

PRO 2000, PRO 2000S INSTALLATION AND MAINTENANCE MANUAL

Rev:04

1 – SECURITY DISCIPLINE SELECTION CRITERIA!

When selecting a safety device, the following features must be known and specified in the order. The sliding brake works depending on the pressure exerted by the friction shoes on the rail surface, the coefficient of friction and the spring forces acting on the shoes.

Sum of the working load of the safety device (P + Q) Car weight (P) kg

In the determination of the load P, the weight of the cabin, the carrier frame, the parts hanging on the cabin, ropes, balancing ropes, chains, the part of the flexible cable carried by the cabin, etc. must be taken into account.

Carrying capacity (Q) kg The declared carrying load of the elevator..
 Car operating speed (V)..... m/s The declared normal operating speed of the elevator.
 Rail dimensions Rail type and lubrication type
 Processed —————> Oily
 Cold Drawn —————> Oily

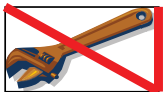
2 – PRO 2000 and PRO 2000S and ADVANTAGES OF USE:

- In case of exceeding the declared speed, upstream and downstream braking is applied with the action taken from the speed controller (OSG)
- Easy installation, no complicated operations required.
- It is compact in a mono block body.
- It can be mounted on the upper and lower support beams of the suspension.
- Braking takes place in the center of the brake block.
- It also requires no additional adjustment. Correct centering and connection is sufficient.
- Provides ease of maintenance.

3 – SIGN ANALYSIS :



CAUTION contains the meaning of high risk and should be done in full.



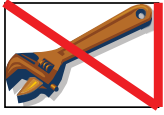
Contains the meaning NO ADJUSTMENT.

4 – GENERAL RULES :



These installation instructions are intended for the safe attachment of the product to the suspension and for the maintenance of the safety device.

- KEEP THE MANUAL IN A PLACE WHERE EVERYONE INVOLVED CAN READ IT.
- **DO NOT START THE CONNECTION PROCESS WITHOUT READING THIS MANUAL COMPLETELY BEFORE INSTALLATION.**



➤ In case of errors made in the assembly of the brake, the responsibility lies entirely with the assembling company, no additions and changes should be made on the brake without the approval of the manufacturer, spare parts cannot be purchased from outside the manufacturer and additions, non-original parts cannot be changed.

➤ Routinely, the regulator connection of the brake should be checked manually and the operation of the mechanism should be checked, the elevator should not be operated in any way during the routine manual control of the brake, safety precautions should be taken.

➤ External painting that would interfere with the operation of the brake mechanism should be avoided.

➤ In newly constructed buildings and in buildings where the elevator will be put into operation for the first time, before the elevator is put into operation, the rubble and mortar residues from the construction work should be prevented from contacting the brake block and the clamping mechanism, after cleaning the construction residues on the rail, the rail protective oil must be completely cleaned. The protective oil forms a thick and viscous layer. If this oil is not cleaned completely, it prevents the brake mechanism from working at the desired values and creates a jam in the rails and prevents the brake from stopping at the desired distances. In case of such a situation, the brake blocks must be inspected and the brake shoes must be completely cleaned from foreign materials, oil and residues. The elevator should not be operated without these checks.

➤ The assembly process must be carried out by personnel trained in brake assembly, knowledgeable about brake values, brake direction, connection shape and strength values, and this rule must be followed at every stage of this process.

5.1. SAFETY DEVICE CONNECTION

The connection of the safety device blocks can be made to the lower or upper carrier beam heads of the suspension. It provides ease of connection with 4 special manufacturing M12 bolts.

The connecting bolts must be steel bolts of a quality to withstand the load in braking. The connection of the twin blocks on both sides must be ensured by means of an intermediate part which transmits the motion to the drive shaft of both blocks in full. It is recommended that the intermediate connecting piece is solid material. The material used must fully transmit the movement between the two brake blocks and must not cause any loss or delay in movement.

METROPLAST		 Yukarı yön / Up	
ASANSÖR MALZEMELERİ İMLT. LTD. STİ. www.metroplastasansor.com.tr		PRO 2000II C €₁₀₁₅	
Ray Rail	16 mm	Kapasite (P+Q) 1800 Kg	Seri No / Serial No
Beyan Hızı Rated Speed	1,6 m/s	Frenleme Hızı Tripping Speed	2,16 m/s
			B160815 36074

LABEL CONTENT

METROPLAST ELEVATOR's methylene safety components can be used with the capacity and feature descriptions written on the label content.

