DYNATECH
DYNAMICS AND TECHNOLOGY, S.L.

OVERSPEED GOVERNOR
STAR PLUS

CONTENTS

1.- INTRODUCTION.

STAR PLUS overspeed governor by DYNATECH is specially designed to be fitted on the car or sling of the lift and to move together with them. Thanks to this, the engine room governor, the guide pulley and the mass at the bottom of the well can be removed.

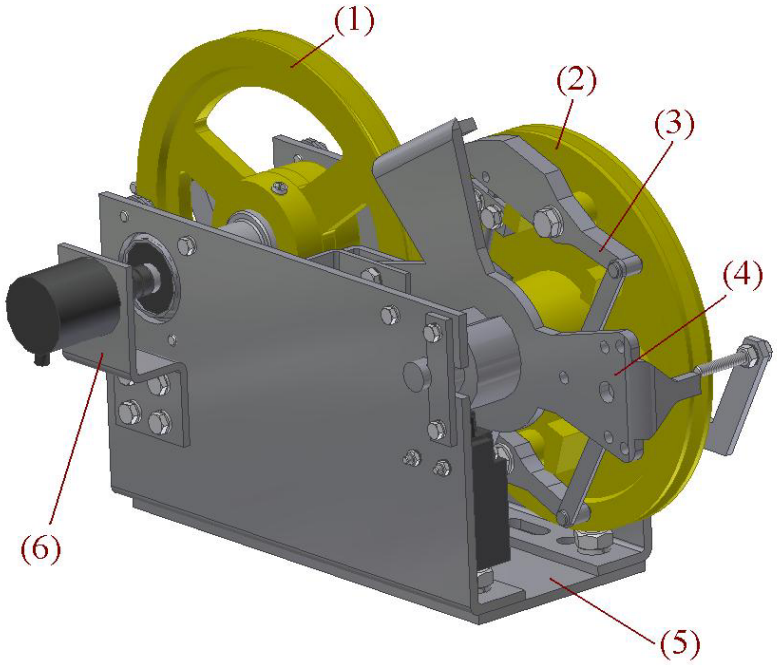
By using this new concept, the governor moves, whereas the rope remains fixed, anchored to the well ceiling and to the pit by means of a small-sized tensing system. The information on the set of devices integrating the Governor will be broadened later on.

This overspeed governor model is designed to be able to capture the position of the car at every moment by means of an encoder.

2.- MAIN COMPONENTS.

Each governor is composed of the following main elements: two pulleys, a centrifugal system, a locking device, a casing and an element linking the governor to the car or sling.

Bellow, a figure representing the governor set is shown:



Where:

(1) – Guide Pulley.

(2) – Main Pulley.

(3) – Centrifugal system.

(4) – Locking system.

(5) – Car or sling fixing plate.

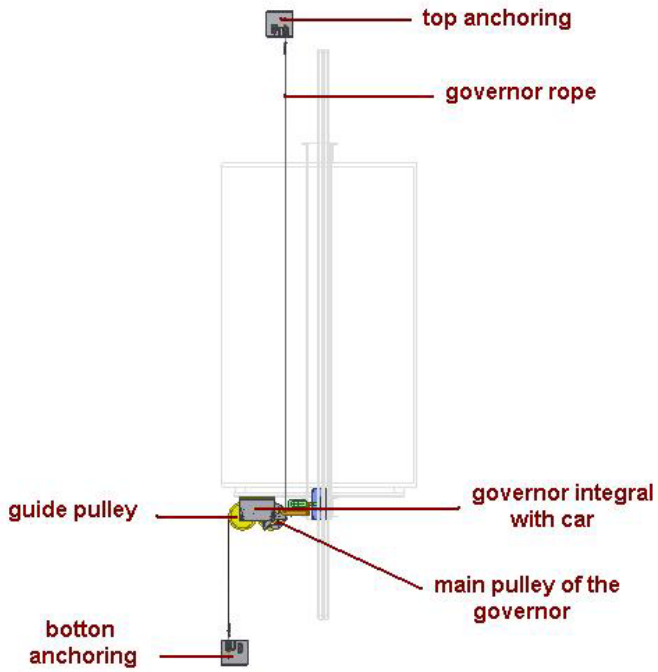
(6) – Encoder

3. WORKING PRINCIPLES.

The governor is of the centrifugal type, and is able to work either **upwards** or **downwards**.

As it was mentioned above, the designed object is fixed on the car or on the sling of the lift, and it can be placed either above or below both. The rope, anchored to the ceiling and to the pit floor, passes through the governor, along the pulley jaws. In this way, when the car reaches the tripping speed, the rope-governor relative movement will lock it. This governor locking will drive the safety gear and will stop the car movement.

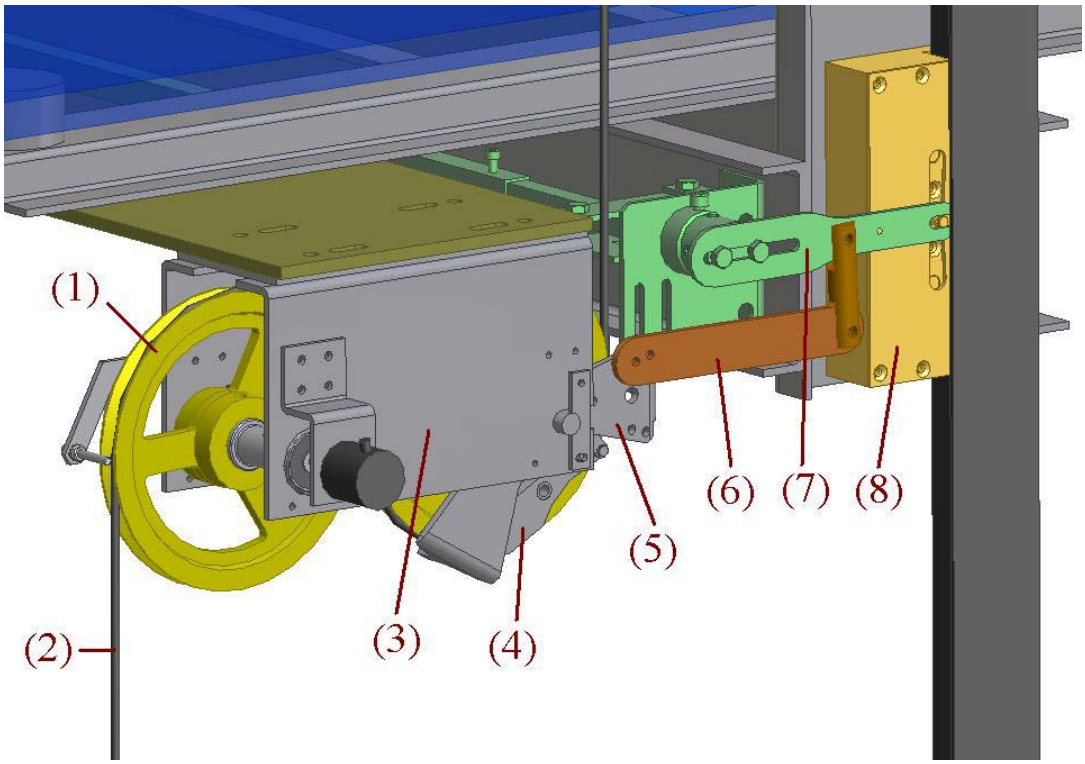
Working diagram is as follows:



Such is the interlocking process that, when the car speed exceeds a preset level (governor tripping speed), the centrifugal system, together with the pulley, interlocks with the governor “locking system”, which, in turn, is coupled to the driving bar by means of an auxiliary component. At this moment, the main pulley locks and the existent friction between the rope and the pulley is transferred to the safety gear through the auxiliary component and the driving bar. The safety gear, on wedging, will cause the car to stop.

It is important to remark that the connection between governor and safety gear is not carried out through the governor rope, but through an auxiliary mechanical system.

Below, a more detailed view of one of the possible governor positions on the lift, as well as the above mentioned parts is given. In the first view, the governor placed below the car is shown.



Where:

(1) – Guide pulley.

(2) – Rope.

(3) – Governor.

(4) – Centrifugal system.

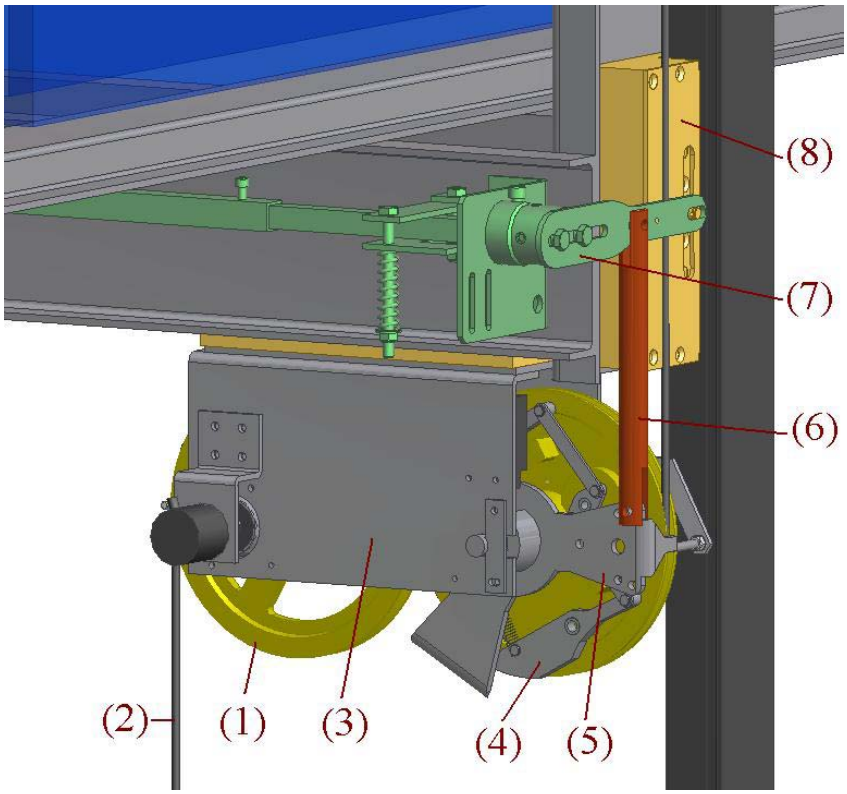
(5) – Locking device.

