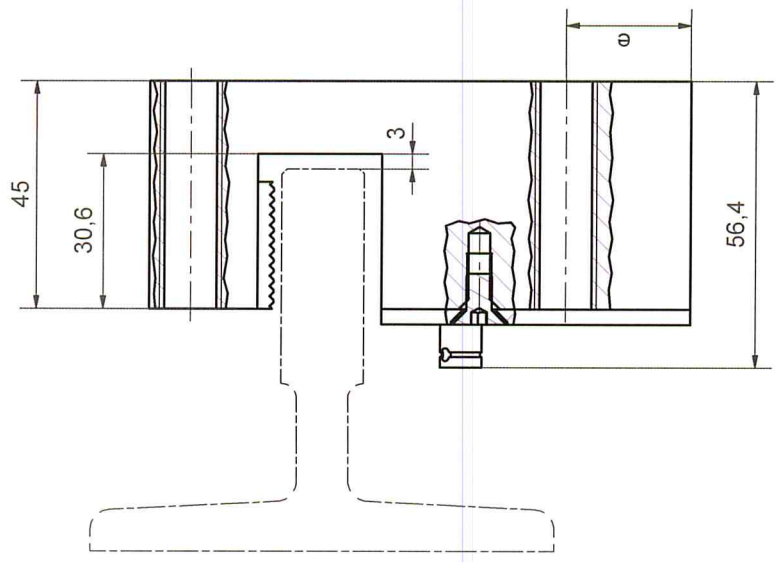
There is no evidence that the device is able to keep the braking force along the range of possible tripping speeds. It can be stronger or softer braking which shall be assessed when testing the complete UCM system.

- c) **El valor de la relación P/Q y otras características asociadas al alcance como elemento de parada deberán ser averiguadas en ensayos del conjunto completo del sistema UCM.**

The ratio of P/Q and other characteristics related to the scope as stopping element shall be found via tests of the whole assembly of the UCM system.



**Nota general.** Todos los artículos mencionados con referencia a EN 81-20, salvo que se indique lo contrario.  
**General remark.** All clauses mentioned with reference to EN 81-20, unless otherwise indicated.



*	d (mm)	f (mm)	e (mm)	h (mm)
5	21	65,4	22,25	29,6
6	21,5	65,9	22,25	29,1
7	22	66,4	22,25	28,6
8	22,5	66,9	22,25	28,1
9	23	67,4	22,25	27,6
10	23,5	67,9	22,25	27,1
11	24	68,4	24,25	28,6
12	24,5	68,9	24,25	28,1
13	25	69,4	24,25	27,6
14	25,5	69,9	24,25	27,1
15	26	70,4	24,25	26,6
15,88	26,44	70,84	24,25	26,16
16	26,5	70,9	24,25	26,1

\* Anchura de guía/  
Guide rail thickness/  
Épaisseur de guide/  
Führungsschienen



ATI / PP / 007 r1

CANTIDAD POR CONJUNTO:		<b>DYNATECH</b>
Material:		
Peso terminado:		CONJUNTO: PR-2000-LUD
Tto. lco:		Conjunto/ Assembly/ Ensemble/ Baugruppe
Tto. sup:		Escala: PLANO COD. N°: DYN 07.C002.00
Dibujado	Fecha 13/07/2015	
Norma	Nombre DYNATECH	Fichero: Sustituye a:
OBSERVACIONES: MEDIDAS SIN TOLERANCIA SEGÚN DIN-7168 GM		

## INSTRUCTIONS FOR USE AND MAINTENANCE

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## 1 GENERAL INSTRUCTIONS

Each pair of safety gears supplied is factory tared according to the required conditions of use: Total mass (P+Q) and guide rails' thickness. These features are indelibly displayed, along with the standardisation password and serial number; on the protection plates on top of the safety gear boxes (see section 2.1).