Our company does not accept responsibility when used in applications that do not meet the label values and conditions.

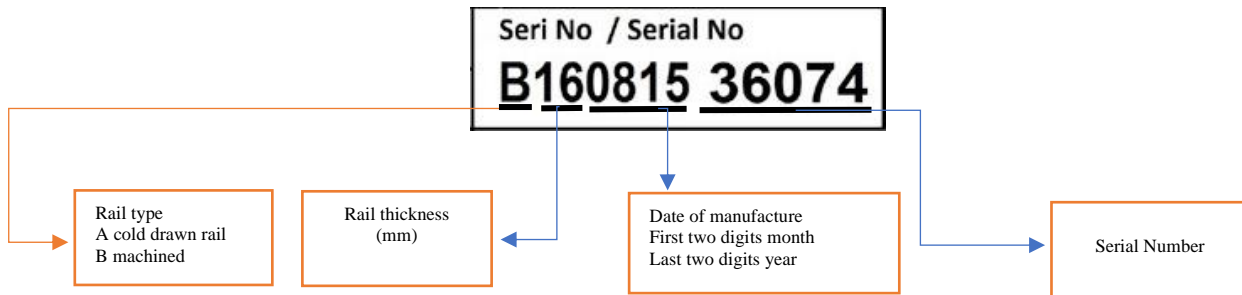
Direction information is important in label information. The brake must be connected in line with the direction arrow. It should also be checked whether the brake can operate in one direction or in both directions.

The capacity at which the brake will operate is determined by the (P+Q) value. The empty weight of the cabin and the total weight of the load to be carried inside define the P+Q value.

The operating speed of the elevator is indicated on the label. The maximum braking speed is also indicated on the label.

Brakes change type with rail dimensions. Especially the rail thickness should be checked carefully, otherwise braking will not take place.

The label content and the information in the user manual are a whole. It is necessary to examine all of the information in the manual and to install in accordance with the methods and compliances specified in the definitions.



PRO 2000 - I - II SLIP BRAKE SPEED and P+Q GRAPH

SPEED	CAPACITY (P+Q)
1m/s - 1,6m/s	1000 Kg
1m/s - 1,6m/s	1250 Kg
1m/s - 1,6m/s	1500 Kg
1m/s - 1,6m/s	1750 Kg
1m/s - 1,6m/s	2000 Kg
1m/s	2250 Kg
1m/s	2400 Kg