(6) – Auxiliary system.

(7) – Driving bar.

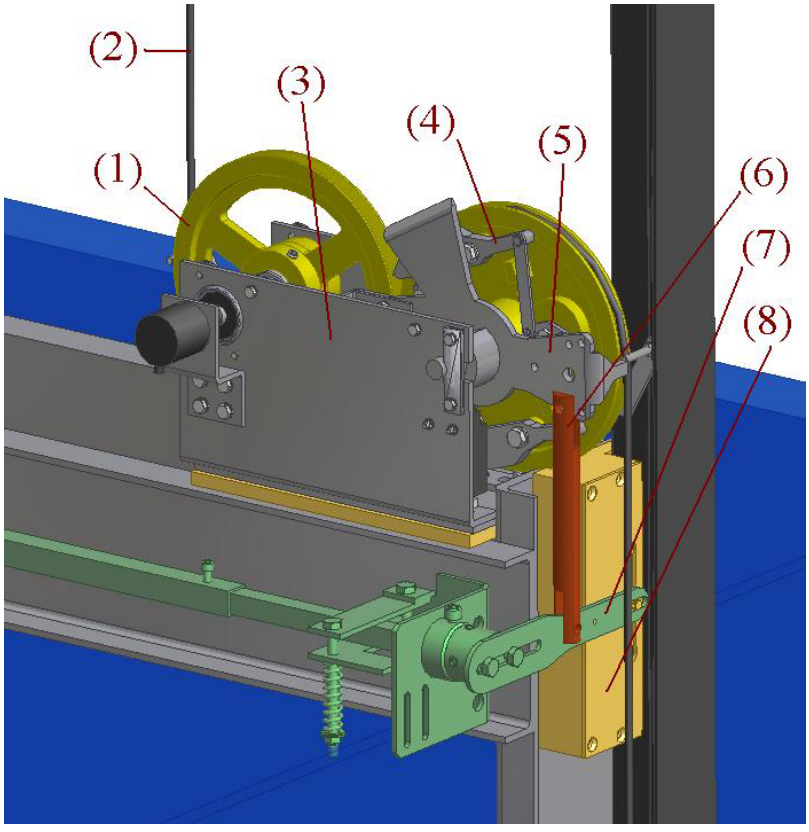
(8) – Safety gear.

The governor placed in a lower position would be as follows:



The numbers of this view match those of the previous view.

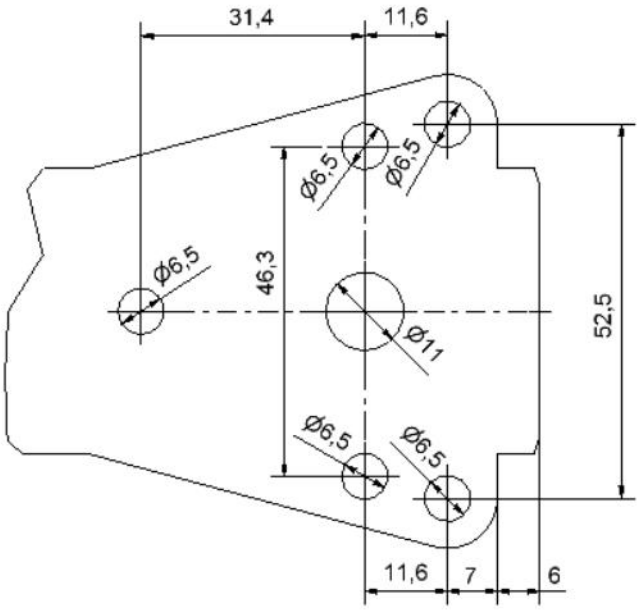
If the driving bar and the safety gear are placed above the car, it would be as follows:



In the last case, the picture doesn't display it, but the speed governor has a protecting case.

Bearing in mind that the governor position in the car depends on the customer's design, the auxiliary system coupling the governor to the driving bar must be made by the lift manufacturer.

Below is attached, an enlarged drawing of the five anchoring drills of the auxiliary system to the locking device.



The guide pulley is used to re-divert the rope towards the tensor placed in the pit. This pulley rotates whenever there is any movement in the car, even when the main pulley is locked. That is why we can assure that the pulley follows the car movement perfectly.

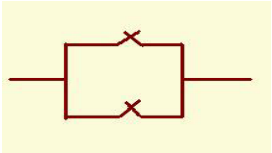
This fact is very important because it allows to know the position of the lift at every moment, by means of mounting an Encoder in the pulley.

Another important part of the Governor set is the rope tensing system. Below, the workings are briefly explained.

Rope tensing system.

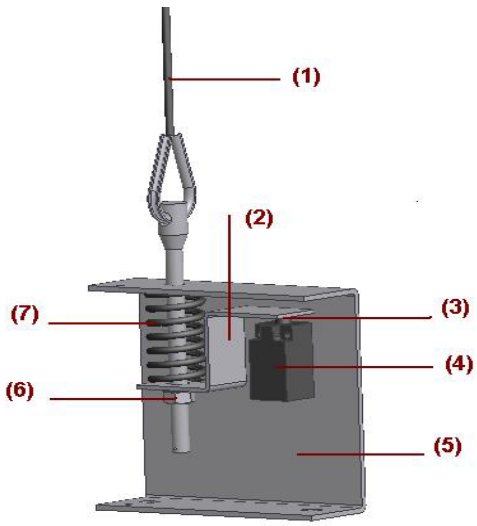
The rope is anchored to the pit and to the ceiling of the lift well by means of a tensing spring system, in such a way that neither weight nor guide pulley are necessary in the pit.

The “detensing contacts” will be placed together. This contacts must be connected in parallel and, in turn, to the installation security series line.



The aim of the two contacts is to detect a rope breakage or detensing, as, in such a case, both springs will drive the contacts. In case of wedging, one of the springs will loosen and the other will tighten. As a result, therefore, only one of the two contacts will open without modifying the series line.

Below, a picture of a pit tensing device is shown:



Where:

(1) - Rope.

(2) – Driving plate.

(3) – Contact point.

(4) – Detensing contact.

(5) – Bearing plate.

(6) – Adjusting nut.

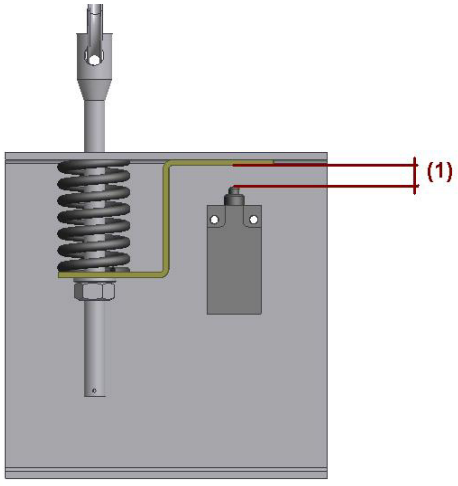
(7) – Tensing spring.

Tensing is carried out by means of the “adjusting nut”, as this will compress the spring to the maximum position allowed by the driving plate.

During the assembly process, it is advisable to tense the rope manually as much as possible, before tensing the spring. In this way, it will be ensured that the length of the rope anchoring is enough for the tensing.

Tensing must be carried out on both tensors.

The previously explained “maximum position” is shown in the following picture.



Were (1) is the “detensing margin”.

If the rope loosens or breaks, the springs, once their natural length is recovered, will allow the plates to drive the contacts, ensuring the stop of the machine.

The tensing device, which must be situated on the ceiling pit, has exactly the same shape and function as the one previously explained.

The spring tensing system is sensitive to the rope length, so, for long ropes, retensing will be necessary, once the rope has reached its final length.

Remote tripping system.

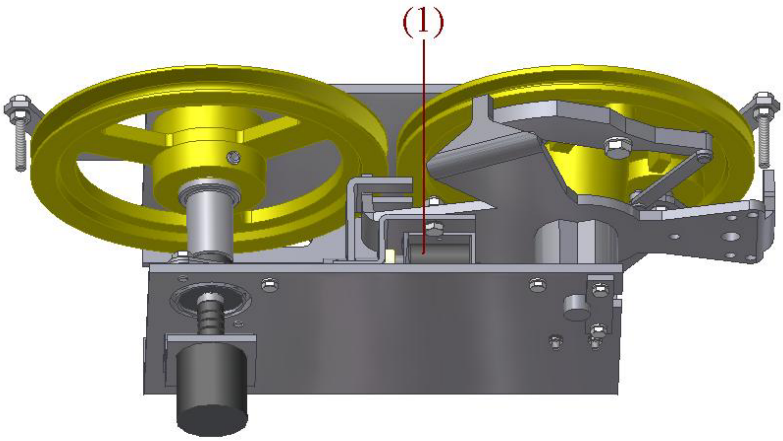
The governor has a built-in remote tripping system to check the correct interlocking of the governor and the subsequent safety gear wedging.