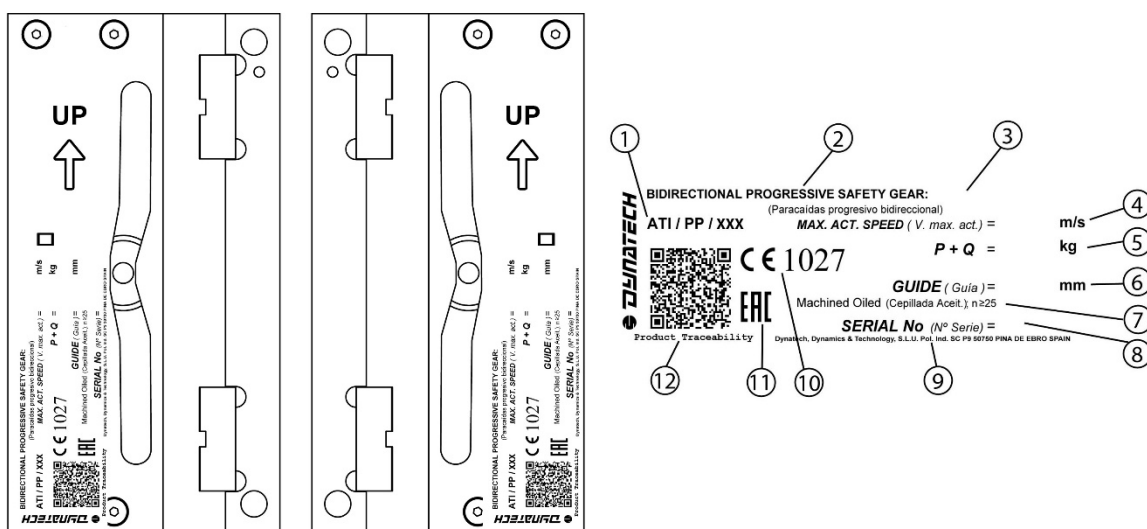
*It is strictly forbidden:*

- To combine and assemble safety gear boxes with different serial numbers.
- To use a pair of safety gears for installations with characteristics different from those indicated on that pair of safety gears' protection plates.
- To handle any of the safety gear's components.

DYNATECH DYNAMICS & TECHNOLOGY, S.L. cannot be held responsible for the damage caused due to the non-observance of any of these general instructions.

## 2 SAFETY GEAR IDENTIFICATION AND CHARACTERISATION

### 2.1 IDENTIFICATION



SAFETY GEAR IDENTIFICATION LABEL			
1	EU type examination certificate number	7	Guide rail type
2	Safety gear type	8	Safety gear serial number
3	Safety gear model	9	Dynatech address
4	Safety gears' maximum tripping speed (m/s)	10	Quality assurance CE marking and notified body number
5	Total load (Kg)	11	Marking for market access to member states of the Customs Union
6	Guide rail thickness (mm)	12	QR product traceability code

Figure 1: Safety gear identification

### 2.2 SAFETY GEAR'S FEATURES AND USE

- The guide rails to be used should be cold drawn. Allowable tolerances for guide rail thickness should be within the limits set by the standard: ISO 7465:2007.
- For lubricated guide rails, the recommended lubricating oil is the type used for machines according to ISO VG 150, although other viscosities within the margins established in ISO-VG may be accepted.
- This safety gear can be used up to a maximum tripping speed of 2 m/s.
- Allowable guide rail thicknesses: 5 – 16 mm.
- Guide rail's braking surface equal to or more than 25mm.

### 2.3 RANGE OF USE

Please find below the standard P+Q table. The rated values are displayed in bold in the middle row. The safety gears, when supplied, are set to the default rated value; however, they can be used in installations with P+Q values within the upper and lower limits.

Lower limit	505	574	665	771	843	974	1130
<b>P+Q (Kg)</b>	<b>537</b>	<b>621</b>	<b>719</b>	<b>834</b>	<b>911</b>	<b>1053</b>	<b>1222</b>
Upper limit	577	668	773	843	979	1132	1314

Loads may be duplicated through configuration of this tandem safety gear. See Manual DYN 37/8 – Extendible T25UD/T25 Tandem safety gear for further information.

### 3 INSTALLATION AND ADJUSTMENT

#### 3.1 ASSEMBLY ON THE FRAME

The holes should be made on the frame's uprights to secure the safety gear, according to the dimensions and position displayed in the safety gear drawings attached (DYN 07.C002.00), ensuring that the guide rail's axis is centred with the frame.

To secure the safety gear onto the frame, we recommend a 79.09 Nm tightening torque for grade 8.8 M12 bolts, and of 111 Nm for grade 10.9 bolts.

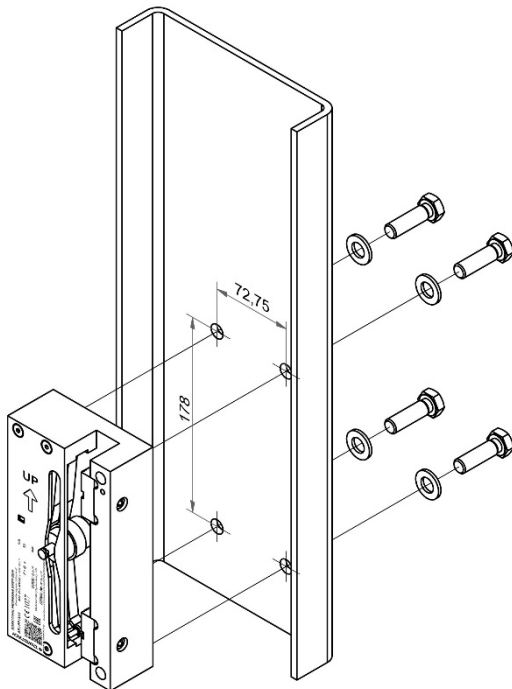


Figure 2: Assembling the safety gear onto the frame (1)

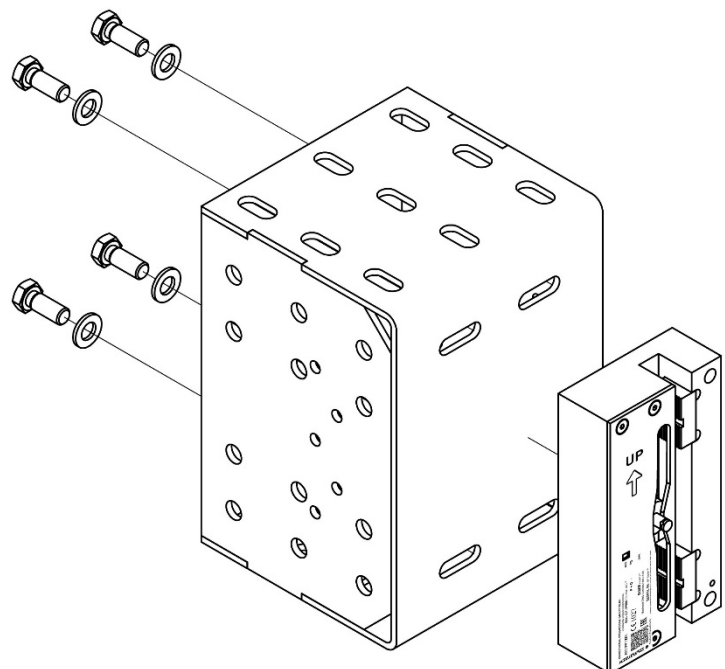


Figure 3: Assembling the safety gear onto the frame (2)



**Safety gear position:**

- The safety gears should be assembled in the position displayed in Figure 4
- A circle on one of the safety gear's ends will indicate its upper part. This mark should always be on the upper part during the assembly.
- There should be an additional mark on the protection plate including the word "UP" and an arrow indicating the safety gears' upright position.

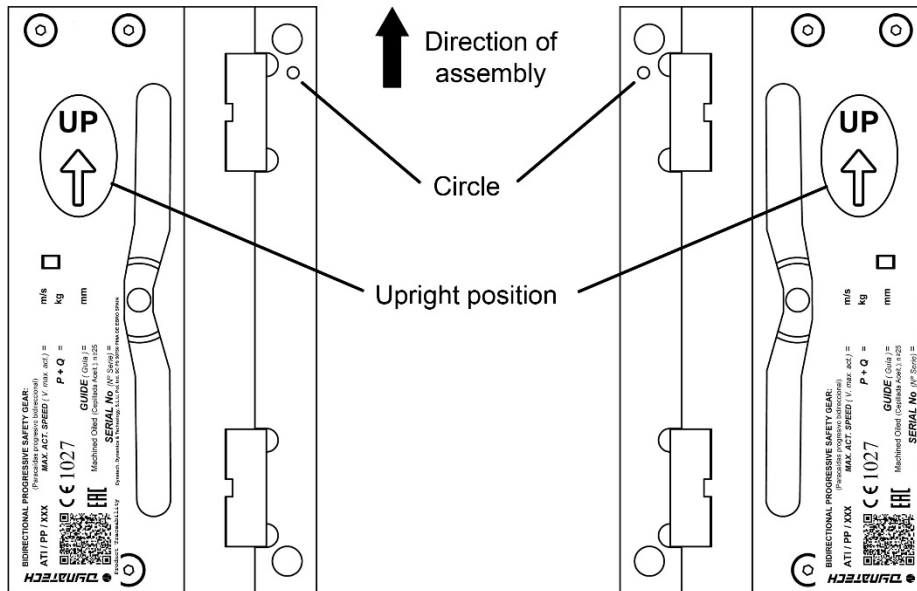


Figure 4: Direction of assembly

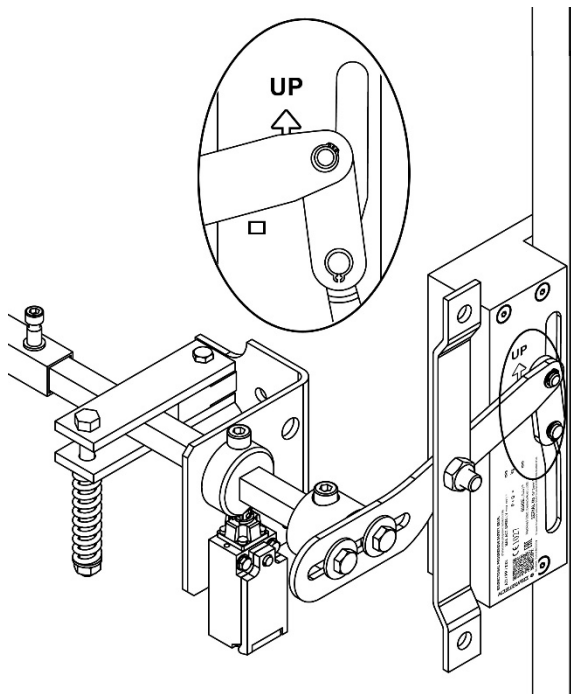


Figure 5: Safety gear position

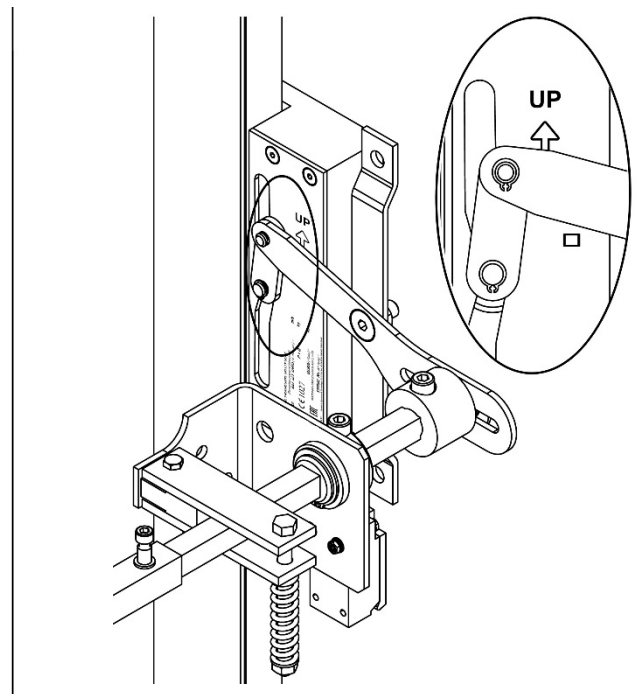


Figure 6: Safety gear position on inverted guide rails

During assembly, the safety gear should be perfectly aligned with the guide rails, both vertically and horizontally. Improper assembly may cause the safety gear to function incorrectly.

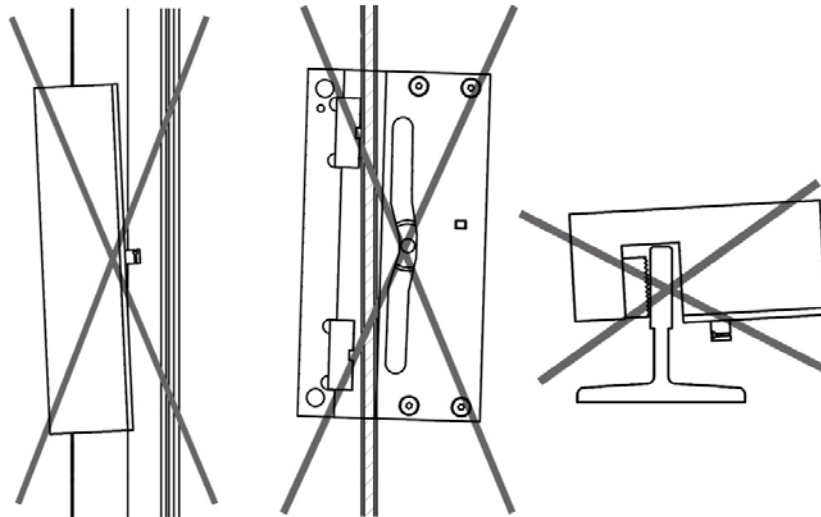




Figure 7: Improper assembly

### 3.2 SAFETY GEAR ADJUSTMENT

The guide rail's position in the block should be adjusted as follows: The side of the guide rail 2 mm from the brake shoe; the head of the guide rail 3 mm from the back of the groove (see drawing DYN 07.C002.00).

 In order to avoid problems with the installation's normal operation, it is very important that the person carrying out the installation rigorously observes the distances mentioned in this item.

 Please make sure that the safety gear is placed so that the circle on the safety gear, the word "UP" and the arrow on the protection plate are on the upper part, as displayed in section 3.1.

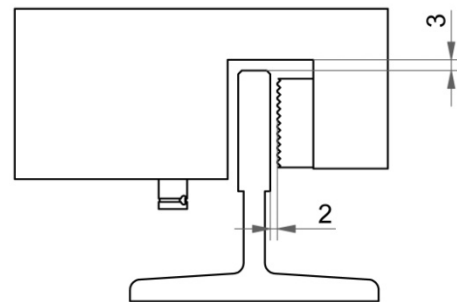



Figure 8 Safety gear adjustment in relation to the guide rail

### 3.3 COUPLING THE DRIVING BAR

It is the responsibility of the person who installs the safety gear to properly position the driving bar in relation to the safety gear, as well as to properly synchronise the safety gears controlled by that driving bar. The driving bar is properly positioned when the roller's pivot is in the protection plate's central position.


Once it has been fitted, and the safety gear's rollers have been attached to the driving bar's tripping bars, it should be checked that both rollers operate simultaneously, controlled by the driving bar. This should be checked in both directions, ascending and descending.

The minimum force to be generated by the overspeed governor is double the force that ensures that the performance of the safety gears is synchronised.

 The Standard demands that the installation incorporate an AC-15 or DC-13 safety contact as defined in EN 60947-5-1.

#### 3.3.1 USING DYNATECH'S T-3 DRIVING BAR

Both safety gears may be synchronised by assembling Dynatech's T-3 driving bar. For more information concerning T-3 driving bar assembly, please consult its manual: DYN08 – Instructions T-3.

 It is not recommended to exceed a maximum force of 1900 N is not recommended with the governor.

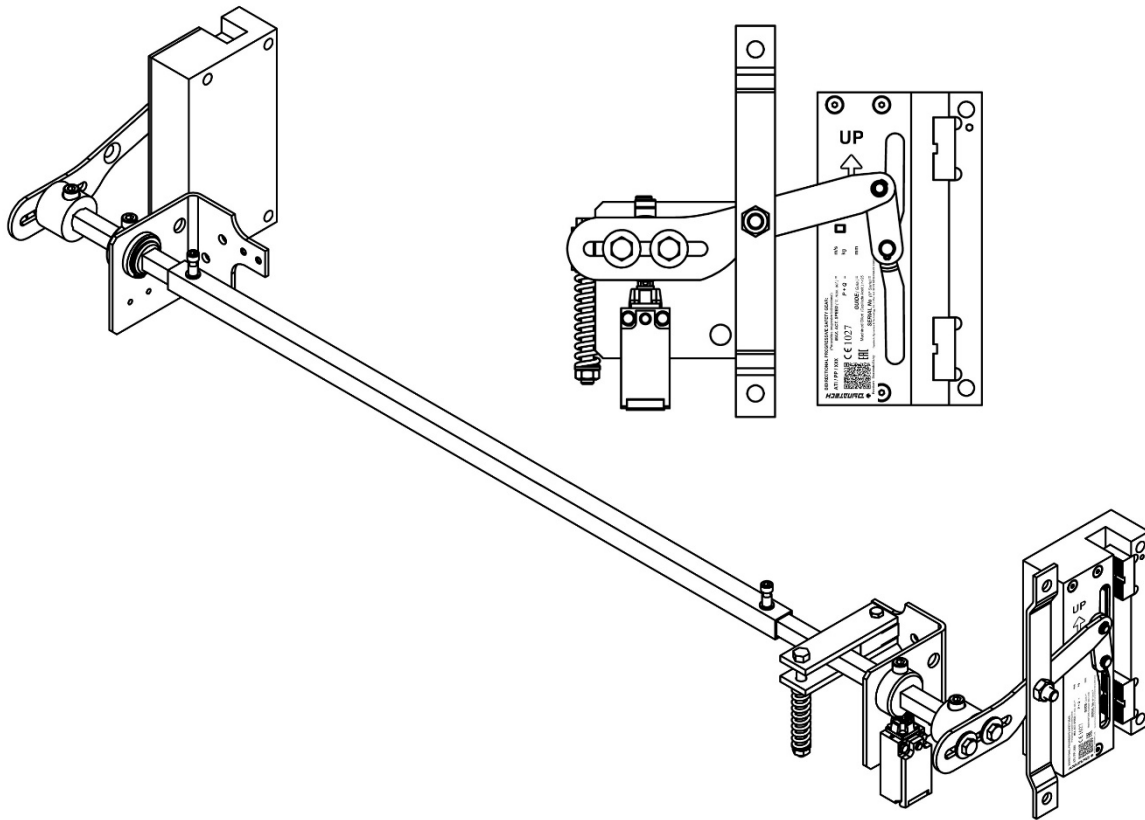


Figure 9: Safety gear synchronisation using the T-3 driving bar

## 4 INSPECTIONS AND MAINTENANCE

### 4.1 CHECKING THE SAFETY GEARS

For the safety gears to function correctly, their proper assembly and adjustment must be verified as well as the sturdiness of the unit's connection to the car and the guide rails, as is stated in the standard EN 81:20 and EN 81:50.

It is recommended to follow the standard's provisions for inspections and tests, both for commissioning and regular testing.

The safety gear model's behaviour curves may be requested from Dynatech based on its (P+Q) and the installation's rated load when tested dynamically with suspensions included.

The proper synchronisation of the safety gears may be checked by verifying that the roller's track is marked on both guide rails and that they have a similar length, with the difference between the two sections not being more than 4 cm.

The requirements for regular tests should not be greater than those for commissioning. It is therefore recommended to always use the same load (P/Q) and speed conditions. For better control, the maintenance worker should have a safety gear operation record, where he or she records the serial number and number of operations. A visual inspection is sufficient to check that the installation has not been damaged, see section 4.3.1.

It is not necessary to work on the safety gears due to their regular tests, as long as their braking distance does not exceed double the distance recorded from the first commissioning test.

After operating the safety gear in free fall, it is recommended to contact Dynatech, or your nearest supplier, directly, who will indicate how to proceed.

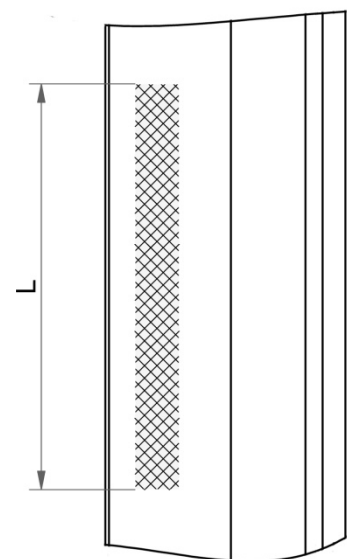


Figure 10: Braking track on guide rail

## 4.2 PRECAUTIONS

It is recommended to keep in mind the following items:

- The factory protective covering should be removed from the guide rails. In addition, it should be checked that there are no other objects, such as screws, brackets, etc. that may interfere with the safety gear or its driving bar.
- It should be visually checked that the safety gears are in working order, that they are not dirty or greasy inside.
- After any inspection or test where the safety gears were tripped, it should be checked that the safety gears have not been damaged.
- It is recommended to perform the tests near the car door to unload the car in order to facilitate unjamming the safety gears.
- The authorised personnel should always take the necessary precautions when tripping any of the previously installed safety gears.

## 4.3 MAINTENANCE

Both for maintenance and inspection, the following maintenance operations should be performed after tripping the safety gears.

### 4.3.1 LIST OF MAINTENANCE OPERATIONS.

#### Safety gears:

- Check that there is no interference between the shoe and the guide rail, nor between the rollers and the guide rail.
- Check the brackets and the clearance between the safety gears and the frame, readjust it if necessary.
- Clean any remaining grease, shavings or dust inside the safety gear's housing.
- Check that there is no external element inside the safety gear's housing.
- Check that the rollers spin freely and are not damaged or worn.
- Check that the connection between the rollers and the driving bar has not been damaged and spins freely without being blocked.
- Visually check that the safety gears are not damaged in general.
- Check that the driving bar is in good condition and that the safety gears are correctly synchronised.
- Check that the car's floor does not have more than a 5% slope in comparison with its normal position.
- Check that the governor's attachment moves correctly and is in good condition.
- Check that the safety electrical contact has been correctly assembled and is functioning properly.

#### Guide rails:

- Clean and remove any type of dirt or dust from the guide rails.
- Eliminate the marks or burrs caused by tripping the safety gears.
- Apply a thin and even layer of lubricating oil, as indicated in item 2.2, section b) of this manual, on the guide rails.



The list of provisions that Dynatech establishes for the maintenance of its installed equipment is added to the Annexes.

### 4.3.2 CORROSION.

All DYNATECH safety gears have anti-corrosion protection. However, it should be regularly checked that the safety gear's mobile elements are in perfect working condition; a jamming test will not be required, just a simple verification that all the parts are moving freely, as well as a visual inspection of the general condition of the surfaces.

These verifications should be done more regularly, as the maintenance worker considers necessary, when the installation is in an especially corrosive environment.

## 4.4 STORAGE AND SERVICE LIFE

The safety gear should be stored in a cool, dry place. It should be protected from excessive lighting. It should never be exposed to severe weather conditions.

Storage temperature: 5 - 40°C

Storage humidity: 15 - 85% without condensation.

The safety gears' packaging should be clean and dry, so that they can be clearly identified.

It is not permitted to place constant or unbalanced loads on a package, which may cause the package to be bent, or to allow products to be stacked one on top of the other. When stacking products or packages, the storage height should take into account their load and stability.

If the criteria established for proper maintenance are observed, the safety gears may have the same service life as the rest of the installation's fixed elements provided that their proper functioning is ensured and controlled. The element's service life is not affected by grease, dust or dirt due to the shaft's condition or to environmental conditions differing from those stated in this manual.

## **5 UCM**

### **5.1 UCM SYSTEM'S PRELIMINARY DESIGN.**

According to EN 81:20 and EN 81:50, lifts should be equipped with means for stopping uncontrolled car movement (UCM). These means should detect UCM and stop the car. This stop must occur at a maximum distance below 1 m (among other requirements).

The safety gears may be used as a braking device for stopping the uncontrolled movement.

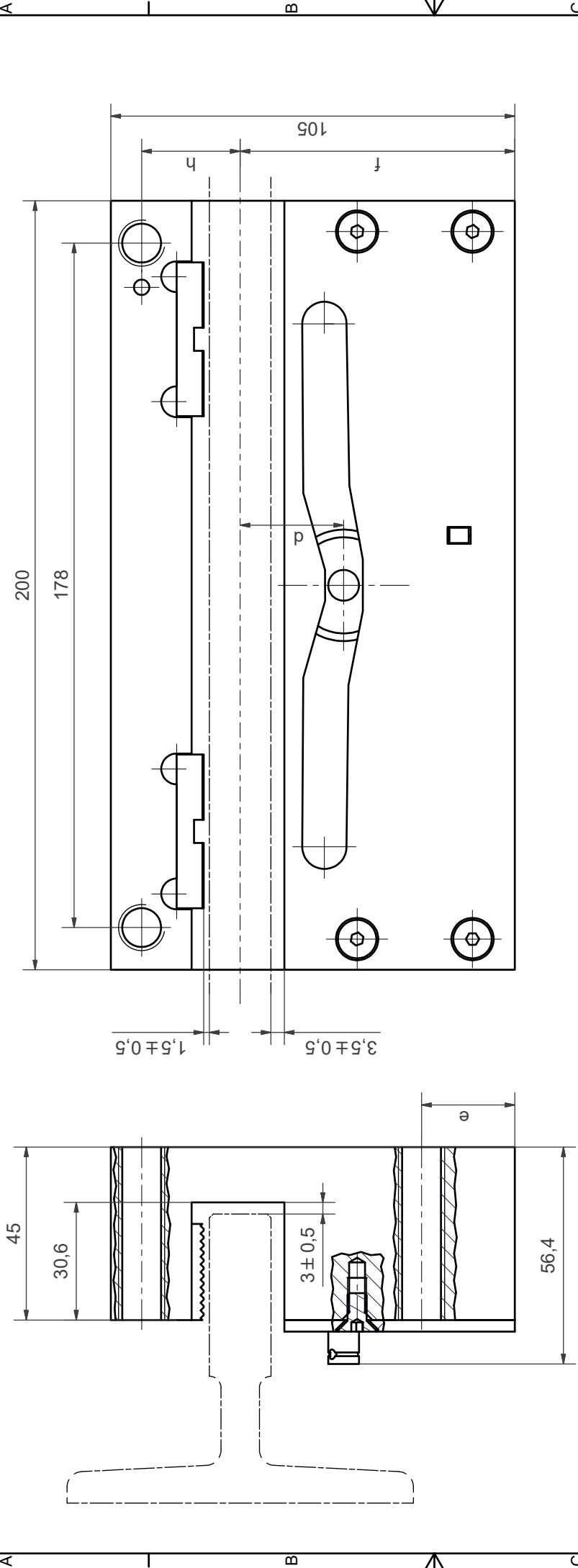
The values for the safety gear's braking distance may be calculated beforehand, but several installation parameters must be taken into account. The more information that is known about the physical elements that make up the system, the closer the theoretical value will be to the actual value.

These are theoretical values and may only be used in the system's preliminary design. The installation's compliance with the standard requirements is pending.

### **5.2 SAFETY GEAR BRAKING DISTANCE CALCULATION**

The detailed calculations can be found in the manual: DYN 62.04 – UCM. Braking distance.

## **6 GENERAL DRAWING**



\* Anchura de guía/  
Guide rail thickness/  
Épaisseur de guide/  
Führungsschienen

* d (mm)	f (mm)	e (mm)	h (mm)
5	21	65,4	22,25
6	21,5	65,9	22,25
7	22	66,4	22,25
8	22,5	66,9	22,25
9	23	67,4	22,25
10	23,5	67,9	22,25
11	24	68,4	24,25
12	24,5	68,9	24,25
13	25	69,4	24,25
14	25,5	69,9	24,25
15	26	70,4	24,25
15,88	26,44	70,84	24,25
16	26,5	70,9	24,25

Historial de revisiones			
Rev.	Descripción	Fecha	Aprobado
1	Se añaden tolerancias a las cotas de las guías	17/11/2017	J. Suelves
CANTIDAD POR CONJUNTO:			
Material:			
Peso terminado:			
Tto. tco:			
Tto. sup:			
Dibujado	Fecha	Nombre	
13/07/2015		DYNATECH	
Norma			
CONJUNTO: PR-2000-UD			
Conjunto/ Assembly/ Ensemble/ Baugruppe_G16			
OBSERVACIONES: MEDIDAS SIN TOLERANCIA SEGÚN DIN-7168 GM			Escala: PLANO COD. N°: DYN 07.C002.01
Fichero:		Sustituye a:	

1 2 3 4 5 6

A B C D

1 2 3 4 5 6



## **7 ANNEXES**

DATE 15/10/2020  
REV 0



<b>Maintenance company</b>		<b>Date:</b>
<b>Model / Serial No.</b>		
<b>Reference of installation</b>		

**1. GENERAL PROVISIONS APPLICABLE TO DYNATECH SAFETY GEAR**

1	PUTTING INTO SERVICE	FREQUENCY	OK	NO OK	DYNATECH INSTRUCTIONS	OBSERVATIONS
1.1	Check the proper assembly of the car safety gear	First time before putting into service	<input type="checkbox"/>	<input type="checkbox"/>		6.3.4 of EN 81:20
1.1.1	Visual check of general conditions <sup>(1)</sup>					
1.1.2	Check of the guide rail state				4.2	
1.1.3	Length of marks on the guide rail				4.1	
1.2	Check the proper assembly of the counterweight safety gear	First time before putting into service	<input type="checkbox"/>	<input type="checkbox"/>		6.3.5 of EN 81:20
1.2.1	Visual check of general conditions <sup>(1)</sup>					
1.2.2	Check of the guide rail state				4.2	
1.2.3	Length of marks on the guide rail				4.1	
(1)	Check for wear or damage in the safety gear					

2	MAINTENANCE	FREQUENCY	OK	NO OK	DYNATECH INSTRUCTIONS	OBSERVATIONS
2.1	Visual inspection and visual check	6 month	<input type="checkbox"/>	<input type="checkbox"/>	4.2	
2.2	Clean, absence of strange elements	6 month			4.2	
2.3	Controlled engagement of car	12 months	<input type="checkbox"/>	<input type="checkbox"/>	4.2	6.3.4 of EN 81:20
2.4	Visual inspections of wears	12 months			4.1	

3	MAINTENANCE CHECKLIST	OK	NO OK	DYNATECH INSTRUCTIONS	OBSERVATIONS
3.1	Check that there is no interference between shoe and guide rail.	<input type="checkbox"/>	<input type="checkbox"/>	4.3.1	adjust only if required
3.2	Check that there is no interference between rollers and guide rail	<input type="checkbox"/>	<input type="checkbox"/>	4.3.1	adjust only if required
3.3	Check the fixings and clearance between safety gear and frame	<input type="checkbox"/>	<input type="checkbox"/>	4.3.1	adjust only if required
3.4	Clean grease, chips or dust inside safety gear.	<input type="checkbox"/>	<input type="checkbox"/>	4.3.1	
3.5	Check rollers movement	<input type="checkbox"/>	<input type="checkbox"/>	4.3.1	
3.6	Visual check governor linkage	<input type="checkbox"/>	<input type="checkbox"/>	4.3.1	
3.7	Visual check for damage and defects	<input type="checkbox"/>	<input type="checkbox"/>	4.3.1	
3.8	Check driving bar state	<input type="checkbox"/>	<input type="checkbox"/>	4.3.1	
3.9	Check car inclination	<input type="checkbox"/>	<input type="checkbox"/>	4.3.1	
3.10	Check safety switch	<input type="checkbox"/>	<input type="checkbox"/>	4.3.1	
3.11	Clean guide rail	<input type="checkbox"/>	<input type="checkbox"/>	4.3.1	
3.12	Remove marks and chips from the guide rail	<input type="checkbox"/>	<input type="checkbox"/>	4.3.1	
3.13	Apply lubricant on the guide rail	<input type="checkbox"/>	<input type="checkbox"/>	4.3.1	only if required
3.14	Length of marks on the guide rail	<input type="checkbox"/>	<input type="checkbox"/>	4.1	have a register list
3.15	Begining of marks on the guide rail	<input type="checkbox"/>	<input type="checkbox"/>	4.1	
3.16	Visual check for wear	<input type="checkbox"/>	<input type="checkbox"/>		