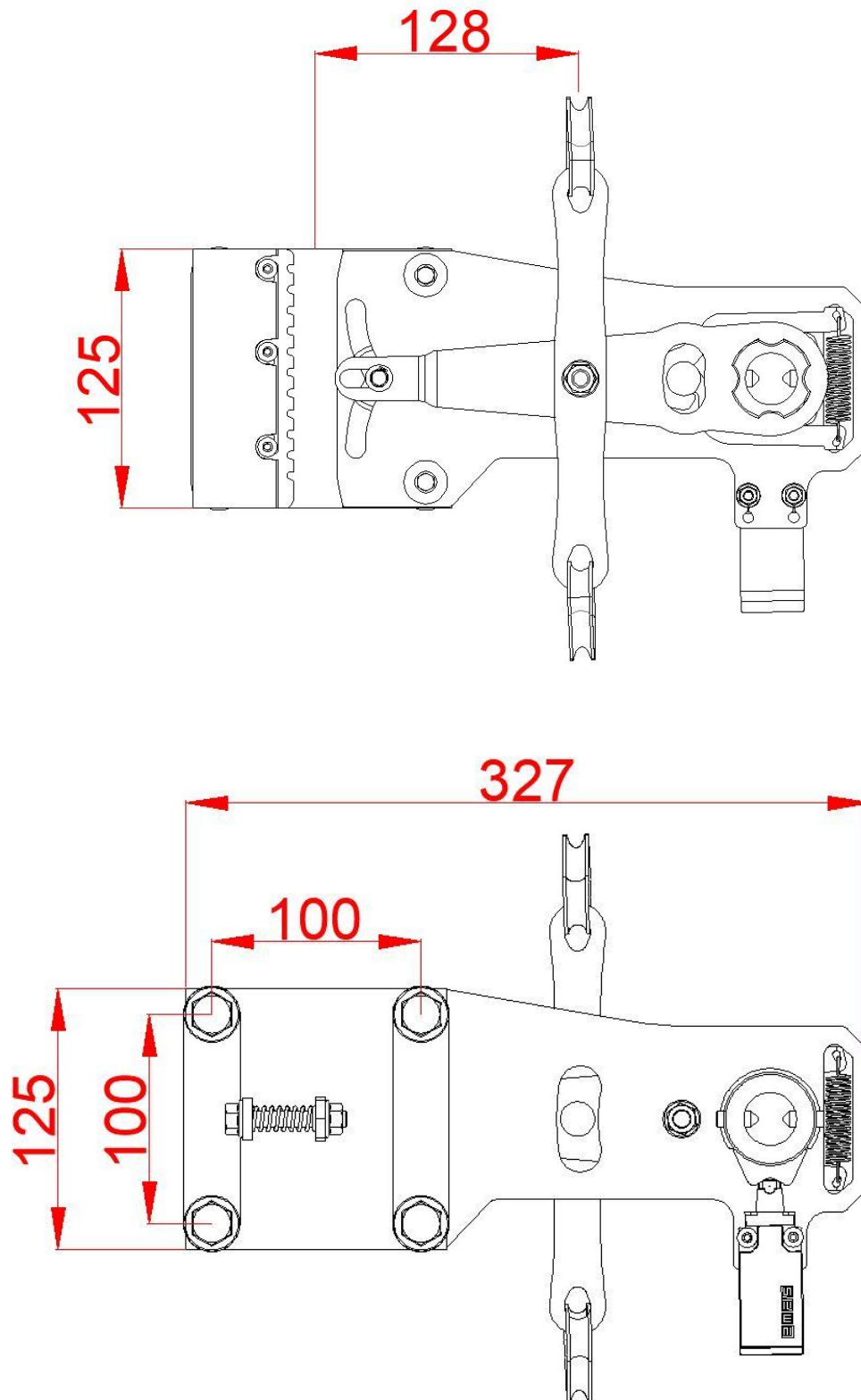
DECODING THE PRODUCT NAME

PRO 2000 - I PRO 2000 ONE-WAY BRAKE