Basically, it consists of a remote interlocking electromagnetic system, which can be driven from the engine room. In order to help during the installation, three versions of the system are available:

- Solenoid fed by **24 V** DC (direct current). A current of **1,1 A** must be provided.
- Solenoid fed by **48 V** DC (direct current). A current of **0,75 A** must be provided.
- Solenoid is fed by **190 V** DC (direct current). A current of **0,2 A** must be provided.

Remark: Anyway, just a few seconds are necessary to engage the governor. After the activation, the current that feeds the solenoid must be switched off to avoid its overheating. In that way, a button is recommended to activate the system.

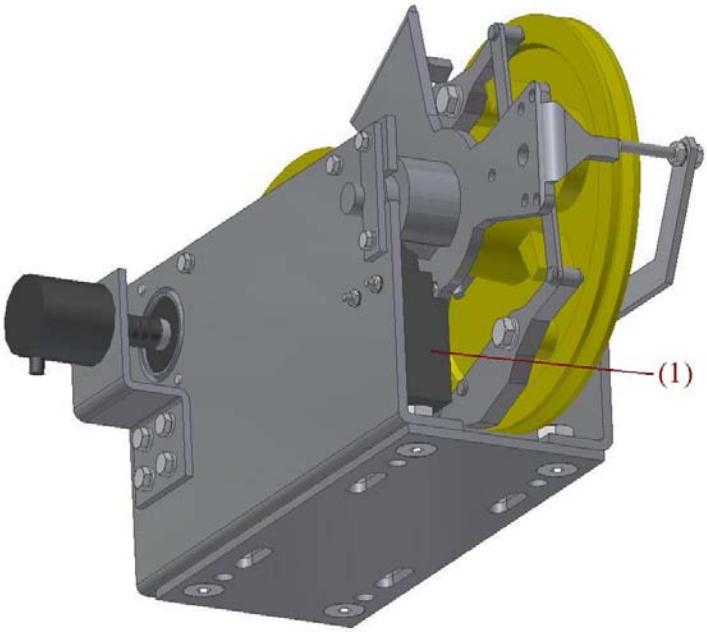
Some images of it, as well as its position in the set, are shown in the next pictures (1).



Overspeed contact.

The governor has a built-in overspeed contact. Bearing in mind that the governor will be placed on the car, the contact will have automatic rearming. In any case, the initial starting after interlocking will be carried out by a qualified person, but without a direct access to the governor.

Below, a picture of the overspeed contact position is shown, where (1) is the automatic rearming contact.

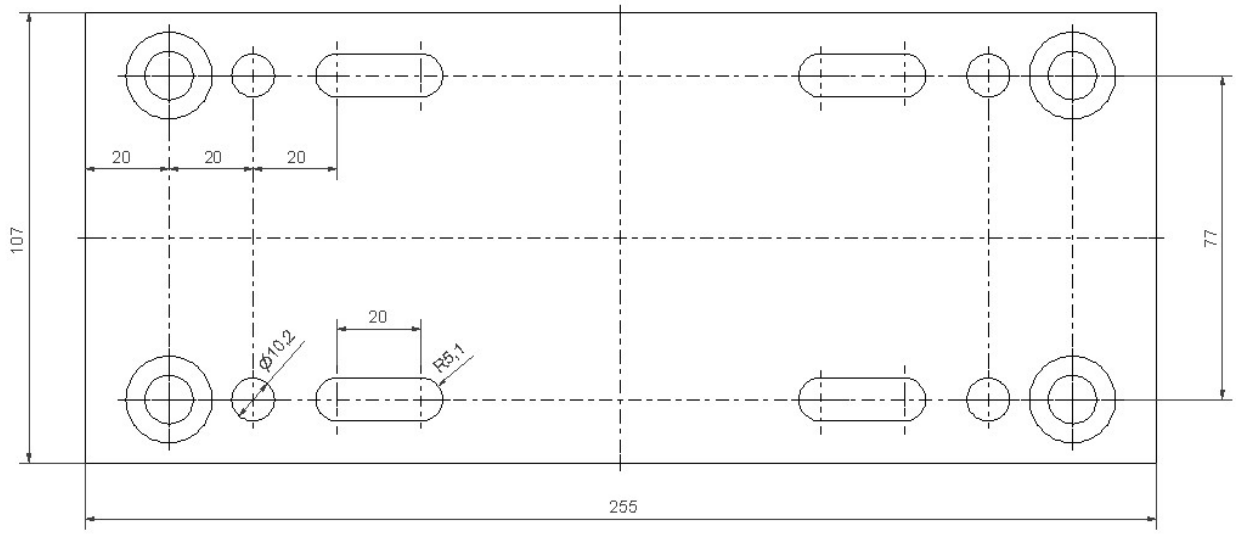


4. FIXING TO THE SLING.

The next figure shows the governor anchoring points to the lift sling. The measurements are in millimeters.

The governor must be anchored by means of 4 M10 screws of 8.8-quality. Suitable lengths are between 30 and 40 mm. Tightening torque must be 80 Nw·m.

It is advisable to use Autoblock nuts in order to avoid a possible screw loosening.



5. TECHNICAL FEATURES.

- **Machine:** overspeed governor
- **Model:** STAR plus
- **Manufacturing company:**
  DYNATECH, DYNAMICS & TECHNOLOGY, S.L.
- **Range of use:**
  Maximum rated speed: **2,3 m/s**

Maximum tripping speed: **2,66 m/s**

Minimum rated speed*: **0,4 m/s**

Minimum tripping speed: **0,6 m/s**

- *The Notified Body allows the use of the overspeed governor with rated speeds below 0,4 m/s, when the possible tripping values established by the Standard UNE-EN 81 are guaranteed.*
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- **Rope:**

  Diameter: 6 mm

  Composition: 6 x 19 + 1

- **Rope pretensing:**

  750 N

  This tensing occurs by pretensing the springs placed at the rope ends up to the settled position.

- **Tension produced in the rope when interlocking:**

  Greater than 300 N

- **Pulley diameter:** 200 mm

- **Overspeed contact.**

  Explained in Section 3.

- **Serial remote interlocking:**

  Explained in Section 3.

- **Possibility of assembling an encoder.**

-

- **Other features:**
  - The governor has 3 interlocking points, in this way the distance between two consecutive interlocking points is limited to a maximum of 200 mm.
  - Star plus overspeed governors will always be assembled with first quality **bearings**.

- **Safety gears with which it may be used:**

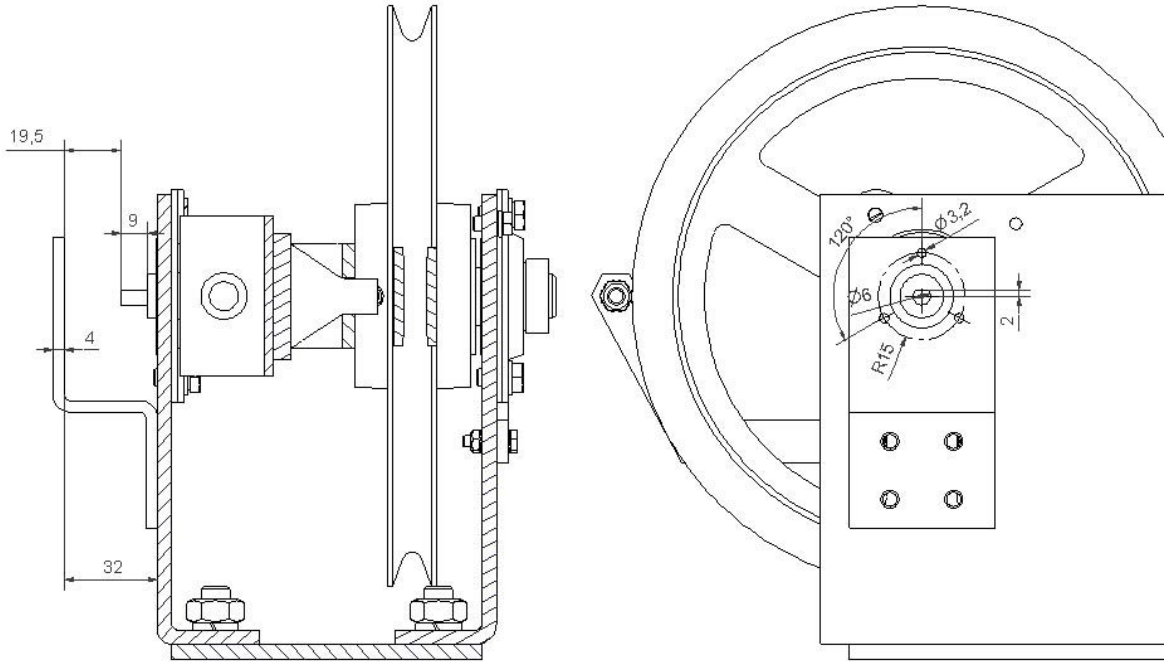
All safety gears whose tripping speed can be reached by the speed governor.