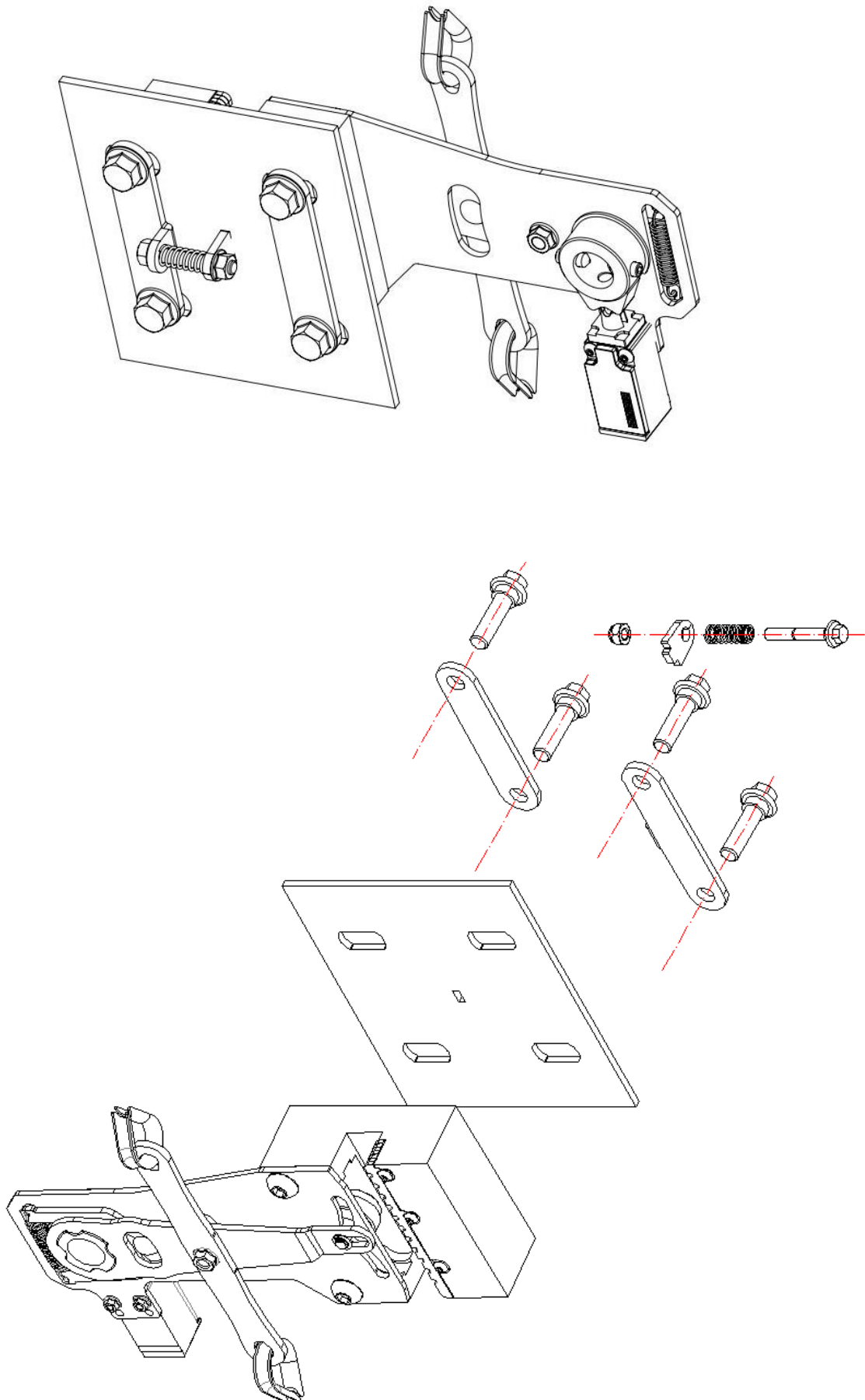
PRO 2000 - II PRO 2000 BIDIRECTIONAL BRAKE

5.2. MOUNTING TYPES

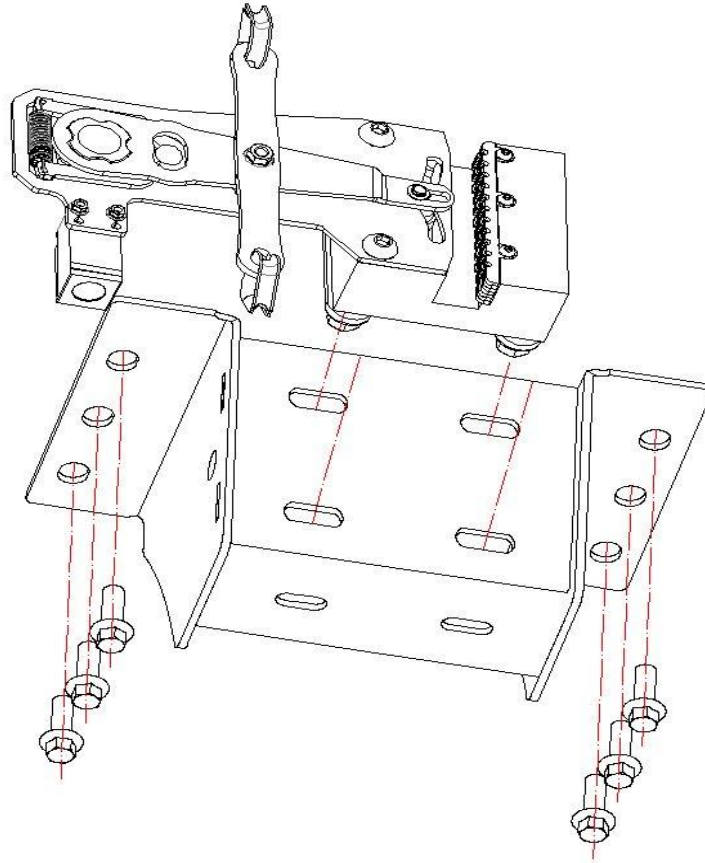
- FIGURE 1



• FIGURE 2



- **FIGURE 3**

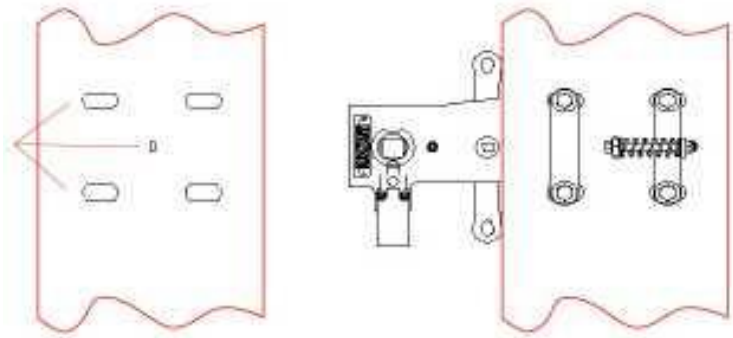


- **FIGURE 4**

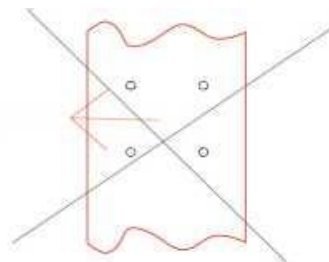
- Installation Method in Mechanismless Brake Purchases

Pro Brake connection holes

The upright (beam) holes where the brake will be mounted should be like this.



The upright (beam) holes where the brake will be mounted should not be like this.

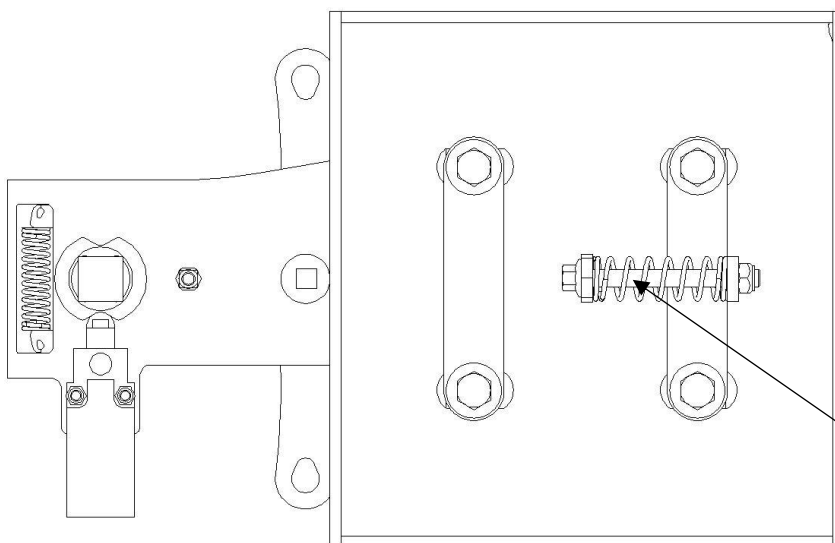
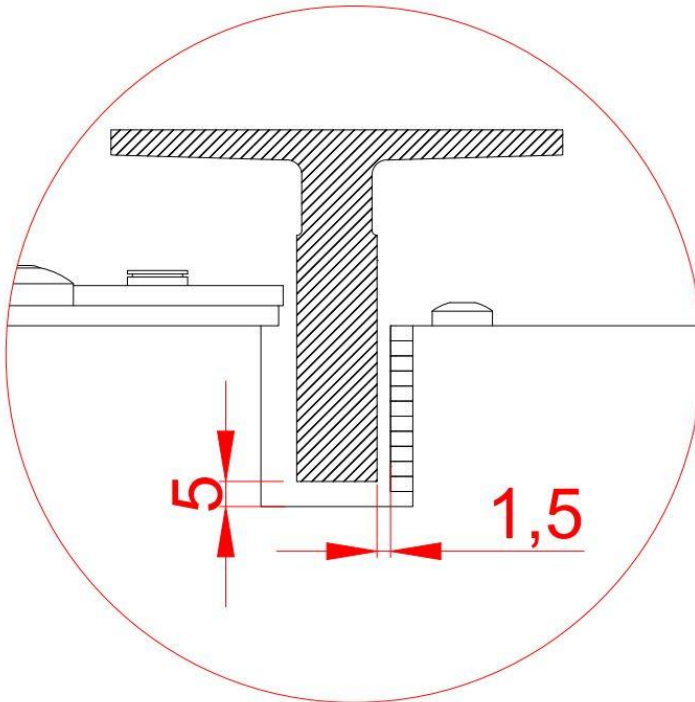


5.3 – BRAKE - RAIL POSITION :



In order for the brake block to be in a regular working environment with the guide rail, it must be ensured that the working gap between the fixed jaw on the brake and the rail is 1.5 mm. Steel strips with adjusted thickness should be used for these dimensions. Adjustments made by eye may prevent precise work from being realized.