Remark: For tripping speeds below 1 m/s (generally instantaneous safety gears) a specifically designed version for low speeds will be supplied (**STAR**

BV). This overspeed governor has the same dimensions and technical features as the standard one.

6.- MEASUREMENTS FOR THE ENCODER COUPLING

Below, the measurements of the encoder location are shown, in case the customer install his own encoder.



7.- ENCODER FEATURES

Dynatech supplies with STAR PLUS governor an encoder with the following brand and features. It could be requested to be installed on the governor.

OMRON

Rotary Encoder E6B2-C

New General-purpose Incremental Rotary Encoder

- A wide operating voltage range of 5 to 24 VDC (open collector model).
- Resolution of 2,000 pulses/revolution in 40-mm housing.
- Phase Z can be adjusted with ease using the origin indicating function.
- A large load of 30 N in the radial direction and 20 N in the thrust direction is permitted.
- The load short-circuit and reversed connection protecting circuit assures highly reliable operation.
- A line driver output model is available. (Cable extends up to 100 m.)

Ordering Information

Supply voltage	Output configuration	Resolution (P/R)	Model
5 to 24 VDC	NPN open collector output	10/20/30/40/50/60/100/200/300/360/400/500/600/720/800/1,000/1,024/1,200/1,500/1,800/2,000	E6B2-CWZ6C
12 to 24 VDC	PNP open collector output	100/200/360/500/600/1,000/2,000	E6B2-CWZ5B
5 to 12 VDC	Voltage output	10/20/30/40/50/60/100/200/300/360/400/500/600/1,000/1,200/1,500/1,800/2,000	E6B2-CWZ3E
5 VDC	Line driver output	10/20/30/40/50/60/100/200/300/360/400/500/600/1,000/1,024/1,200/1,500/1,800/2,000	E6B2-CWZ1X

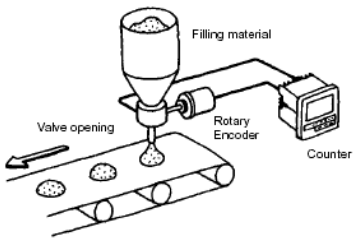
Note: When ordering, specify the resolution together with the model number.

■ Accessories (Order Separately)

Name	Model
Coupling	E69-C06B (attachment)
	E69-C68B
	E69-C610B
	E69-C06M
Flange	E69-FBA
	E69-FBA02 (E69-2 Mounting Bracket included)
Mounting Bracket	E69-2

Application Example

Filling Control



Specifications

■ Ratings/Characteristics

Electrical

Item	E6B2-CWZ6C	E6B2-CWZ5B	E6B2-CWZ3E	E6B2-CWZ1X
Power supply voltage	5 VDC –5% to 24 VDC +15%	12 VDC –10% to 24 VDC +15%	5 VDC –5% to 12 VDC +10%	5 VDC ±5%
Current consumption (see note 3)	70 mA max.	80 mA max.		130 mA max.
Resolution	10/20/30/40/50/60/100/200/300/360/400/500/600/720/800/1,000/1,024/1,200/1,500/1,800/2,000 P/R	100/200/360/500/600/1,000/2,000 P/R	10/20/30/40/50/60/100/200/300/360/400/500/600/1,000/1,200/1,500/1,800/2,000 P/R	10/20/30/40/50/60/100/200/300/360/400/500/600/1,000/1,024/1,200/1,500/1,800/2,000 P/R
Output phases	A, B, and Z (reversible)			A, $\overline{A}$, B, $\overline{B}$, Z, $\overline{Z}$
Output configuration	Open collector	Open collector	Voltage	Line driver (see note 2)
Output capacity	30 VDC max. 35 mA max. Residual voltage: 0.4 V max.	35 mA max. Residual voltage: 0.4 V max.	20 mA max. Residual voltage: 0.4 V max.	AM26LS31 equivalent Output current: High level = I_O = –20 mA Low level = I_S = 20 mA Output voltage: High level = V_O = 2.5 V min. Low level = V_S = 0.5 V max.
Max. response frequency (see note 1)	100 kHz	50 kHz	100 kHz	
Phase difference on output	90°±45° between A and B (1/4T±1/8T)			
Rise and fall times of output	1 μs max. (control output voltage: 5 V; load resistance: 1 kΩ; cable length: 0.5 m)	1 μs max. (cable length: 2 m; I_{sink}: 10 mA max.)	1 μs max. (cable length: 0.5 m; I_{sink}: 10 mA max.)	0.1 μs max. (cable length: 0.5 m; I_O: –20 mA; I_S: 20 mA)
Insulation resistance	20 MΩ min. (at 500 VDC) between carry parts and case			
Dielectric strength	500 VAC, 50/60 Hz for 1 min between carry parts and case			

Note: 1. The maximum electrical response revolution is determined by the resolution and maximum response frequency as follows:
Maximum electrical response frequency (rpm) = Maximum response frequency/resolution x 60
This means that the E6B2-C Rotary Encoder will not operate electrically if its revolution exceeds the maximum electrical response revolution.

2. The line driver output is a data transmission circuit compatible with RS-422A and long-distance transmission is possible with a twisted-pair cable.

3. An inrush current of approximately 9 A will flow for approximately 0.3 ms when the power is turned ON.

Mechanical

Item	E6B2-CWZ6C	E6B2-CWZ5B	E6B2-CWZ3E	E6B2-CWZ1X
Shaft loading	Radial: 30 N Thrust: 20 N			
Moment of inertia	1 x 10^{-6} kg • m^2 max.; 3 x 10^{-7} kg • m^2 max. at 600 P/R max.			
Starting torque	980 μN • m max.			
Max. permissible revolution	6,000 rpm			
Vibration resistance	Destruction: 10 to 500 Hz, 150 m/s^2 or 2-mm double amplitude for 11 min 3 times each in X, Y, and Z directions			
Shock resistance	Destruction: 1,000 m/s^2 3 times each in X, Y, and Z directions			
Weight	Approx. 100 g max. (cable length: 0.5 m)			

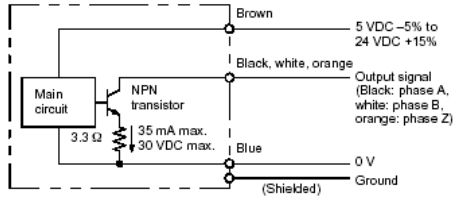
Environmental

Item	E6B2-CWZ6C	E6B2-CWZ5B	E6B2-CWZ3E	E6B2-CWZ1X
Ambient temperature	Operating: –10°C to 70°C (with no icing) Storage: –25°C to 85°C (with no icing)			
Ambient humidity	Operating: 35% to 85% (with no condensation)			
Degree of protection	IEC60529 IP50			

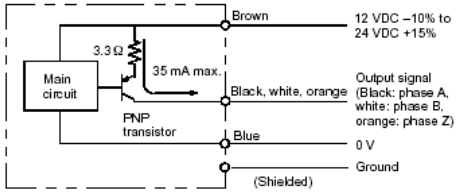
Operation

■ Output Circuits

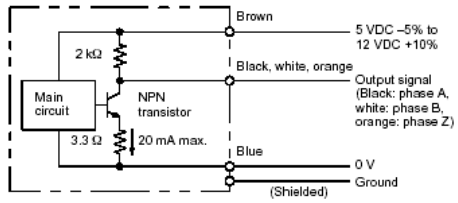
E6B2-CWZ6C



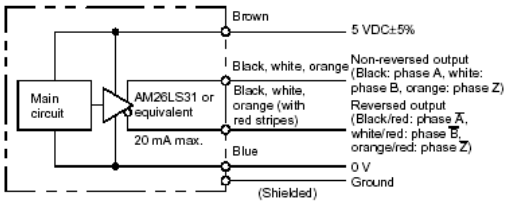
E6B2-CWZ5B



E6B2-CWZ3E



E6B2-CWZ1X



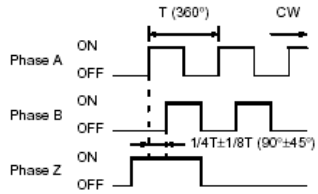
■ Timing Charts

Open Collector Output

E6B2-CWZ6C

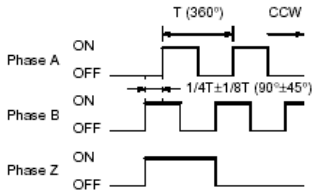
E6B2-CWZ5B

Direction or resolution: CW
(As viewed from the end of the shaft)



Note: Phase A is 1/4±1/8T faster than phase B. The ONs in the above timing chart mean that the output transistor is ON and the OFFs mean that the output transistor is OFF.

Direction or resolution: CCW
(As viewed from the end of the shaft)

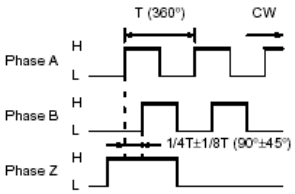


Note: Phase A is 1/4±1/8T slower than phase B.

Voltage Output

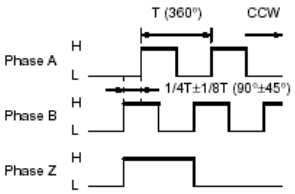
E6B2-CWZ3E

Direction or resolution: CW
(As viewed from the end of the shaft)



Note: Phase A is 1/4±1/8T faster than phase B.