A tolerance of +/- 0.1 mm of this Range can be given according to the adversities on the guide rails used.



The position of the brake relative to the rail is brought to the above dimensions with the help of the adjustment bolt behind the mechanism.

Adjustment bolt

5.4. SAFETY DEVICE INSTALLATION

Make sure that the brake is in the correct position during installation. The loads that the brake will stop up and down are different. The end of the arrow on the brake must be pointing upwards. The brake is set to stop a load equal to $(P+Q)$ in the down direction and a load equal to $Q/2$ in the up direction. If the brake direction is reversed, the safety device cannot stop the car in free fall.



The safety device must always be installed in the correct orientation.

By moving the brake lever up and down, see that the roller in the block contacts the rail equally in both directions. In the neutral position of the brake, the brake lever stops in the center of the block and the pulley in the block is parallel to the rail. In the up and down movement of the brake, the roller contacts the rail by traveling on the rail. After this contact, the braking process starts.

The task of the rollers is to compress the rail together with the brake block fixed jaws and to realize the braking process by pressing the surfaces of the wheels against the rail surface.

The connection of the brake to the suspension must be made completely with M12 steel bolts in the dimensions previously specified. The brake block on both sides must be at the same distance from the rail and see the rail track at the same depth. This adjustment is essential for equal and simultaneous activation of both sides of the brake. This must be ensured by adjusting the suspension skates. Otherwise, one side of the brake blocks will be activated first or one side will hold the track. This is undesirable in brake operation. Brake calculations are made by assuming that both sides will hold at the same time and equally.



Therefore, the distance settings must be precisely adjusted and rechecked before starting the main operation

If a nonconformity is found in the tests carried out before the elevator is put into operation, the installation distance errors that may cause this must be corrected.

It should be noted that the guide rails used are elevator rails conforming to ISO 7465 standards. The friction values of the materials used in the safety device are determined according to the properties of cold drawn and machined rails specified in the standard.

At the same time, excessive lubrication and pollution on the rails cause these values to change. Excessive lubrication and dust, dirt etc. on the rails should be prevented.

Excessive lubrication should not be applied on the rails. During regular maintenance every month, the brake block should be checked for foreign matter and corrosion formation should be prevented. Roller slots should be checked during monthly maintenance and the inside of the roller slots should be cleaned during semi-annual or annual maintenance.

The release of the cab from the brake after braking must be carried out by a qualified person by moving it in the opposite direction of braking.

5.5.– (OSG) REGULATOR CONNECTION :

For the connection of the brake block to the suspension, the regulator connecting link fitted to the brake column and the regulator rope must be in the same direction. The regulator rope connecting link can be attached to the brake lever on both sides.



Brake blocks must not be reversed. The up-direction arrow must point upwards.

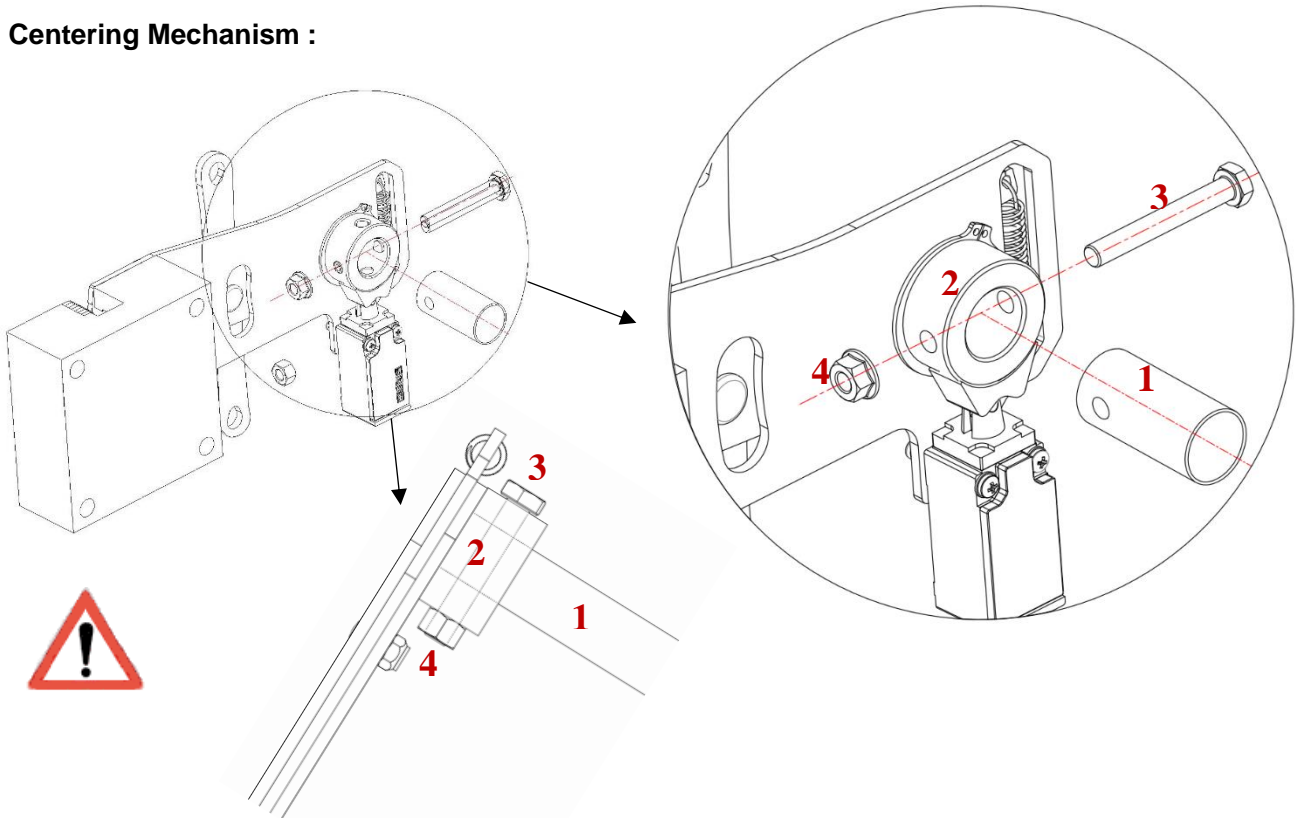
The operation of the brake is accompanied by the activation of the speed governor. In the event that the elevator speed exceeds the declared speed and reaches the regulator operating speed, the regulator is locked and the regulator rope is hung with 300 N force. In this case, braking is realized with the movement of the brake lever in both directions (up and down)



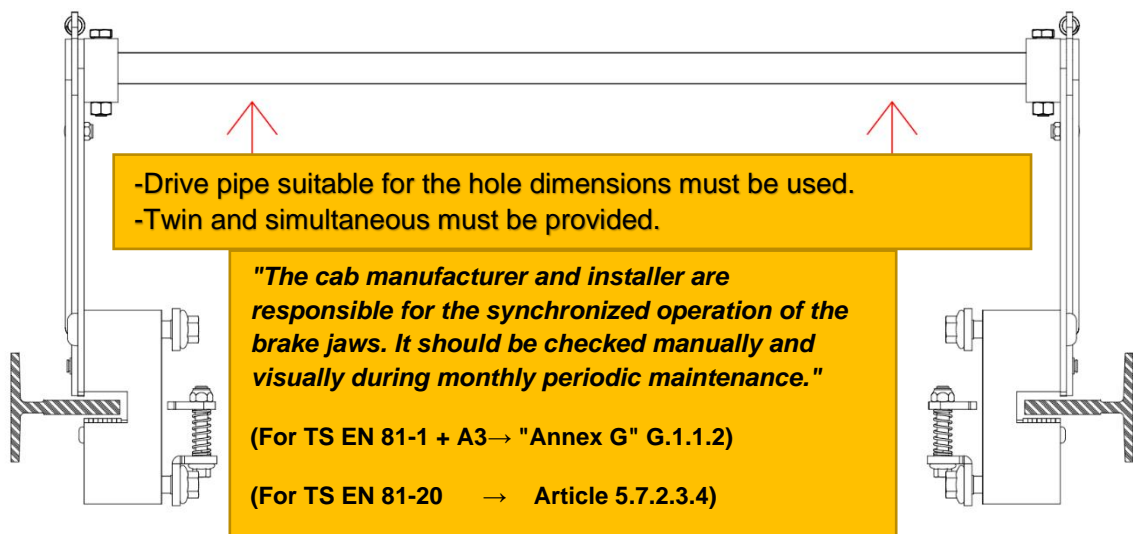
The triggering force transmitted to the brake lever by the regulator through the rope must be large enough to activate the brake (minimum 300 N).

In order to activate the brake (up and down), a force of 300 N must be transmitted from the speed regulator rope to the brake lever. For the force equations to be used other than this, the pulling force of the regulator rope in the downward direction and the hanging forces of the regulator tension weight in the upward direction should be

5.6. Centering Mechanism :



The No. 1 25,4 mm diameter contact pipe with a wall thickness of 2 mm is placed in the centering slot No. 2 on the brake. The fixing bolt holes on the centering slot are marked by tapping on the pipe with a dot. Holes with a diameter of 7,8 mm are drilled from the marks on the pipe. Fixing is done by tightening the M8 fixing bolt number 3 and M8 fiber nut number 4 on the brake. Thus, the brakes connected to each other without gaps work properly. Brakes cannot work in parallel if the fixing holes are opened too large, if there is an angle between them or if the fixing holes are not opened at all. Our company does not take responsibility for such faulty installations.



This safety device is used in conjunction with the bidirectional speed governor. Make sure that the speed regulator is working correctly and that its direction is correct before putting the brake into operation.

Although regulators are bidirectional, the main locking direction of the regulator beak must be downwards.

Make sure that the cable from the speed governor is connected to the brake lever in such a way that it does not interfere with the brake lever movement and does not loosen. In the event of the speed governor locking, check that the direction of pull of the rope is such that the braking is performed in the upward direction.

6 . IMPORTANT WARNINGS:

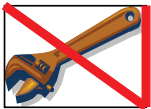
Incorrect adjustment or installation of the brake in the wrong direction may cause the cabin to fall. If any change is required in the new adjustments, this change should only be made by an authorized person in consultation with the manufacturer..

After braking, the rescue operation must be performed by qualified personnel. In case of changes made in the products without the knowledge of the company and unconscious use, the risk belongs to the elevator installation company.

The distance between the rail and the brake block should be 5 mm, the rail should not touch the brake body.



The safety element must be readjusted and replaced after 4 attempts.



No additions, subtractions and adjustments can be made on the safety element (brake) without the knowledge of the manufacturer.

Serial number, capacity, rail thickness, max braking speed are indicated on the product.

Serial No: **Cold drawing rail starting with A**

B stands for hot drawn rail

Rail: **Indicated as 9 mm or 16 mm on the cover**

Speed: **Max braking speed specified in m/s**

Capacity: **Total mass specified as P+Q in kg**

7. MAINTENANCE INFORMATION

Excessive lubrication should not be applied on the rails. During regular monthly inspections, the brake block should be checked for foreign matter and corrosion formation should be prevented. Roller slots should be checked during monthly inspections and the inside of the roller slots should be cleaned during semi-annual or annual maintenance.

During monthly maintenance, the brake block mechanism should be checked for proper operation and the regulator rope connection should be checked for proper connection. Excessive painting should not be done in a way that prevents the working parts from working, rail oil and dust that may accumulate in the blocks should be checked.

The safety element must be readjusted and replaced after 4 attempts

The safety device contact is a safety contact. An IP4X level of isolation must be permanently maintained. It must be checked that these contacts, which are non-locking contacts, are activated and that there is no opening in the insulation. The functioning of this contact must be checked at every monthly maintenance starting from the first installation

Absolutely no repairs should be made on the safety element. If necessary, parts can be replaced with the approval of the manufacturer. However, each brake part is different according to car weight, rated load, speed and rail type. This situation must be taken into consideration.



8. GENERAL CONDITIONS TO BE OBSERVED.

- a. Make sure that the installation is carried out by trained personnel.
- b. This safety device is manufactured according to safety standards, nevertheless, use protective clothing and tools during installation.
- c. To prevent damage to the brake blocks, take precautions against falls, impacts and deformations of any kind.

Take safety precautions when installing in high places, wear a hard hat and safety belt, make sure that the installation wind is safe.

9. TRANSPORTATION AND STORAGE

The product is delivered in cardboard boxes Package weight approx. .kg

The product should be stored in a humid and dust-free environment.

10.BRAKING RECORD FORM

The safety element must be readjusted and replaced after 4 attempts

ROW NO.	DATE	BRAKING SPEED	P+Q	EXPLANATION
1				
2				
3				
4				



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