Direction or resolution: CCW
(As viewed from the end of the shaft)

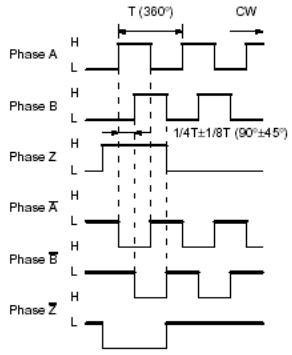


Note: Phase A is 1/4±1/8T slower than phase B.

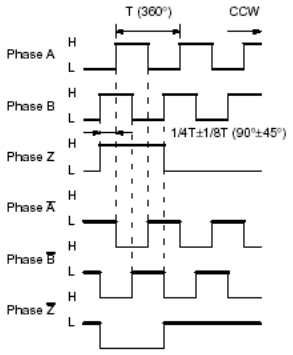
Line Driver Output

E6B2-CWZ1X

Direction or resolution: CW
(As viewed from the end of the shaft)



Direction or resolution: CCW
(As viewed from the end of the shaft)



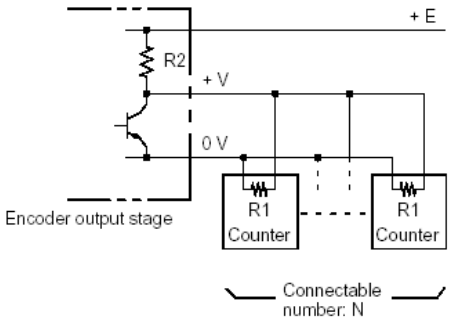
Note: The line driver output circuit is an RS-422A data transmission circuit consisting of two balanced output lines. The relationship between the two output lines is on an equal status. This means that if the level of the signal on a line is H, the level of the signal on the other line is L. The noise-resistive line driver output circuit assures high-speed data transmission.

■ Input to More than One Counter from Encoder (with Voltage Output)

Use the following formula to obtain the number of counters to be connected to a single E6B2-C Rotary Encoder.

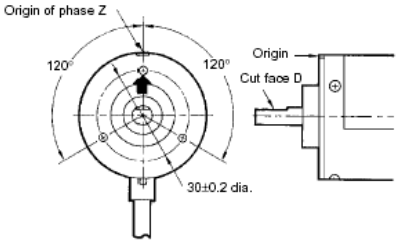
$$\text{Number of counters (N)} = \frac{R1\ (E-V)}{V \times R2}$$

E: Voltage supplied to Rotary Encoder
V: Minimum input voltage of the counter
R2: Output resistance of the Rotary Encoder
R1: Input resistance of the counter



■ Origin Indication

It is easy to adjust the position of phase Z with the origin indication function. The following illustration (on the left-hand side) shows the relationship between phase Z and the origin. Set cut face D to the origin as shown in the illustration (on the right-hand side).



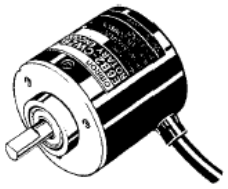
■ Output Protection Circuit

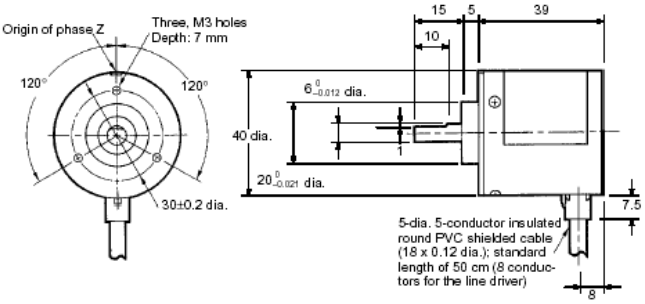
The E6B2-C (open collector model with voltage output) incorporates a circuit preventing the E6B2-C from damage due to a short-circuited load and reversed connection.

Dimensions

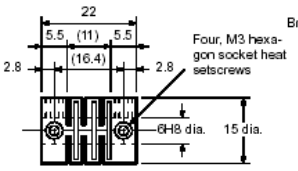
Note: All units are in millimeters unless otherwise indicated.

E6B2-C

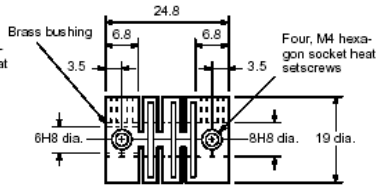




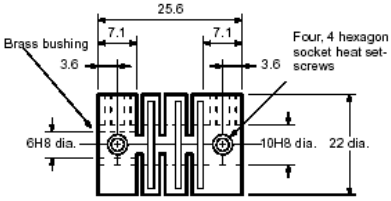
Coupling
E69-C06B
(Included)



E69-C68B
(Sold Separately, Different Diameter)

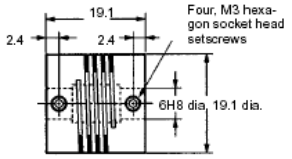


E69-C610B
(Sold Separately, Different Diameter)



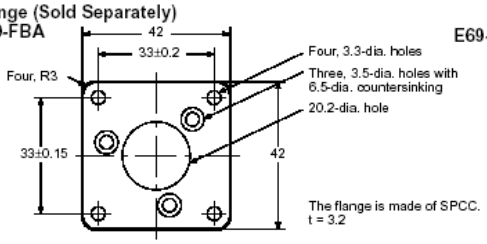
Note: The coupling is made of glass-reinforced PBT.

E69-C06M
(Sold Separately, Different Diameter)

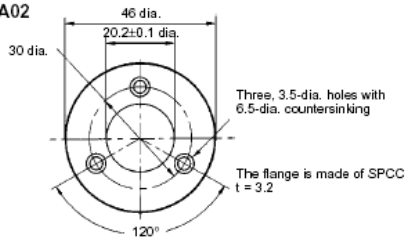


Note: The coupling is made of extra super duralumin.

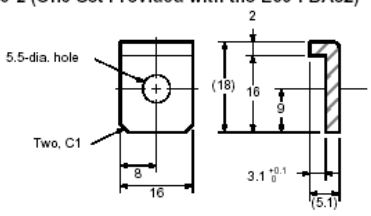
Flange (Sold Separately)
E69-FBA

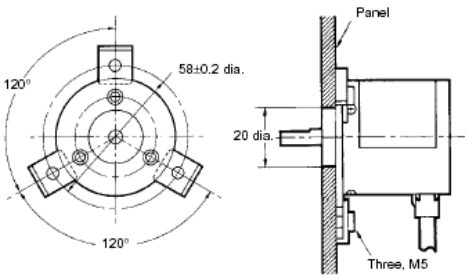


E69-FBA02



Mounting Bracket (Three Pieces as a Set)
E69-2 (One Set Provided with the E69-FBA02)





Installation

■ Connection

Be sure to connect the external terminals correctly or the E6B2-C Rotary Encoder may be damaged.

E6B2-CWZ6C/-CWZ5B/-CWZ3E

Color	Terminal
Brown	Power supply (+V_{CC})
Black	Output phase A
White	Output phase B
Orange	Output phase Z
Blue	0 V (common)

E6B2-CWZ1X

Color	Terminal
Brown	Power supply (+V_{CC})
Black	Output phase A
White	Output phase B
Orange	Output phase Z
Black/red stripes	Output phase $\overline{A}$
White/red stripes	Output phase $\overline{B}$
Orange/red stripes	Output phase $\overline{Z}$
Blue	0 V (common)

Note: Receiver: AM26LS32 equivalent

Note: 1. The external conductor (shield) of the shielded cable is not connected to the internal conductors nor to the case.
2. All the phases A, B, and Z are in the same circuit.
3. Connect the GND to the 0-V line or to the ground terminal.

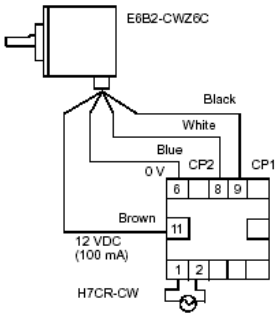
■ Connections with Peripheral Devices

Coupling	Specification	Resin, standard type				Resin, non-standard opening diameter		Metal	
	Internal shaft diameter (mm)	4 (H8), 13	6 (H8), 15	8 (H8), 19	10 (H8), 22	6/8 (H8), 19	6/10 (H8), 22	6 (H8), 19.1	10 (H8), 25.4
Rotary Encoder	Model	E69-C04B	E69-C06B	E69-C08B	E69-C10B	E69-C68B	E69-C610B	E69-C06M	E69-C10M
E6B2, 6-mm diameter		C	A	C	C	B	B	B	C

Note: A: Possible to connect directly in most cases.
B: Possible to connect, but an independent power supply or pull-up resistor will be required.
C: Impossible to connect.

Connection Examples

Connection to H7CR-CW Counter

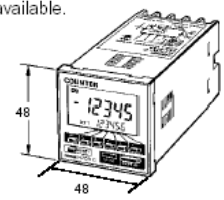


Features of H7CR

DIN-sized (DIN 48) counter incorporating a prescale function converting the measured value to the actual value.

Synchronized output and ± indication are available (± area models).

Models with a general-purpose six-digit display and four-digit display are available.



Connection to K3NR-NB□□□/K3NP-NB□□□ Rotary Intelligent Signal Processor

Features of K3NR/K3NP

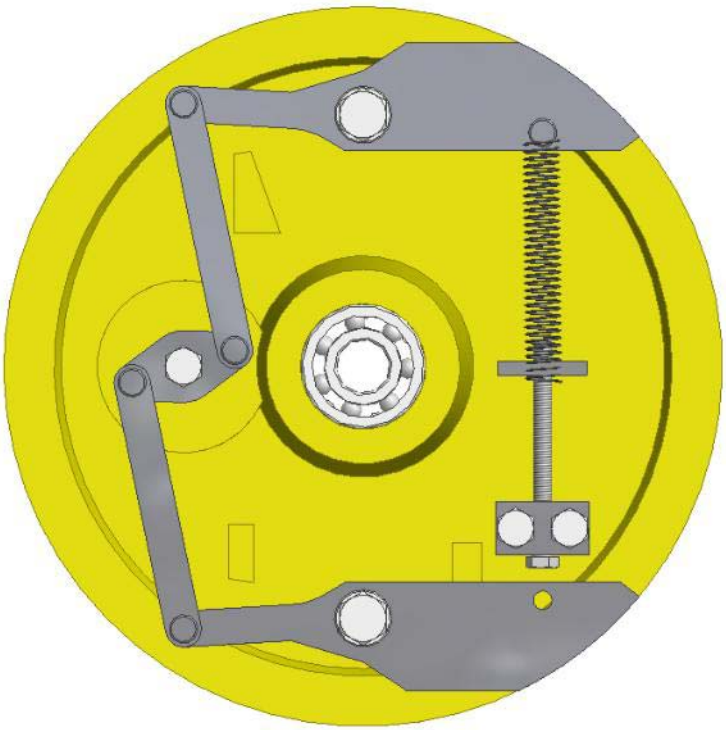
Each model incorporates a prescale function with an input range of 50 kHz and the measurement accuracy is 0.006%.

A variety of outputs, including relay, transistor, BCD, linear, and communications outputs, are available.

8.- TYPE OF ADJUSTMENT.

Tripping speed adjusting is carried out by means of a regulating screw which tenses or detenses the centrifugal system spring. When tensing the spring, the speed required to drive the centrifugal system will be higher. In this way, tripping speed can be adjusted within the speed range.

The adjustment is carried out in the factory by means of a computerized gauging system according to the customer specifications. Once the adjustment is finished and checked, it is sealed so that it can not be modified.



9.- INSTRUCTIONS FOR USE AND MAINTENANCE.

Positioning of the governor on the sling can be varied: at the top, at the bottom, in a cross-sectional or horizontal position… The end location will depend on frame manufacturer's criteria. However, the marks and technical

information supplied for that purpose must be taken into account, so that the governor functions accordingly.

The frame manufacturer must provide the positioning of an articulated driving system between the governor and the driving bar. Depending on the distance between them, the system must bear the compression stress produced by wedging without causing bending. For this reason, it is recommended to place the governor as close as possible to the safety gear, so that the driving system is light, simple and does not send an inappropriate torque to the governor.

Checking of the tripping speed in the installation can be carried out acting on the engine frequency changer by progressively increasing the engine speed until interlocking is obtained.

To avoid unnecessary risks that may cause an incorrect governor functioning, two basic criteria must be taken into account: cleaning and monitoring for corrosion. There are moving elements in each governor that will carry out the action of interlocking. Dirt accumulation in these elements can cause malfunction. It is of vital importance that both, the installer and the maintenance staff, ensure that these elements are perfectly cleaned.

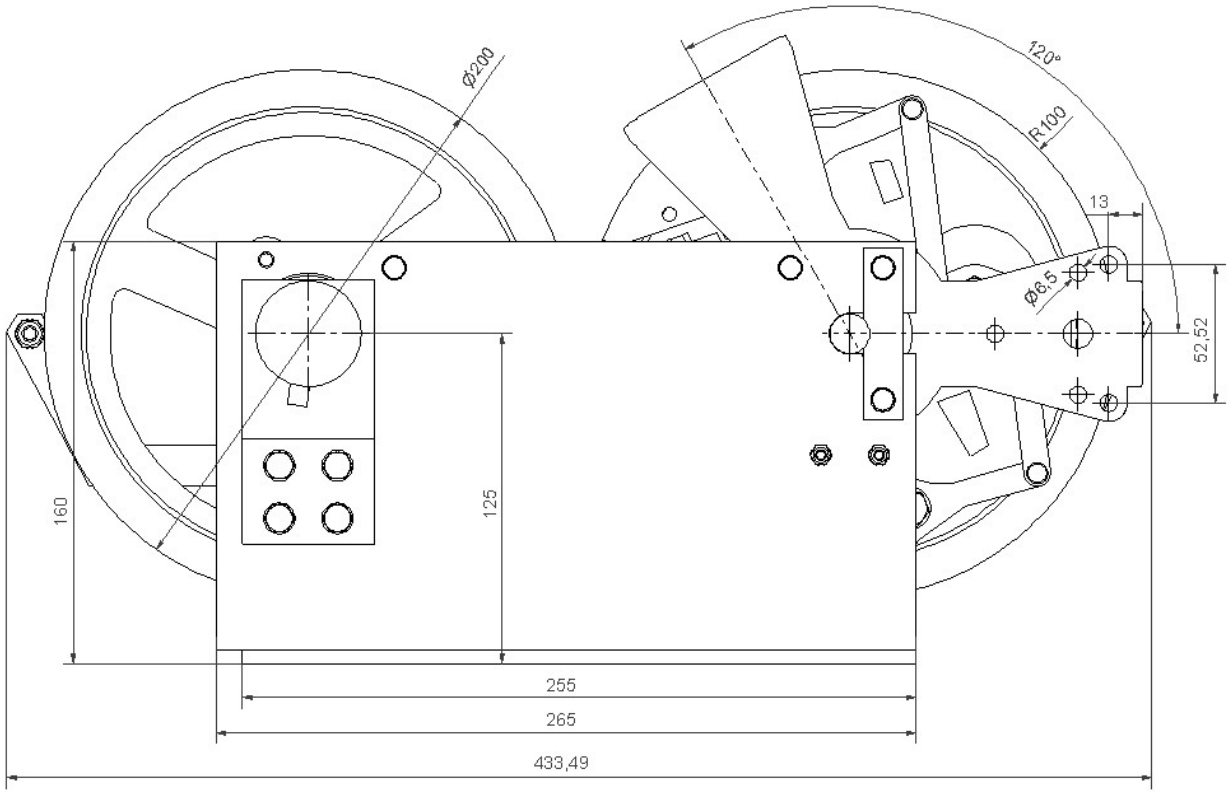
On the other hand, Dynatech governors have rustproof protection in all cases, but it is important that the maintenance staff determine the possible existence of a corrosive process that may affect any mobile part of the element and stop its natural movement. This check will be carried out by visually inspecting the surface condition and by carrying out a wedging, using the remote interlocking system. The frequency of these inspections is at the discretion of the maintenance staff, although they should be more frequent in case of an especially corrosive environment.

Dynatech will not be responsible of any problem or accident caused by not observing the prescriptions and recommendations described, both in these instructions and in the EEC Type-examination certificate documents.

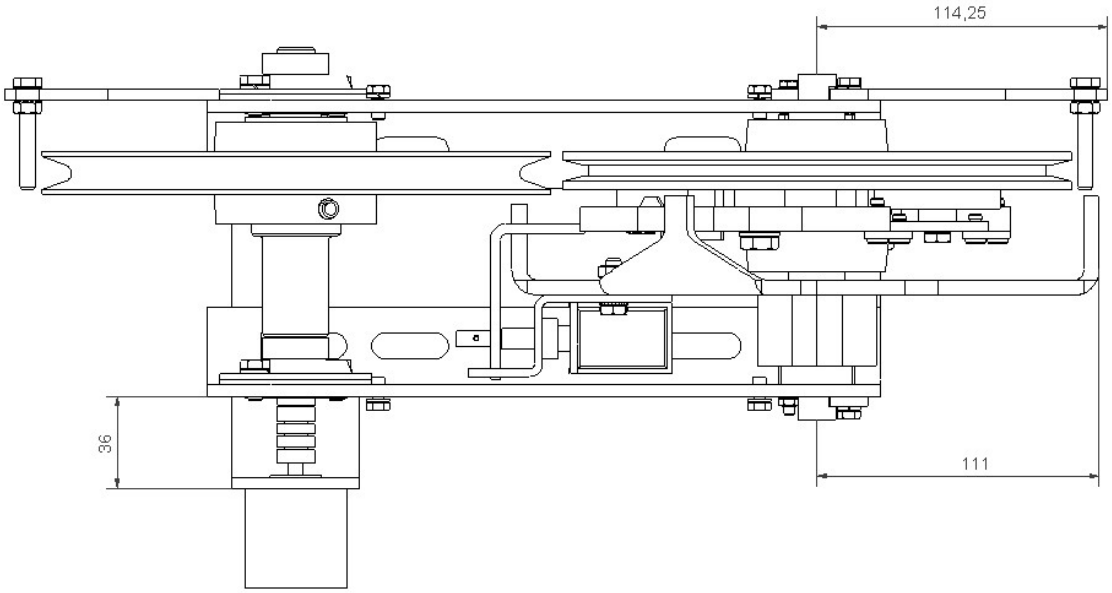
10.- PLANOS DE INSTALACIÓN.

The following drawings may be helpful when adapting and installing the STAR overspeed governor to the sling.

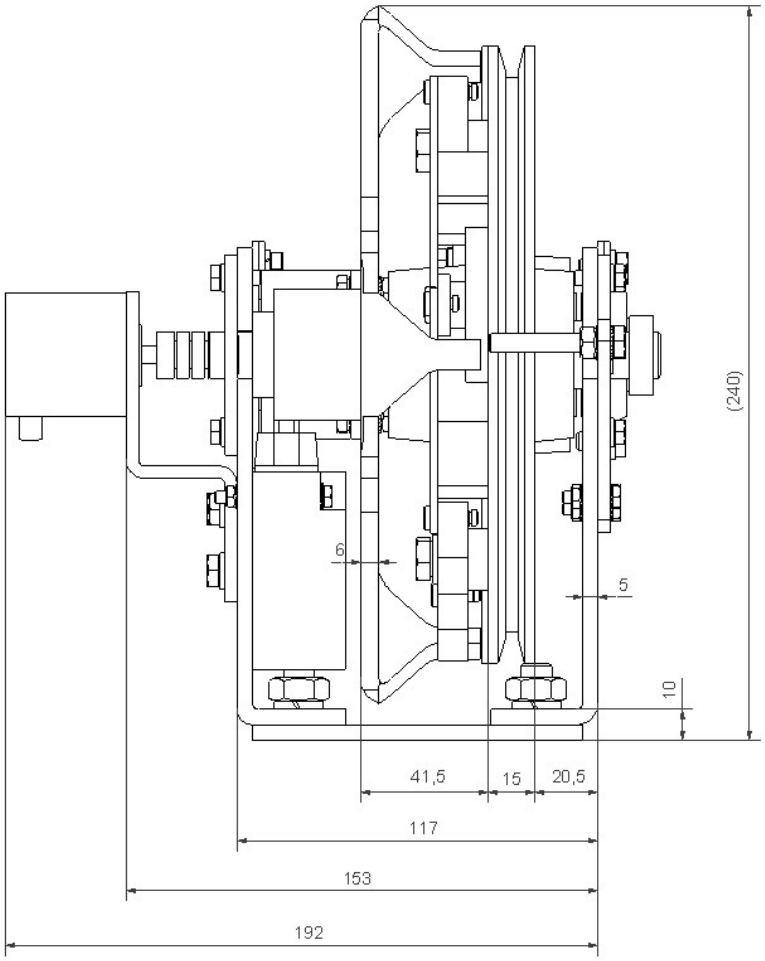
Front view:



Botom view:



Side view:



11.- EC TYPE-EXAMINATION CERTIFICATE.

ATISAE
ASISTENCIA TÉCNICA INDUSTRIAL, S.A.E.

ENAC
Entidad Nacional de Acreditación
INSPECCIÓN
Nº 05 / EI 011

CERTIFICADO DE EXAMEN C.E. DE TIPO
EC TYPE-EXAMINATION CERTIFICATE

De un limitador de velocidad.
Overspeed governor.

Número de certificado. /Certificate number.	ATI / LD–VA / M109A-1 / 02
Organismo Notificado./ Notified Body.	Asistencia Técnica Industrial S.A.E. (ATISAE) Avda. de la Industria, 51 bis E 28760 Tres Cantos MADRID (ESPAÑA) Nº de identificación 0053..
Clase. Tipo. Product. Type.	Limitador de velocidad. STAR. Overspeed governor.
Nombre y dirección del fabricante: Manufacturer´s name and address.	DYNATECH DYNAMICS AND TECHNOLOGY S.L. C/ María de Luna, 11. Nave 7 50015 ZARAGOZA (ESPAÑA).
Nombre y dirección del propietario del certificado: Name and address of Certificate holder.	DYNATECH DYNAMICS AND TECHNOLOGY S.L. C/ María de Luna, 11. Nave 7 50015 ZARAGOZA (ESPAÑA).
Fecha de presentación: Date of submission.	NOVIEMBRE. 2000 ENERO. 2002 (AMPLIACION))
Fecha del examen de tipo: Date of EC type examination.	DICIEMBRE. 2000 FEBRERO. 2002 (AMPLIACION)
Laboratorio de ensayo: Test laboratory.	Lab. de ensayos de materiales de la E.T.S.I.I.M. C/ José Gutiérrez Abascal, 2. 28006 MADRID (ESPAÑA).
Fecha y nº de protocolo de ensayo: Number and date of laboratory report.	2000014/1 DE OCTUBRE DE 2000 2001-013 DE OCTUBRE DE 2001
Directiva CE aplicada EC- Directive.	Directiva 95/16/CE de 29 de Junio de 1995 EC- Directive 95/16/EC of 29.06.1995
Norma de referencia: Reference standard	EN 81-1 : Agosto / August 1998
Declaración: Statement	El campo de aplicación de este componente de seguridad queda establecido en el anexo de este certificado. The scope of this safety component is stated in the annex to this certificate.

ORGANISMO ATISAE 0053

Juan A. Cano Hernández
Director Técnico

Establecido en Madrid, a **FEBRERO DE 2002**

Este certificado consta de esta portada, un anexo técnico de 4 hojas y un plano. Su reproducción carece de validez si no se realiza totalmente.
This certificate consists of this main page, a technical annex with 4 pages and one drawing. Only complete and unabridged reproduction is valid.

Asistencia Técnica Industrial S.A.E. (ATISAE)
Organismo Notificado Nº 0053 para la aplicación de la Directiva 95/16/CE
Avda. de la Industria, 51 bis. E28760 Tres Cantos MADRID
Tel: 91 806 17 30

ATISAE
ASISTENCIA TÉCNICA INDUSTRIAL, S.A.E.

ANEXO AL CERTIFICADO CE DE EXAMEN DE TIPO ATI/LD-VA/M109A-1/02
ANNEX TO THE EC TYPE EXAMINATION CERTIFICATE (ABOVE)

1. **Campo de aplicación:**
Scope.

El presente certificado es la primera ampliación del certificado:
This certificate is the first extension of the previous:

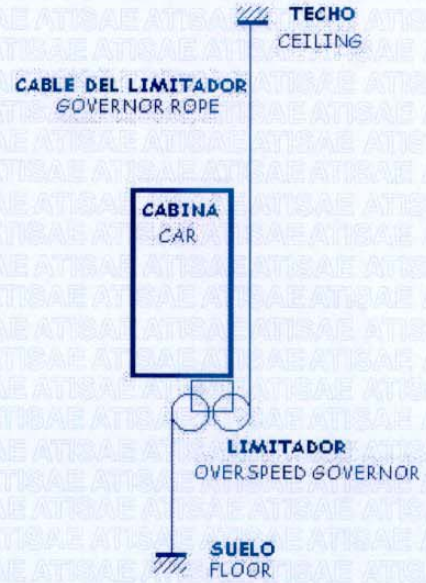
ATI / LD - VA / M109 / 00

consistente en la ampliación del alcance de la velocidad nominal de los ascensores en los que se encuentre instalado hasta un valor mínimo de 0.4 m/s.
and consist of the scope enhancement regarding rated speed of the lifts where installed up to a minimum value of 0.4 m/s.

El limitador de velocidad 'STAR' está certificado para actuar como:
Overspeed governor 'STAR' is certified to operate as:

A. **medio de protección en bajada (sensor de velocidad),al ser utilizado para accionamiento de paracaídas instantáneos de rodillos, instantáneos con efecto amortiguado, paracaídas progresivos.**
Downward protection mean (speed probe), acting on instantaneous safety gears of the captive roller type, instantaneous safety gears with buffered effect, progressive safety gears.

B. **medio de protección en subida (sensor de velocidad),al actuar sobre medios de frenado de protección contra embalamiento en subida del tipo paracaídas. Además puede ser utilizado como medio de protección en bajada con el campo de aplicación indicado en A.**
Upward protection mean (speed probe), acting on braking means against upward over speed, safety gear type. Besides, this solution can be adopted to operate as Downward speed probe under the scope mentioned in A.



ORGANISMO ATISAE 0053

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ASISTENCIA TÉCNICA INDUSTRIAL, S.A.E.

1.1. Descripción del limitador:
Brief description of the overspeed governor:

El limitador 'STAR' NO ES TOTALMENTE CONFORME con norma armonizada.

El limitador 'STAR' se concibe para ser incorporado en la propia cabina del ascensor, viajando con ella a lo largo de todo el recorrido. Para lograr su funcionamiento correcto, se emplea un cable tensado en las partes superior e inferior del hueco por medio de dispositivos tensores de muelles trabajando a compresión, incorporando un dispositivo eléctrico de seguridad contra el destensamiento, que abre la línea de seguridades en tal caso.

La adherencia del cable a la polea del limitador, que incorpora las masas centrífugas permite detectar la sobrevelocidad al imprimir un movimiento circular a la polea y generar la apertura de las masas por efecto de la fuerza centrífuga.

Al detectar la sobrevelocidad el sistema de masas centrífugo, enclava sobre una pieza en forma de estrella de 3 puntas, que mediante un pequeño giro acciona una barra (elemento mecánico inextensible) que unida al dispositivo de frenado (paracaídas), frena la cabina sobre las guías.
El sistema consta además de una polea de desvío sin restricciones mecánicas, como muestra la figura.

'Star' overspeed governor does not follow completely harmonised standard.

The overspeed governor 'STAR' is conceived in a new way assembled in the car itself and travelling with it along the hoistway. In order to achieve a suitable working of the system, a wire rope, stressed in its upper and lower end, is used, strained thanks to compressed springs with an electric safety device according 14.1.2. 2 (EN 81-1) that alerts in case of breakage or rope leakage, opening the safety line circuit.

The driving traction between rope and overspeed governor pulley, where a pair of centrifugal masses are implemented, allows to detect the overspeed by means of the circular movement, that makes the masses to move outside the limits of the pulley due to the centrifugal force.

When the over speed is detected by the centrifugal masses system, one of them is locked on a star shaped piece with 3 tips. Then this star performs a small spin and acts over a rigid rod (out of the scope of this certificate) attached to a braking device, such as a safety gear, stopping the car over the guide rails.
Besides, the assembly has a deviation pulley, without mechanical constraints, installed as shows the figure.

1.2. Velocidad nominal máxima y mínima de los ascensores:
Maximum and minimum Lift rated speed.

Velocidad Nominal Mínima: Minimun rated speed	0,40 m/s
Velocidad Nominal Máxima: Maximum rated speed	2.30 m/s

1.3. Diámetro de la polea de tracción:
Diameter of the traction pulley

Diámetro primitivo de la polea del limitador Pitch diameter of the pulley of the overspeed governor	200 mm

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1.4. Cable:
Driving rope:

Diámetros: 6 mm
Diameter.
Composición: 6 x 19+1
Type.

1.5. Fuerza de pretensión en el cable:
Tensile force in normal use:

Esta tensión se debe obtener pretensando los muelles de los extremos del cable, para garantizar un adecuado funcionamiento.
This tensile force shall be obtained acting over the springs at the end tips of the rope, in order to assure the correct work of the whole system.

Fuerza de pretensión (750 – 1050) N
Tensile force.

1.6. Fuerza susceptible de ser transmitida al paracaídas:
Force able to be transmitted to the safety gear:

Para ambos sentidos, subida o bajada, se garantiza un valor máximo de: 300 N.
For both ways, downward and upward, the maximum value assured is:

2. Notas.
Remarks.

2.1. Sobre el dispositivo del limitador de velocidad debe colocarse una placa con los datos indicados a continuación:
It shall be placed an identifiable plate on the overspeed governor with the following items.

Nombre del fabricante
Manufacturer's name

Signo del examen de tipo y sus referencias
CE type-examination mark and its references

Velocidad de disparo mecánico para la cual ha sido ajustado
The actual tripping speed for which it has been adjusted

2.2. Otras características importantes a considerar en el diseño del limitador presentado son:
Other important features included in the overspeed governor are:

a) El conjunto de limitador puede ser ubicado tanto en la parte inferior de cabina como en la parte superior. Cuando se sitúe en la zona superior, accesible a personal de mantenimiento, se proveerán las protecciones adecuadas.
The overspeed governor assembly may be located in the upper or lower side of the car, When located in the upper side, and being accessible to maintenance personnel, adequate protections shall be provided.

b) El limitador debe disponer de un dispositivo de disparo auxiliar con mando a distancia.
The overspeed governor must have an auxiliary tripping device with cableless remote control.

c) El contacto eléctrico de seguridad es de rearme automático.
The safety electric contact returns automatically into the normal position after tripping when the overspeed governor is reset.

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ASISTENCIA TÉCNICA INDUSTRIAL, S.A.E.

d) El método de accionamiento del dispositivo de frenado no es evaluado en este certificado. La resistencia adecuada de los elementos de interconexión limitador - paracaídas, deben ser asegurados por el instalador para los requerimientos del dispositivo de frenado utilizado conjuntamente con el limitador y los mencionados elementos de conexión entre ambos.
The tripping means and method of the braking devices, safety gear, are not assessed in this certificate. The installer of the lift shall assure the proper strength of the connection elements between overspeed governor and safety gear, according the mechanic requirements of the braking device used altogether with the governor, as well as the aforementioned connection elements.

e) La fijación al suelo, del cable del limitador, estará protegida contra golpes involuntarios de personal de mantenimiento trabajando en foso. El instalador deberá asegurar en la fijación en el foso, la correcta protección contra la corrosión de las partes metálicas en previsión de un fallo de la impermeabilización del foso.
The attachments of the overspeed governor rope to the well floor, shall be protected against unintentional hit when maintenance personnel were working in the pit. The installer shall assure for he pit attachment a proper corrode protection of metallic elements in this attachment due to a foreseeable waterproof leak in the pit.

f) El instalador se deberá cerciorar de que el valor de pretensión necesario indicado por el fabricante del limitador es alcanzado sin superar el valor límite.
The installer shall assure the adequate value of the tensile force in normal use between the margins settled by the governor's manufacturer.

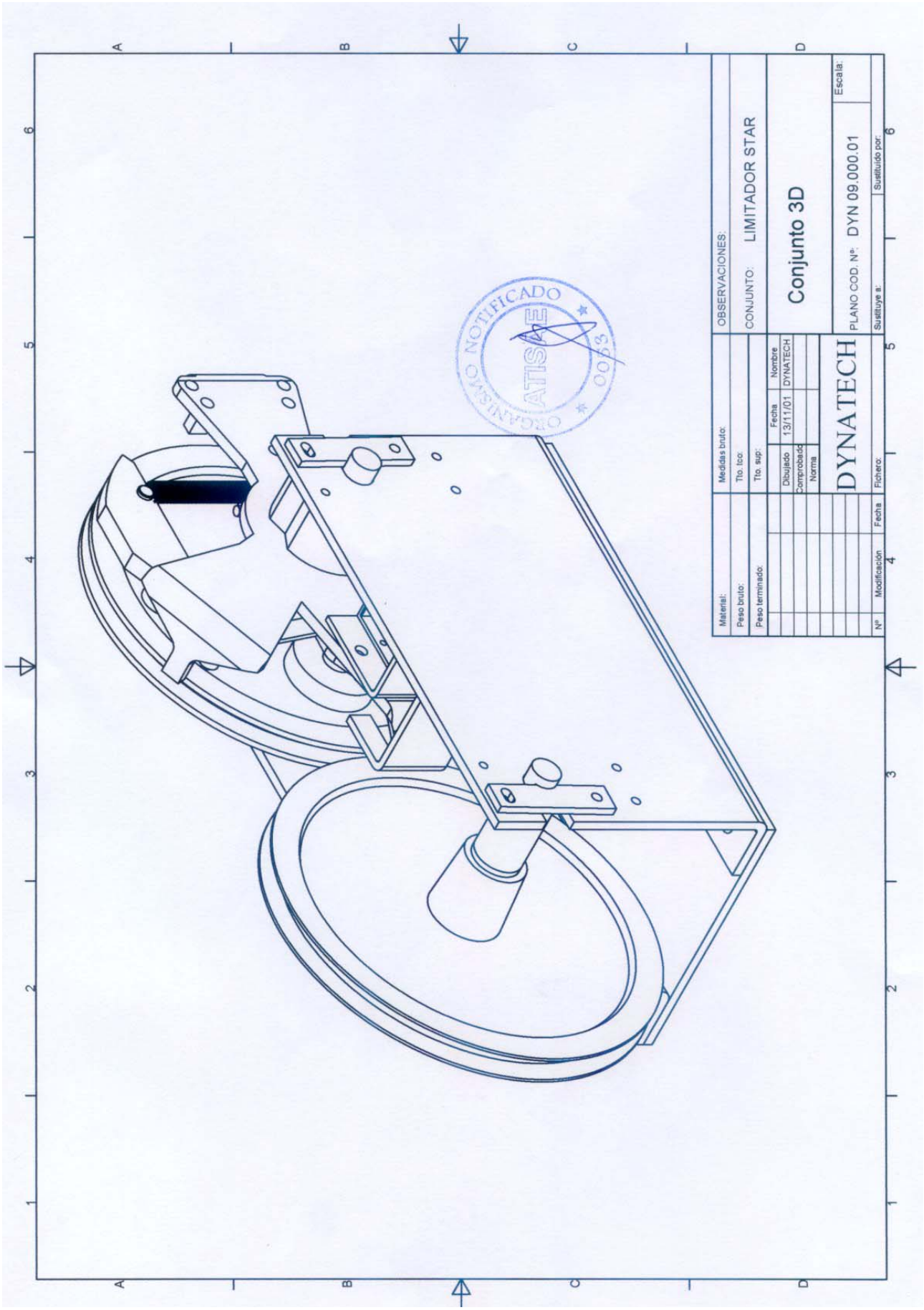
2.5. Se adjunta a la presente certificación los siguientes documentos:
The following documents, are annexed to this certificate:

DESIGNACIÓN	FECHA	LEYENDA
DYN 09.000.01	13/11/01	LIMITADOR STAR CONJUNTO 3D

Estos planos se adjuntan con objeto de proporcionar identificación e información sobre el diseño básico del componente de seguridad.
These drawings are enclosed in order to provide identification and information about the basic design of the safety component.

- o -

ORGANISMO NOTIFICADO ATISAE 0053


ORGANISMO NOTIFICADO 0035
ATISAE
OBSERVACIONES:
CONJUNTO: LIMITADOR STAR
Conjunto 3D
Medidas bruto:
Tto. tico:
Tto. sup:
Material:
Peso bruto:
Peso terminado:
Fecha
Nombre
Dibujado 13/11/01 DYNATECH
Comprobado
Norma
DYNATECH
PLANO COD. Nº: DYN 09.000.01
Escala:
Sustituye a:
Sustituido por:
Nº Modificación Fecha Fichero: