

# WARNING

The manufacturer must be notified of the following when ordering parts:

- 1) Gearbox type
- 2) Machine serial number indicated in the order confirmation, or in the gearbox data plate, or engraved on the gearbox body

This data enable SASSI S.p.A. to provide spare parts together with detailed instructions for their use.

**PAY CAREFUL ATTENTION TO THE PERFORMANCE DATA CONTAINED IN THE SASSI S.p.A. GENERAL CATALOGUE FOR CONDITIONS AND LIMITS REGARDING USE.**

**ALL OPERATIONS INDICATED IN THIS HANDBOOK MUST BE CARRIED OUT BY AUTHORIZED PERSONNEL.**

**THE GUARANTEE IS NO LONGER CONSIDERED EFFECTIVE IF ANY PARTS ARE REMOVED FROM THE GEARBOX.**

ENGLISH

## GENERAL TECHNICAL INFORMATION

### COMPLETE GEARBOX WITH MOTOR

- European reference norms:

EN 81-1 : 2005

- Vibrations:

IEC 34 -14    CEI 2 - 2    Noise: IEC 34 - 9    CEI EN 60034 - 9

### THREE-PHASE ASYNCHRONOUS MOTOR - 1 POLARITY

- Constructive norms:

IEC 34 - 1    IEC 34 - 2    IEC 34 - 5  
CEI 2 - 3    CEI 2-8    CEI 44-5    EN 60204-1    CEI2-16    EN 60034-5

- EMC Norms:

EN 12015-EN 12016    EN 61000-6-3:2001  
EN 55011: 1998    EN 55014: 1993

### ELECTROMAGNETIC BRAKE

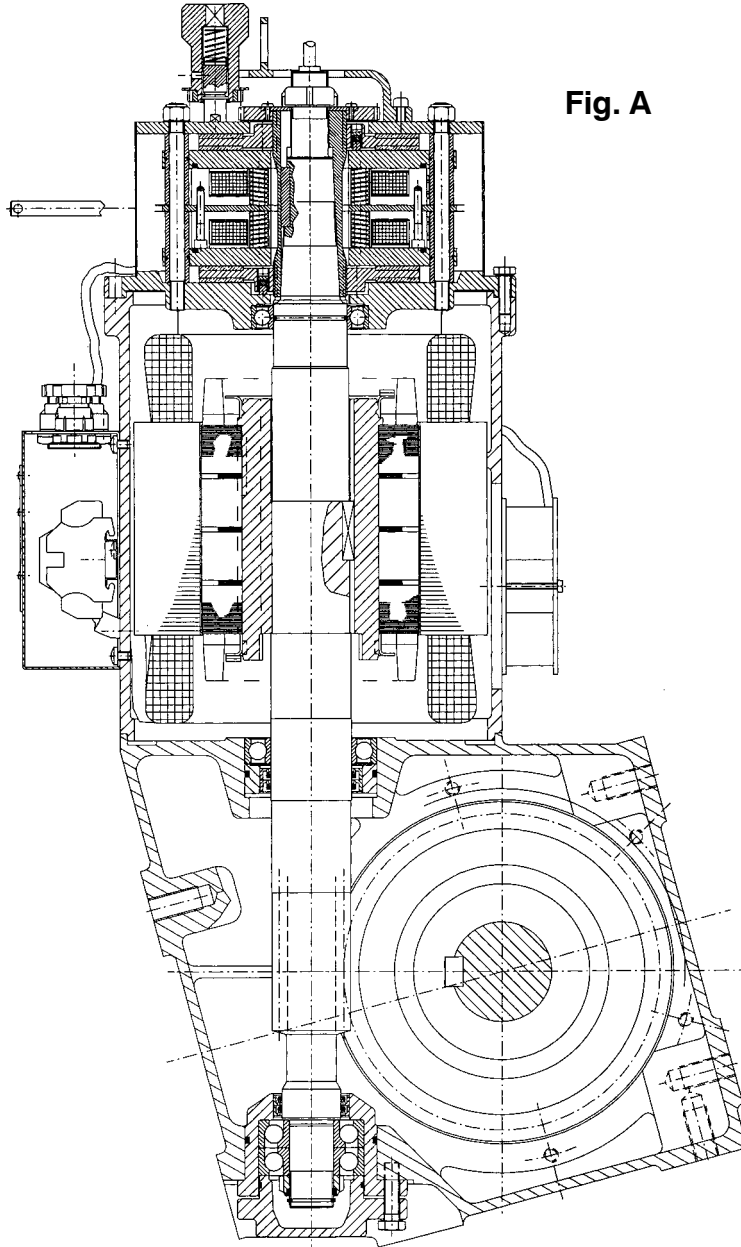
- European reference norms:

EN 81-1: 2005

- EMC Norms:

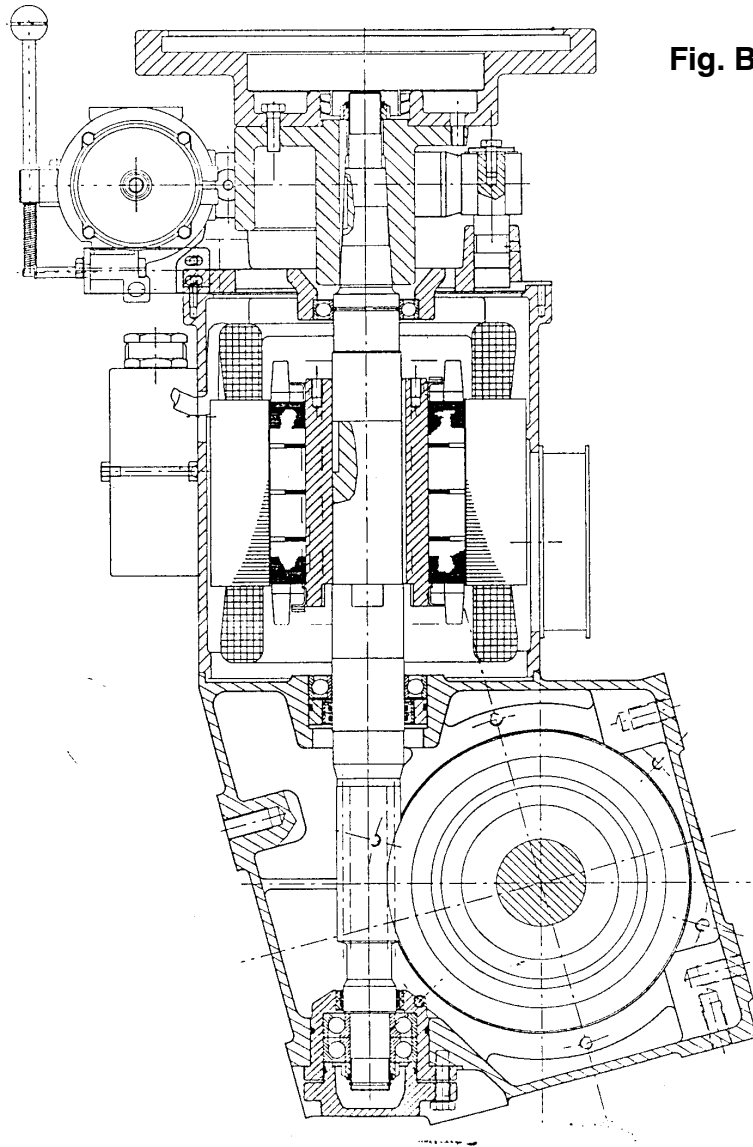
EN 12015 - EN 12016:2005    EN 61000-6-3:2001  
EN 55011: 1998    EN 55014: 1993  
EN 12015:2005

# Gearbox LEO VERSION WITH DISCS BRAKE



ENGLISH

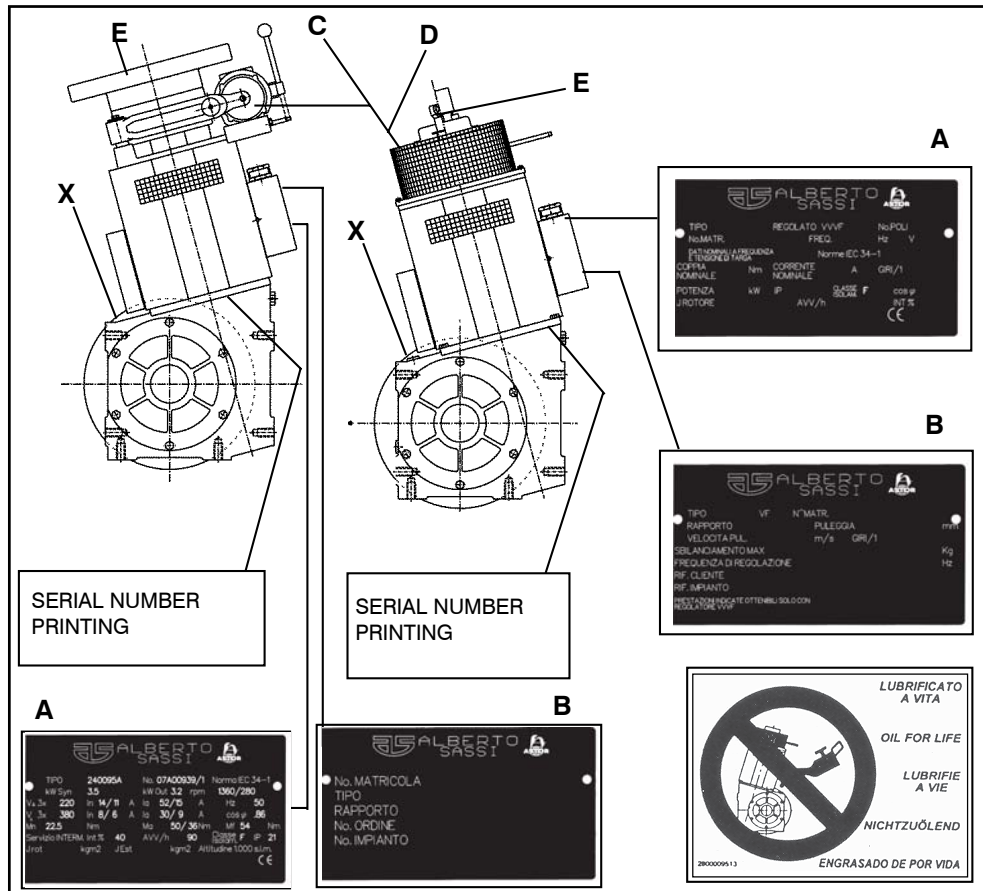
# Gearbox LEO VERSION WITH DRUM BRAKE



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# IDENTIFICATION PLATES FOR GEARBOXES AND MOTORS

EXAMPLES OF DATA PLATES ON THE MACHINE WHICH MAY VARY IN QUANTITY AND POSITION IN ACCORDANCE WITH THE CONFIGURATION



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SERIAL NUMBER PRINTING

SERIAL NUMBER PRINTING

**A**

TIPO	240095A
kW/giri	3,5
V <sub>2</sub> /I <sub>2</sub>	220 / 14 / 1
I <sub>1</sub> /I <sub>2</sub>	380 / 6
IN	22,5
ser-Hubs/INTERA	40
Jrot	sign2
Ne	07A00939/1
Norme EC	34-1
kw/0,4	3,2
rpm	1360/280
A	52/5
Hz	50
A	30/9
cos φ	0,86
kg	50/36
lit	54
mm	90
AVV/h	90
cos φ	F
IP	21

**B**

No. MATRICOLA	
TIPO	
RAPPORTO	
No. ORDINE	
No. IMPIANTO	

**A**

TIPO	REGOLATO VVVF	No POLI
No.MATR.	FREQ.	Hz V
PATENTATA/REGOLATA Norme EC 34-1		
CORRENTE NOMINALE	Nm	CORRENTE NOMINALE
A	GR/1	
POTENZA	kW IP	GRAD. F
AVV/h	cos φ	INT %

**B**

TIPO	VF	N°MATR.
RAPPORTO	PULLEGIA	rpm
VELOCITÀ/REV.	m/s	GR/1
SELANCIAMENTO MAX		kg
FREQUENZA DI REGOLAZIONE		Hz
RF CLIENTE		
RF IMPIANTO		
REGOLAZIONE FREC. OTTENIBILI SOLO CON REGOLATORE VVVF		

	LUBRIFICATO A VITA
	OIL FOR LIFE
	LUBRIFIE A VIE
	NICHTZUÖLEND
ENGRASADO DE POR VIDA	

- A. PLATE FOR ELECTRICAL MOTOR
- B. PLATE INDICATING THE MANUFACTURER'S DATA RELATIVE TO THE GEAR TYPE
- C. PLATE OF THE BRAKE MANUFACTURER
- D. PLATE FOR THE BRAKE DATA
- E. ADHESIVE PLATE "UP/DOWN" (THESE PLATES ARE SUPPLIED SEPARATELY AND MUST BE PLACED BY THE CUSTOMER IN ACCORDANCE WITH THE CABIN MOVEMENTS)
- X. ADHESIVE PLATE "OIL FOR LIFE"

**IMPORTANT:**

IN CASE OF MOTOR REPLACEMENT, THE COVER OF THE TERMINAL BOX WITH THE GEAR PLATE MUST BE REUSED

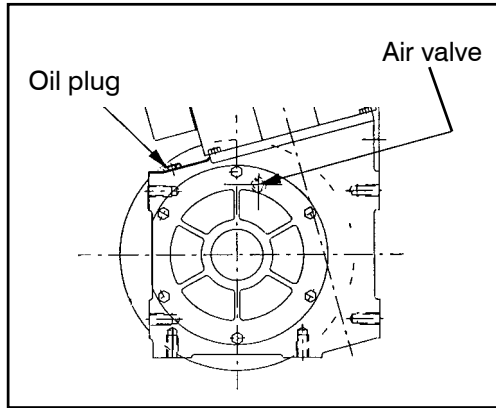
# LUBRICATION

- The oil used for lubrication is a special oil with a synthetic polyalphaolefinic base, with special additives showing higher characteristics than normal "EP".
- SASSI before shipping has filled the gear with 3,5 litres oil.

**- DO NOT TOP UP  
- THE QUANTITY OF OIL IS SUFFICIENT FOR THE OVERALL GEAR LIFE**

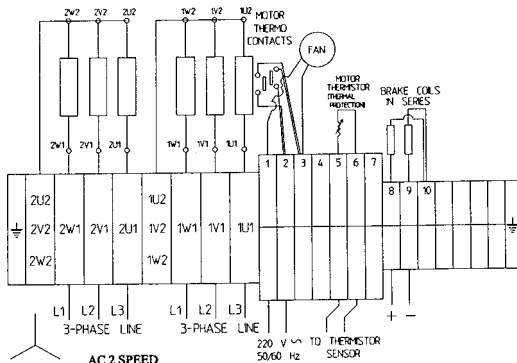
The gear is equipped with at least one oil plug positioned in such a way to facilitate the possible oil drainage independently from the final installation position.

On its side, on the casing, behind the sheave, there is an air valve, which enables the automatic release of the overpressure generated by the pumping of the working members.



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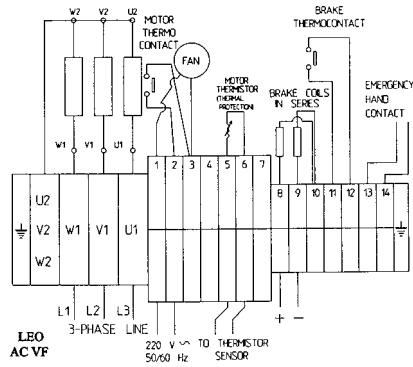
## DIAGRAMS FOR ELECTRICAL CONNECTIONS



AC 2 SPEED

NOTES NOTE 29000060A

THERMOCONTACT THERMOCONTATTO		220 V c.a.		1 A	
THERMISTOR	TERMISTORE	TEMPERATURE	TEMPERATURA	RESISTANCE VALUE	VALORI RESISTENZE
DO NOT APPLY VOLTAGE + 5 V TO THERMISTOR TERMINALS	NON APPLICARE TENSIONE + 5 V AI TERMINALI DEL TERMISTORE	T < 45°C	300 Ohm		
		T > 45°C	4 KOhm		



LEO ACVF

NOTES NOTE

THERMOCONTACT THERMOCONTATTO		220 V c.a.		1 A	
THERMISTOR	TERMISTORE	TEMPERATURE	TEMPERATURA	RESISTANCE VALUE	VALORI RESISTENZE
DO NOT APPLY VOLTAGE + 5 V TO THERMISTOR TERMINALS	NON APPLICARE TENSIONE + 5 V AI TERMINALI DEL TERMISTORE	T < 45°C	300 Ohm		
		T > 45°C	4 KOhm		

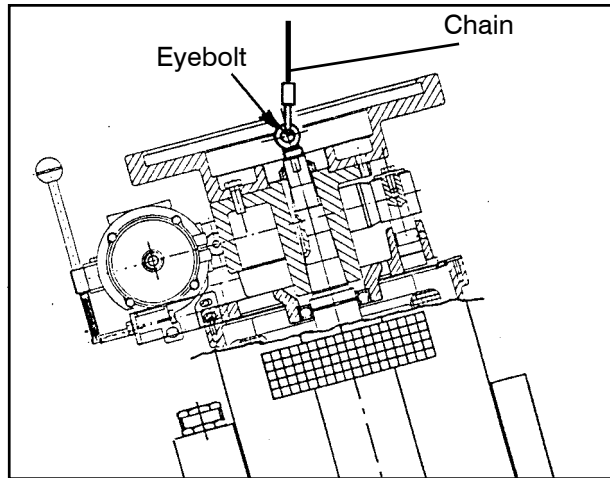
**NOTE: always provide the electrical connection to terminals 1 and 2 (to start the fan)**

# UNPACKING AND HANDLING

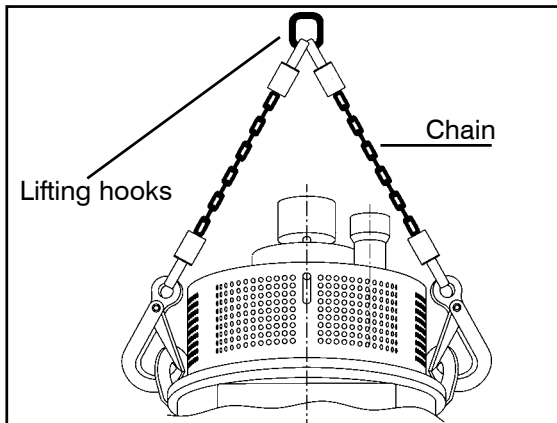
## VERSION WITH DRUM BRAKE

The gear is delivered with the lifting eyebolt already mounted. Once removed the packaging, fix a chain to the eyebolt to carry out the handling and transport operations.

Once positioned the gear, remove the eyebolt and fit the plastic cover supplied together with machine, by pressing it.

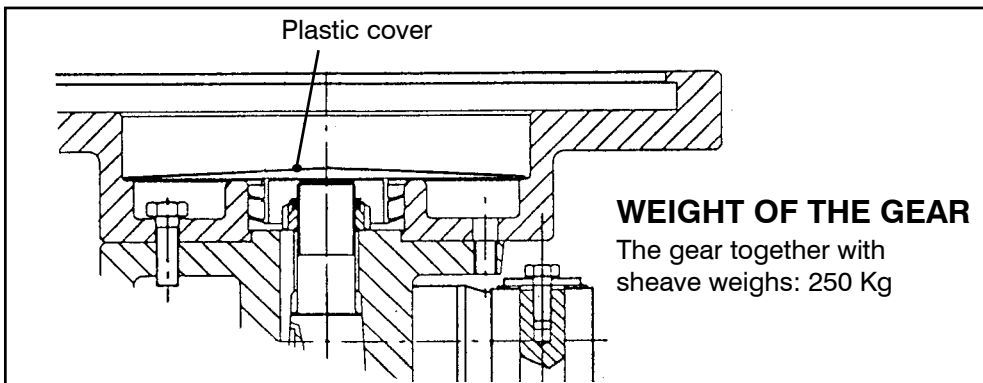


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## DISCS BRAKE TYPE

The gear is delivered with the couplings for the machine handling already mounted. Once removed from the packaging fix a chain to the lifting hooks to carry out the handling operation.



## WEIGHT OF THE GEAR

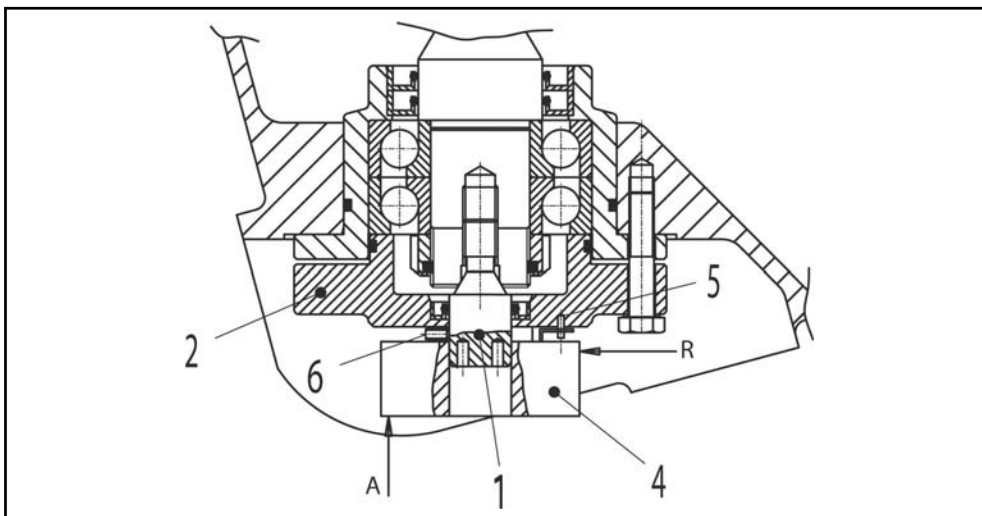
The gear together with sheave weighs: 250 Kg

## ENCODER FITTING STANDARD CONFIGURATION: THRUSTBEARING SIDE

In case the gear is already installed, before fitting the encoder, switch off the mains switch in control panel.

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- 1) The gear manufactured with the predisposition for the encoder coupling on thrustbearing side are equipped with the special cover 2 (see drawing). This predisposed cover protected by a yellow plastic plug (not indicated in drawing) which can be removed once the machine is 'cold' to avoid any grease leakage from thrustbearing.
- 2) The standard bolt, which is already mounted on the ending part of the worm, has a diameter apt to the fitting of some type of encoder with hollow shaft with  $\varnothing 25\text{mm}$ .
- 3) To assemble the encoder 4, move it coaxially along bolt 1 till a distance of 0.5mm from cover 2 and centre the plug 5 in the special antirotation holder. The standard plug has a  $\varnothing$  of 3mm and is positioned at a distance of 32.5mm from rotation axis.
- 4) Slightly move the three dowels M4 nr. 6 alternately towards the shaft 1 by means of Allen wrench in order to centre the encoder; then tighten them in the same way.
- 5) Once assembled, the encoder is protruding from the supporting surface, if the gear is mounted in vertical position.
- 6) Should you intend to fit this encoder on a gear not predisposed, please contact **Alberto Sassi Spa** to receive the specific instructions.

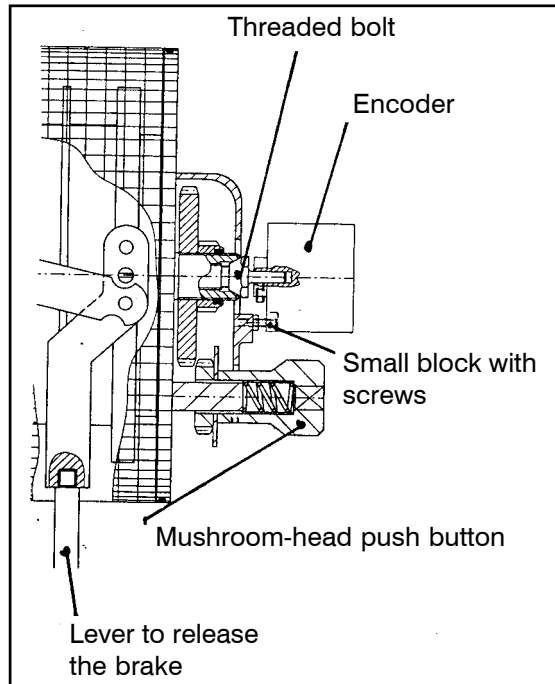


# FITTING THE ENCODER - MOTOR SIDE

## VERSION WITH DISCS BRAKE

Once positioned the gear, to fit the encoder proceed as follows:

- 1) Fit the threaded bolt tightening it with 100 Nm.
- 2) Remove the small block with the screw together with the locknut from the encoder and tighten the small block fully home in the relative threaded hole of the aluminium cover. Carry out this tightening procedure in accordance with the following operations described in point 4 and 5.
- 3) Insert the encoder on the shaft of the threaded bolt with the notch stop inserted in the small block
- 4) Tighten the locknut of the small block against the aluminium cover and adjust the related side set screw on the encoder.
- 5) Fix the encoder on the shaft tightening the two side screws.

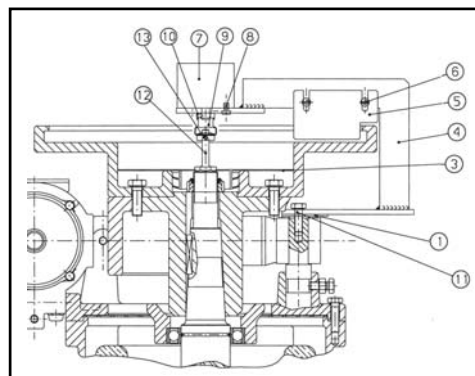


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## VERSION WITH DRUM BRAKE

- 1) In case the gear is not fitted with the right yellow protective plastic cover 3 already equipped with the central bore, remove the existing one and create the central bore ( $\varnothing$  35mm) in it.
- 2) Fit the pin 12 at the ending part of the worm; apply a drop of Loctite 243 on the threaded part, screw with a torque of 100Nm then fit the cover 3 again;
- 3) Mount the encoder 7 on the bracket 4 by means of the three screws 8;
- 4) Fit the elastic coupling 9 on the axle of the encoder 7, tighten the setscrew 10;
- 5) Fit the coupling 4 on the bracket 1 which connects the shoes pins by means of screws 11 directly to the brake shoes pins. Take care to centre the joint 9 on the pin 12;
- 6) If necessary, slightly uscrew the two screws 11: in this way You can move the bracket 1 and centre the encoder as regards the axle 12 more easily. Screw the screws 11 with a torque of 25 Nm;

- 7) Screw the screw 13 checking that it clamps the joint 9 on the pin 12;
- 8) Fit the protection 5 on the bracket 4 by means of the two screws 6;
- 9) Turn the flywheel to check that the coupling is centred; if necessary, repeat the operations at points 5 and 6.



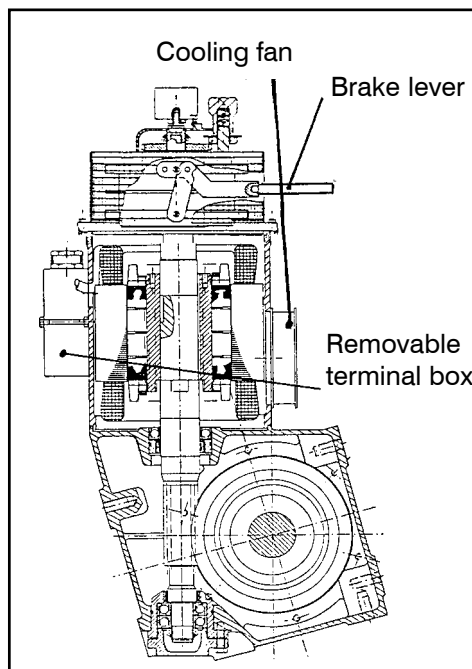


## MACHINE START

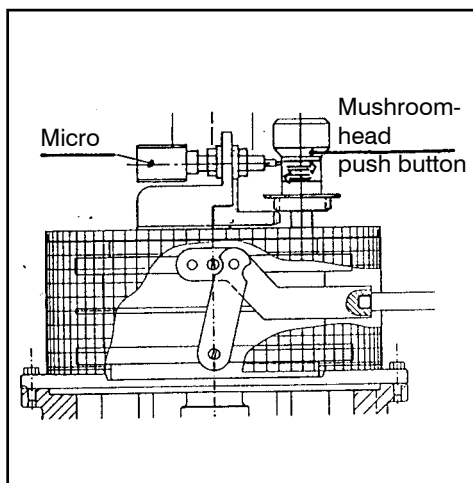
BEFORE MACHINE START, CARRY OUT THE FOLLOWING OPERATIONS: **DISCS BRAKE TYPE**

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- 1) Remove the brake lever and fit it by tightening home.
- 2) Open the cover of the terminal box and take the wire clamp and the electric diagram.
- 3) Take the microswitch and the relative hexagon nuts and washers, which can be found in the bag contained in the terminal box.
- 4) Fit the microswitch in the slot positioned in the aluminium cover and fix it through the relative nuts and washers, by doing this bring into contact the feeler pin of the micro with the cylindrical part of the mushroom-head push button.



**IMPORTANT NOTE:** the gear already contains the right amount of oil. (see page 34)

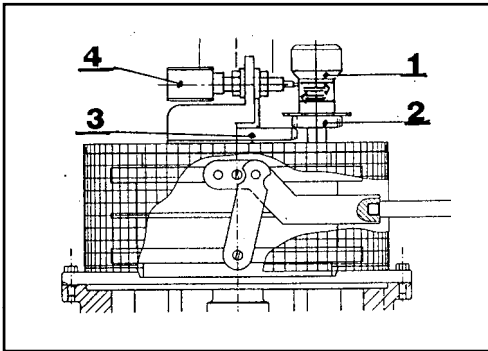


### NOTE ON THE FUNCTIONING OF THE MICROSWITCH:

Once fitted, the microswitch must be connected to the control panel of the installation, so that its contact, normally closed, is placed in series to the power fail circuits of the installation. To carry out the manual operation the mushroom-head push button must be pressed. In this way the contact of the microswitch gets opened and the installation stops as long as the mushroom-headed push button remains pressed.

# MANUAL OPERATIONS ON THE BRAKE IN CASE OF EMERGENCY

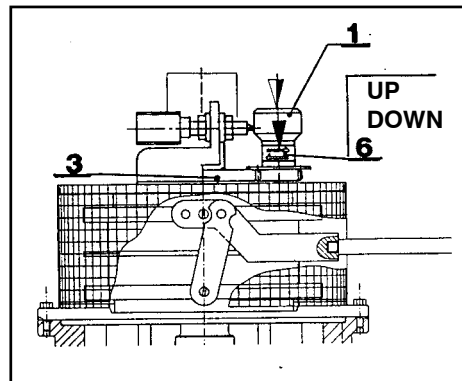
TO CARRY OUT MANUAL OPERATIONS ON THE GEAR IN CASE OF EMERGENCY PROCEED AS FOLLOWS: **DISCS BRAKE TYPE**



- A) Switch off the main switch in machine room.
- B) Press downwards the button 1 (the button has two positions) so that gear 2 meshes with gear 3.
- C) Check that the knob of the button 1 while getting down has moved the feeler pin of the emergency microswitch 4 aside.

ENGLISH

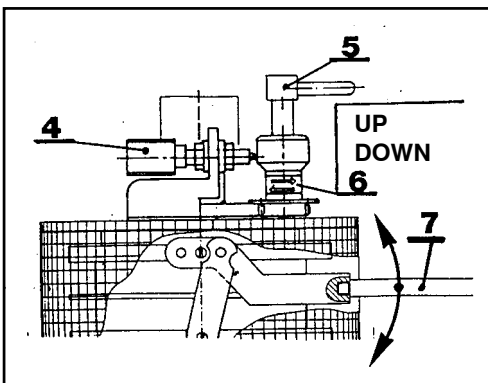
- D) Insert the key 5, if possible a ratchet wrench with square 1/2" head, in the hole of push button 1 and turn in the direction indicated by the arrow positioned in the plate 6 fixed in the cylindrical part of push button 1, in this way You act alternatively on the lever 7 for the manual opening of the brake.



## ALTERNATIVE OPERATION:

Brake open: wrench 5 rotation under load.  
Brake closed: wrench 5 back in position.

- E) Once terminated the operation, remove the square wrench 5 and lift the push button 1 in order to get free the micro 4 thus starting the installation again.



**The double front discs brake is adjusted and set directly in our Works.**

**DO NOT CARRY OUT ANY INTERVENTION ON THE BRAKE!**

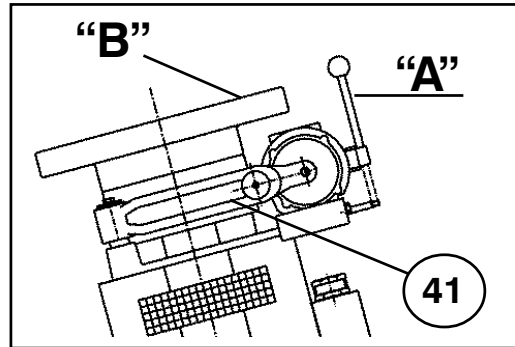
**IN CASE OF NECESSITY CONTACT DIRECTLY THE SUPPLIER OF THE BRAKE.**

# INSTRUCTIONS ON MANUAL OPERATION IN CASE OF EMERGENCY

CARRY OUT THE FOLLOWING OPERATIONS IN THE ORDER INDICATED:  
**DRUM BRAKE VERSION**

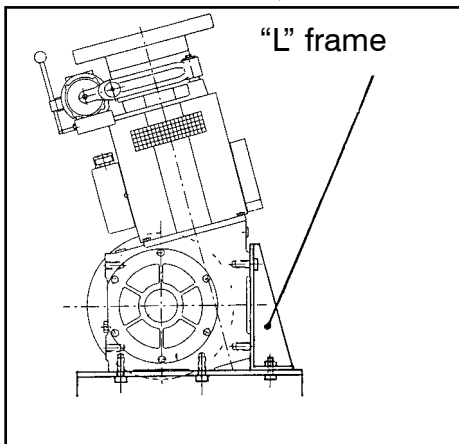
ENGLISH

- 1) Switch off the main switch in machine room.
- 2) Firmly hold the flywheel B for the manual operation.
- 3) Open the brake shoes 41 by acting on lever A and constantly exerting a sufficient force to open them. Move the flywheel B in the most suitable direction in order to take the cabin to the nearest floor and level with the reference mark on the steel ropes (where existing).
- 4) Release the brake lever A



**WARNING: NEVER REDUCE BRAKE SPRING TENSION TO FACILITATE THE MANUAL OPERATION**

## FIXING ON THE FRAME



Take care to position the gear either in vertical or in horizontal position on a "L" frame as indicated in the figure (the frame is supplied with the machine).

This frame must be fixed in a way able to support the installation loads and has through holes for the fixing of the gear.

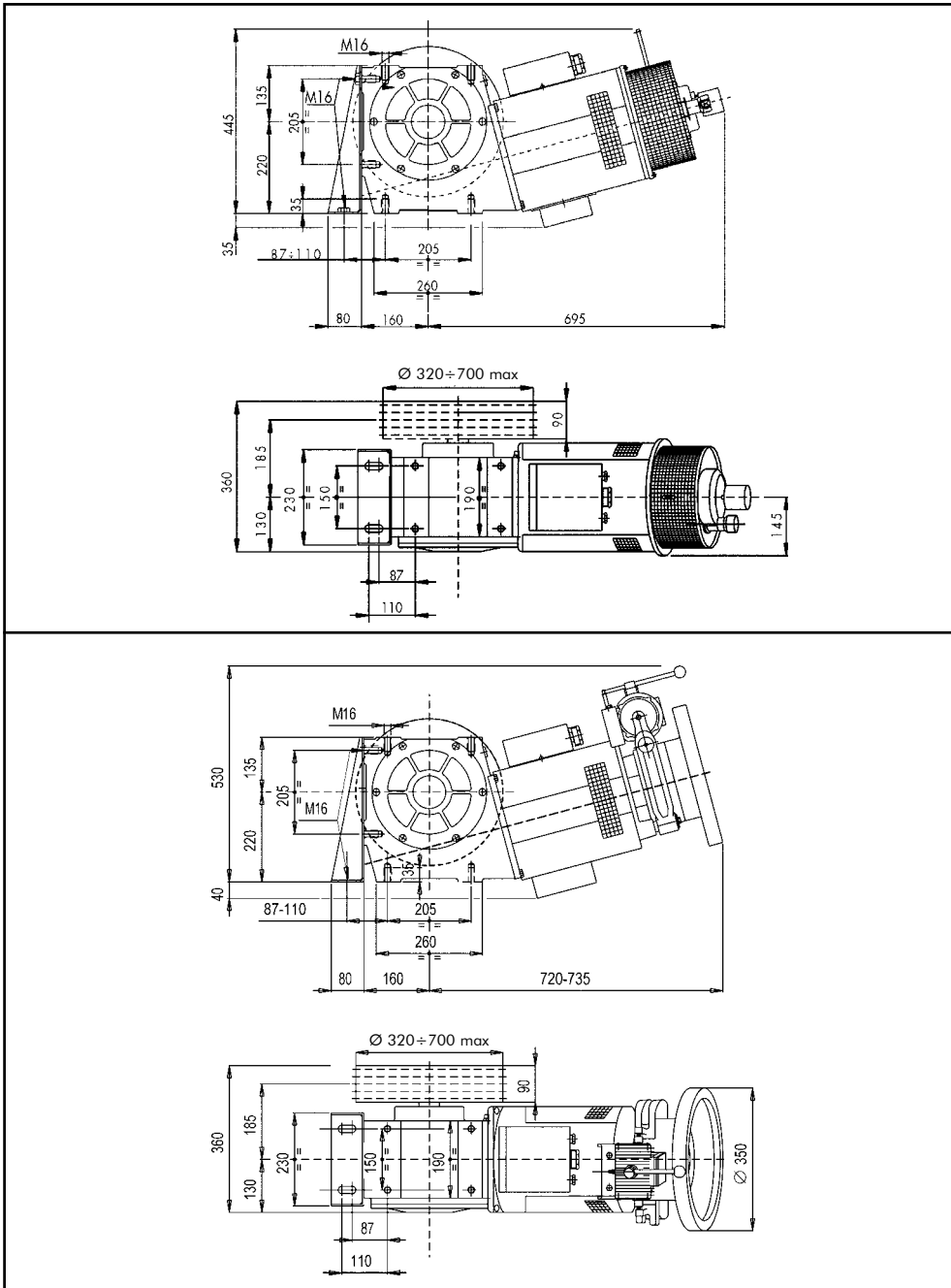
For this purpose the figure below shows the overall and fixing dimensions required.

The gear presents only **ONE POSITION FOR THE SHEAVE** and the useful lower horizontal and vertical bearing/supporting surfaces are **A, B and C.** (See page 42)

**NOTE:** the gear must be fixed by means of screws with a class of resistance of at least 8.8 and applying a tightening torque of 170 Nm.

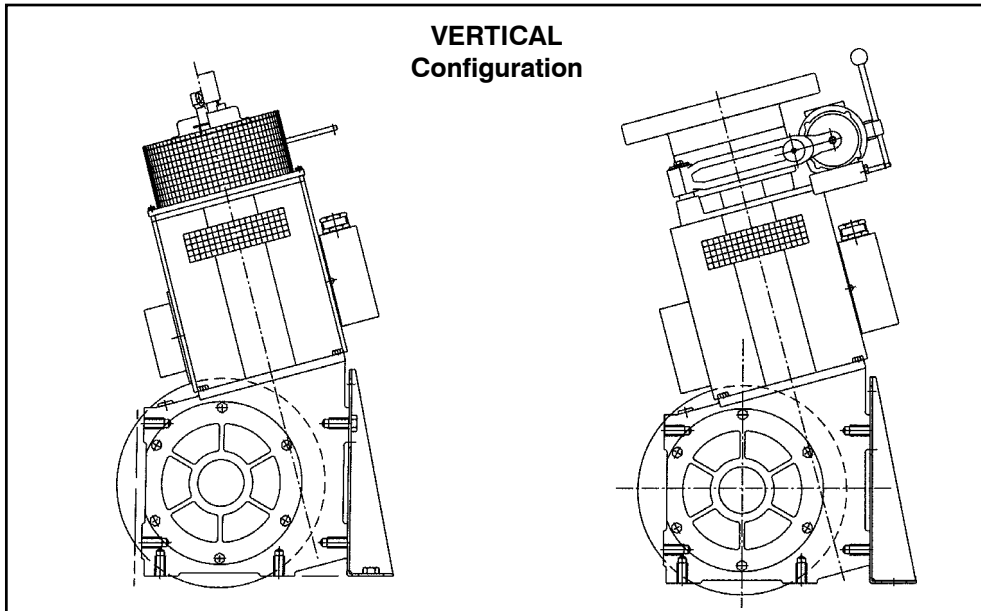
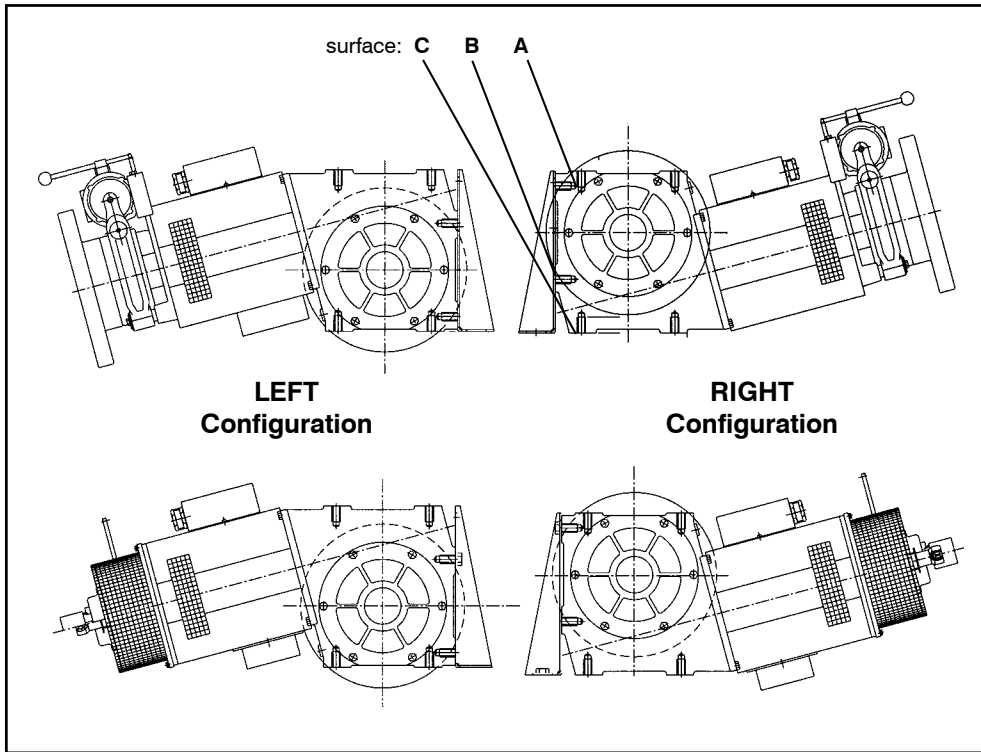
# FIXING ON THE FRAME

## GEAR WITH FIXING AND OVERALL DIMENSIONS



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# POSITIONING ON THE FRAME

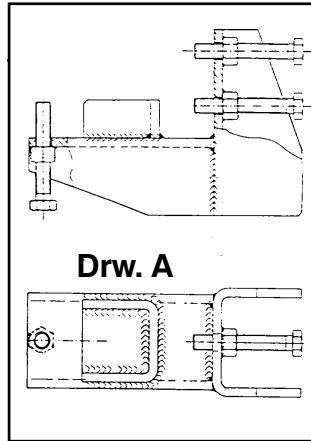


## SAFETY AND MAINTENANCE INTERVENTIONS

Should the counterweight be laid down to carry out interventions on the installation or to manually lift the cabin by means of the sheave, a ROPE-CLAMP must be fitted. (tool code 3000004420).

This tool (**Drw. A**) is made up of a bent and welded L bracket with thrust screws and a plate. It is applied to the sheave as showed in drw. B.

The screws 1 exert pressure on plate 2 which bucks the ropes 3, while the projection 4, fixed to the bracket, bucks the pressure of



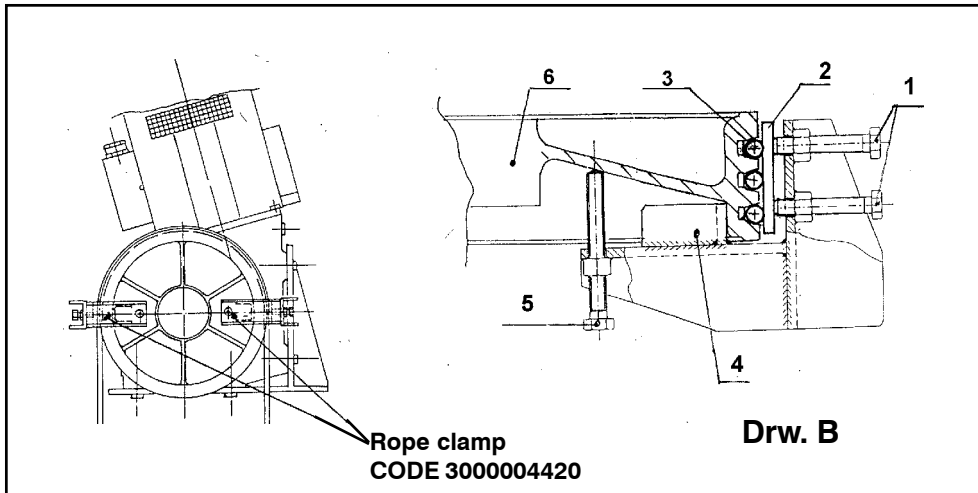
screws 1 under the sheave edge.

By means of screws 5 the position of the bracket can be adjusted, but it has to be kept in orthogonal position with regard to the sheave 6.

Act on the screws 1 and 5 simultaneously and alternately.

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**IN THIS POSITION THE ROPES ARE CLAMPED.**



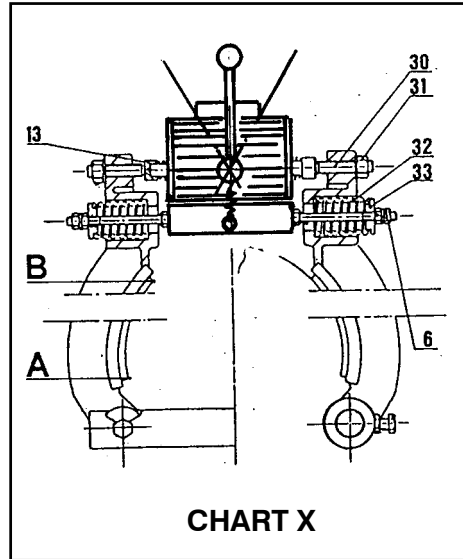
To rest simply the installation only one rope clamp is required, while to lift manually the cabin two rope-clamps have to be mounted as

showed in drw. B. They have to be moved alternately according to the sheave rotation.

# BRAKING ADJUSTMENT

## DRUM BRAKE TYPE

Adjustment should be done with the machine **UNDER LOAD**. When the machine is operating and therefore when the electromagnet is energised, loosen locking nut **31** and slightly loosen adjustment screw **30** until the brake unit rubs against the brake drum (**see chart X**). At this point re-tighten screw **30** the minimum necessary until rubbing ceases between the shoes and the brake drum when the machine is moving. Tighten lock nut **31** and repeat the operation with the second shoe. Intervention is then possible on the spring pre-load to adjust braking intensity. Unscrew safety locking nut **6** and use the remaining nut to increase or decrease spring tension **32** until desired braking is achieved; then re-lock external locking nut **6**. Repeat the procedure for the other shoe. Periodically observe the wear of the brake linings on the gearbox which reduces braking efficiency due to the decrease in spring preload. **Do not perform any intervention on the brake by only increasing the preload, the complete adjustment procedure must be carried out** using the adjustment screw **30**, as seen at the beginning of this chapter, so that the end stops **13** is not increased. To replace the shoes, see the next



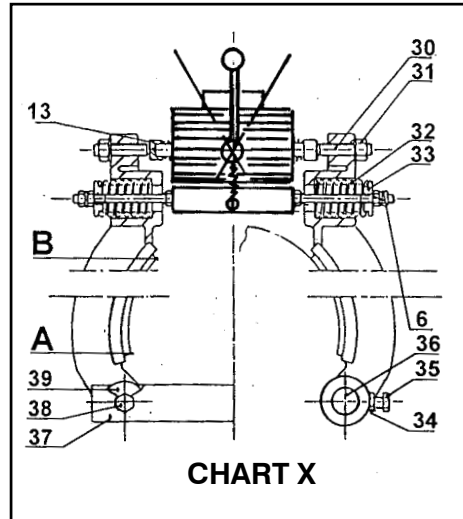
chapter on “**Brake adjustment**” to ensure perfect fitting of the new brake linings to the brake drum. Please note that it is practically impossible to determine how often the brake should be adjusted, in fact, this depends on the type of machine, its use and the timing of the brake shoe opening and closing movements.

**N.B. Brake shoes with linings must be replaced when the thickness is 2 mm at the point of maximum wear.**

# BRAKE ADJUSTMENT

## DRUM BRAKE VERSION

Adjustment should be done when the machine is **supported**. First check that when the electromagnet is turned on, the brake unlocks. If this does not occur, proceed as follows: (**refer to chart x**). When the brake is turned off, loosen locking nuts **31** and loosen set screws **30** so that they are distanced by a few millimeters (approx. 4) from end stops **13**, manually checking that the end stops **13** are in the external end position. Loosen nuts **6** leaving washers **33** in contact with springs **32**. With the shoes in contact with the drum, re-tighten set screws **30** moving end stops **13** towards the brake centre by **1 mm**, and then tighten locking nuts **31**. With the electromagnet energised, check that the friction lining of the shoe does not touch the brake drum; just check that in point **B** of the drawing a space of at least approx. **0.5/0.8 mm** exists. This space should extend along the complete arc of the brake lining even if it slightly decreases up to point **A**. If this does not occur, **only in this case**, it becomes necessary to adjust the eccentric pin which regulates the brake shoe-drum coupling. With the electromagnet **de-energised**, loosen locking nuts **31** and set screws **30** so that they are distanced by several mm (approx. 4) from end stops **13**, manually checking that the end stops **13** are in the external end



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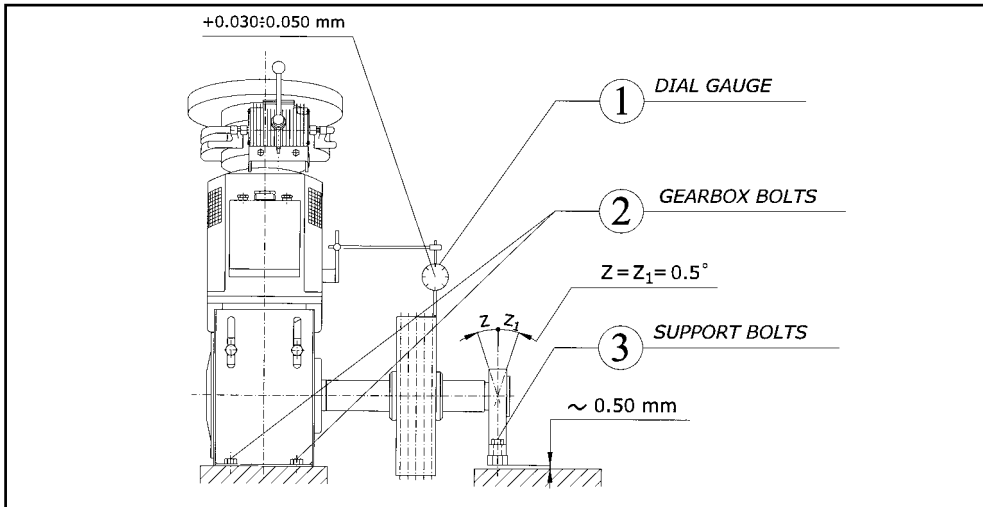
position. Loosen nuts **6** leaving washers **33** in contact with springs **32**. Back off screws **38**, disconnect the pin connection **37** from the Belleville springs **39**. Loosen the nuts **34** and screws **35** and adjust the eccentric pins **36** (using a spanner or screwdriver according to machine version) until the shoes fully engage with the brake drum. Tighten screws **35** and nuts **34**, fit the Belleville springs **39**, pin connection **37** and tighten screws **38**. Next, with shoes in contact with drum, tighten the adjusting screws **30** to move the end stops **13** approximately 1mm toward the brake centre, and tighten the lock-nuts **31**. This done, adjust spring **32** as described in the chapter "**Braking adjustment**".



# POSITIONING ON THE FRAME

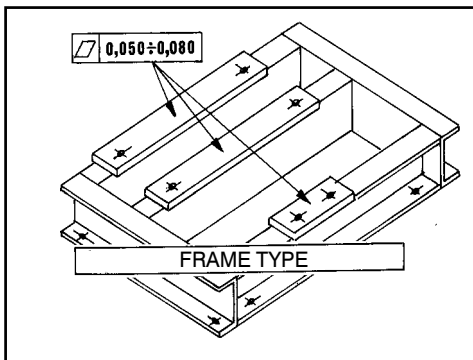
These operations are standard practice with all machines mounted on a frame and serve to keep the slow shaft perfectly horizontal once the plant is in traction. They prepare the frame for the inevitable structural deformations which could occur.

## CASE A: Slow shaft with external support, ropes direction downwards



### ALIGNMENT DIAGRAM

Set the gearbox on the frame and check that a space exceeding **0.5 mm** remains between the frame and the support. If not, the gearbox should be raised using



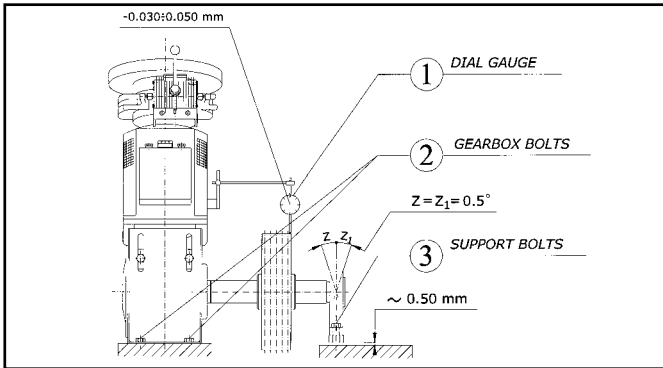
calibrated shims until the required height is reached. Fit and completely tighten the bolts to fix the gearbox to the frame. Mount the magnetic base with dial

gauge as shown in the drawing. After re-setting the dial gauge, insert the calibrated shims between the support and the support surface so that the dial gauge indicates a change in height of approx. **0.03÷0.05 mm**.

Now fit the fixing bolts for the external support and completely tighten. For tightening torque see following chart. The dial gauge, after fixing, must show a change in height of approx.  $0 \div 0.05$  mm. If not, add or remove shims under the external support until achieving the value indicated above.

DIAMETER	TIGHTENING TORQUE
M16	170 Nm
M18	283 Nm
M20	400 Nm

## CASE B: slow shaft with external support, ropes direction upwards



fixing the gearbox to the frame. Mount the magnetic base with dial gauge as shown in the drawing.

After re-setting the dial gauge, insert calibrated shims between the support and the support surface (a smaller amount than that indicated in **case A**) so that a space is left of approx. **0.1 mm**.

### ALIGNMENT DIAGRAM

Set the gearbox on the frame in alignment with the appropriate fixing holes and check that a space exceeding **0.5 mm** remains. If not, the gearbox should be raised using calibrated shims until the required height is reached. Insert and completely tighten the bolts

Fit and completely tighten the fixing bolts to the external support.

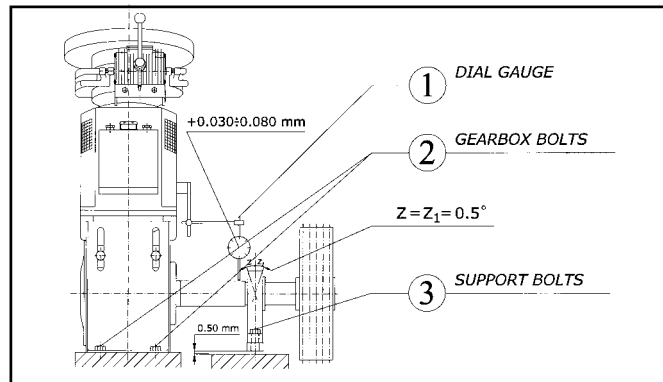
For tightening torque see chart on **page 46**. The dial gauge, after fixing, must show a lowering of approx. **0 ÷ 0.05 mm**. If not, add or remove shims under the external support until achieving the value indicated above.

## CASE C: slow shaft with intermediate support, ropes direction downwards

### ALIGNMENT DIAGRAM

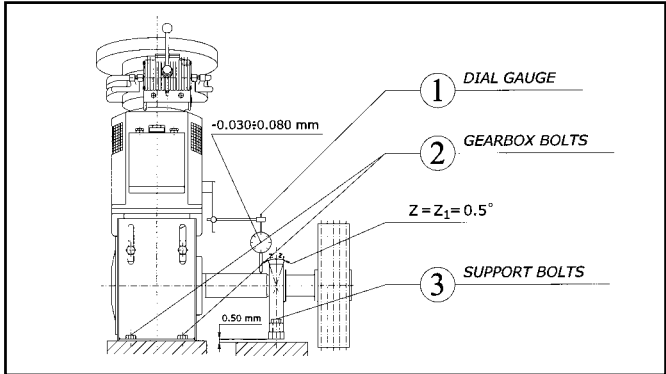
Set the gearbox on the frame in alignment with the appropriate fixing holes, position the shims, if needed, under the support, and check that a space exceeding **0.5 mm** remains between the shim and support. If not, the gearbox should be raised using calibrated shims until the required height is reached. Fit and completely tighten the bolts fixing the gearbox to the frame. Mount the magnetic base with dial gauge as shown in the drawing.

After re-setting the dial gauge, insert the calibrated shims between the support and the support surface so that the dial gauge indicates a change upwards of approx.



**0.03 ÷ 0.08 mm**. Now fit the fixing bolts for the external support and completely tighten. For tightening torque see chart on **page 46**. The dial gauge, after fixing, must show a change upwards of approx. **0 ÷ 0.08 mm**. If not, add or remove shims under the external support until achieving the value indicated above.

**CASE D: slow shaft with intermediate support, ropes direction upwards**



**ALIGNMENT DIAGRAM**

Set the gearbox on the frame in alignment with the appropriate fixing holes, position the shims, if needed, under the support, and check that a space exceeding **0.5 mm** remains between the shim and support. If not, the gearbox should be raised using calibrated shims until the required height

is reached. Fit and completely tighten the bolts fixing the gearbox to the frame. Mount the magnetic base with dial gauge as shown in the drawing.

After re-setting the dial gauge, insert the calibrated shims between the support and the support surface so that the dial gauge indicates a change inferior to that

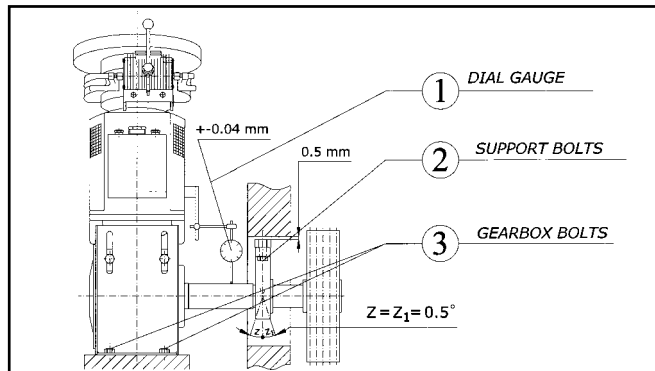
indicated in case **C** so that a space of approx. **0.1 mm** remains.

Now fit the fixing bolts for the support and completely tighten. For tightening torque see chart on **page 46**. The dial gauge, after fixing, must show a lowering of approx. **0.03 ÷ 0.08 mm**. If not, add or remove shims until achieving the value indicated above.

**CASE E: slow shaft with intermediate support, ropes direction upwards**

**ALIGNMENT DIAGRAM**

Set the gearbox on the frame in alignment with the appropriate fixing holes position the shims, if needed, under the support, and check that a space exceeding **0.5 mm** remains between the shim and support. If not, lower the gearbox support surface until the indicated value



is reached. Fit and completely tighten the bolts fixing the gearbox to the frame. Mount the magnetic base with dial gauge as shown in the drawing. After re-setting the dial gauge, insert the calibrated shims between the support and the support surface without ever forcing the shims which could otherwise

alter the dial gauge value of "0". Now fit the fixing bolts for the support and completely tighten.

For tightening torque see chart on **page 46**. The dial gauge, after fixing, must indicate a **±0.04 mm** value modification. If not, add or remove shims until achieving the value indicated above.

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# INSTALLATION AND OPERATING INSTRUCTION FOR EMERGENCY BRAKE ON SLOW SHAFT

Type Mayr (series 500/896.203.3, approved by TÜV ABV 762)

## GENERAL NOTES

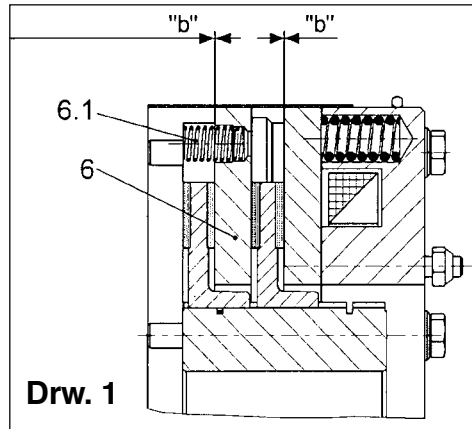
The emergency brake to reduce cabin speed in case of uncontrolled movements upwards is not included in the standard configuration of the gear. Its presence must be foreseen at order time, since the casing and the slow shaft must be worked in a way to allow the fitting of the brake. This brake cannot replace the service brake positioned on the fast axis, since it does not comply with the norm EN81-1:2005 as regards to point 12.4.2.1 of electromagnetic brakes. The correct operation of this brake depends on the feeding circuits from the control panel of the installation and the implementation of a speed limiting device complying with paragraph 9.9 and 9.10.10 of the above mentioned norm is compulsory.

## INSTALLATION

The brake is open when feeded and closed when not feeded. It is equipped with a mechanical release device which has to be removed before installation start: the device is composed by 2 hexagonal head nuts which have to be moved away from the coil carrier of about 4mm (see 5.2 of drawing 4). Two adhesive plates positioned on the brake indicate the purpose of the nuts. See chapter 'Hand release under emergency conditions'. The emergency brake must always be fitted to the gear on the horizontal axis, independently from the gear position. The braking material must not get in contact with any oil, fat or abrasive materials. It must be protected against the accidental introduction of foreign bodies, either the gear is positioned in the machine room or in the shaft. The brake is protected by a rubber cap to protect the internal rotary parts.

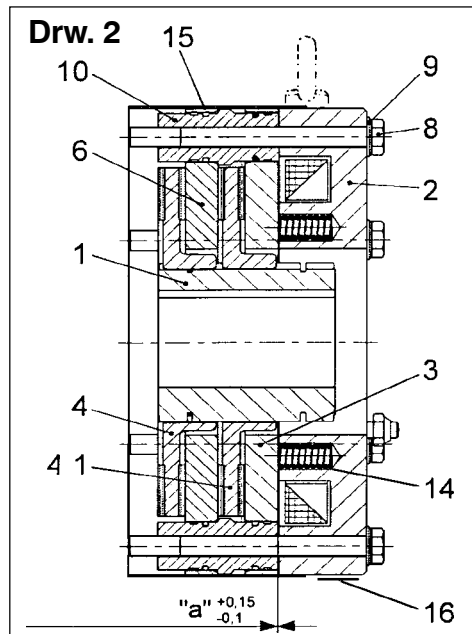
## ASSEMBLY

In case the gear is only predisposed for brake assembly, the slow shaft is especially designed to brake fitting (diameter 48mm with the related tab) with the apposite flange for coupling to the gear. The gear is supplied already pre-assembled and equipped with the related safety micro-switches. Spread Loctite 641 for coaxial locking over the cylindrical



Drw. 1

contact surface between hub and shaft, than insert the hub 1 in correspondance with the tab of the slow shaft (Drw. 2)



Drw. 2

Assemble the first braking disk 4 on the threaded hub checking that its collar is pointing away from the surface

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of the flange plate already flanged to the gear. Ensure that the splines slide easily. Assemble the remaining brake unit composed by the intermediate washer 6, the second disk 4.1, the armature disk and by the coil carrier 2 as showed in the drawing, checking that the splines slide easily. Insert the remaining 6 hexagonal cap head screws M12 (nr. 8 drw. 2 with related washers 9) and tighten them with a torque wrench and tightening torque of 123Nm. The brake was already adjusted in workshop by the manufacturer; to check the air gaps, ensure that there is a back lash of about 0.60mm (-0.1mm, +0.15mm) in position 'a', while in position 'b' (drw. 4) with energized and released brake two air gaps of 0.15mm must be given. In both cases slide the protective rubber cap, if present.

Do not interfere with microswitches, which were already adjusted and sealed with loctite 243 in workshop.

### FEEDING

Feed the brake only after release of the two hexagonal head cap screws described in previous chapter. DC current allows brake release with 270V. Keep DC current for overall cabin travel without problems, since the brake is designed for a duty cycle of 100%. Polarity reversal does not affect brake operation. Check that the feeding voltage printed on the label present in the coil carrier

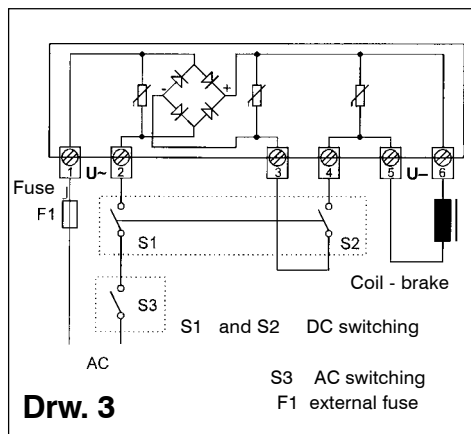
made on DC current side or on AC current side. The switch positioned on DC current allow a brake insertion time more rapid.

For this purpose see drawing 3 showing a bridge rectifier which allow a noise reduction of disks opening. Switching-on is made, on side of AC current with switch S3 and a bridge via terminals 3 and 4 (in this case there are no switches S1 and S2) or on AC and DC current sides with switches S1 and S2 (in this case there is not switch S3). Switching-off on AC current side is made through: switch S3 and a bridge on terminals 3 and 4, in this way the operation is silent but engaging time is approximate 6-8 times longer than with switching-off on DC current side with switches S1 and S2.

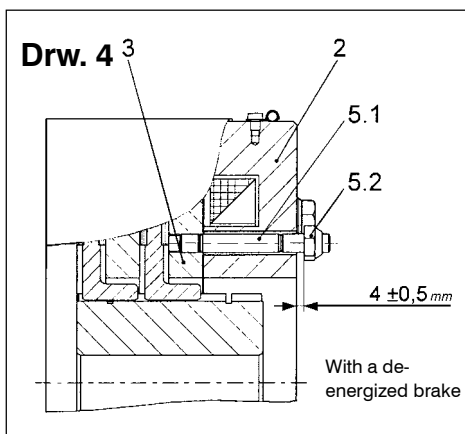
This switching-off method is recommended in case of emergency braking since the engaging time is shorter. Fuses for protection against short circuits must be provided by customer in the supply mains.

### EMERGENCY HAND RELEASE

The brake has an emergency hand release (5.1 and 5.2 drawing 4) able to reduce to zero the braking torque, thus driving the lift car upwards or downwards in case of emergency hand manouvre. For this purpose, both exagonal nuts (5.2) must be tightened towards the coil carrier 2 till the armature disk gets in contact with the coil carrier. In case of lift restart, the distance between the two nuts



is correct. DC current can be generated through either a bridge or transformer-connected rectifier. Switching-on is either be

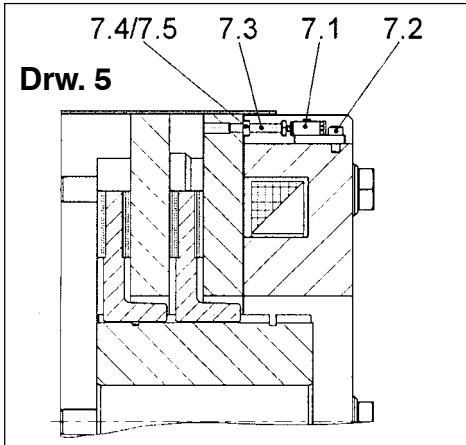


5.2 must be absolutely reset to a value of 4 mm with regards to the wall of the coil carrier.

## CHECKING THE BRAKING

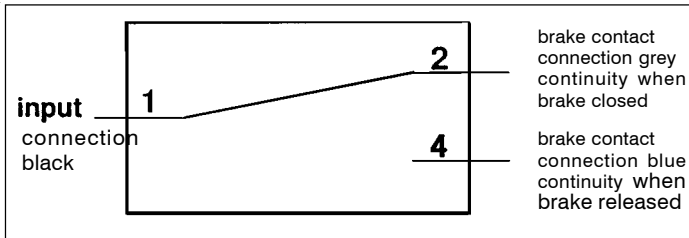
A micro switch 7.1 (**Drw. 5**) each per brake circuit gives signal for every change of the brake condition: 'brake open' or 'brake closed'. The check of the signal of both conditions is to be made by the customer.

Refer to the following diagram for the connection of each micro switches.



The electrical connection is type: 'normally open'

Release monitoring are to be checked  
 brake de-energized, closed ==> signal "OFF"  
 brake energized, open ==> signal "ON"



The micro switches are not 'fail safe', for this reason they have to be inspectionable for a possible replacement or adjustment. For this purpose refer to specific instructions of Mayr (contact Alberto Sassi or visit web site in the specific area for technical documentation). For maximum switch capacity refer to the following chart:

## MAINTENANCE

The adjustment of release run is already carried out in work shop and *must not* be modified during gear installation. We remind

Chart : Maximum switch capacity

AC switch capacity		DC switch capacity	
Voltage [VAC]	Resistance load	Voltage	Resistance load
125	5	up to 30	5
		125	0.5
250	5	250	0.25

Minimum switch capacity: 0.12VA (>12V, > 10mA)  
 Contact material: silver

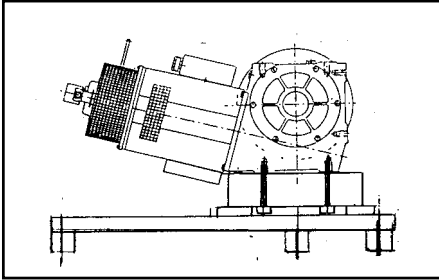
you that this brake must operate in a static and not dynamic way, exception made for the emergency conditions (uncontrolled movement of the cabin upwards). This implies that the control logic of the brake must allow its releasing *before* cabin start and its closing *after* cabin stop at floor. A correct use of the brake according to what previously indicated does not wear braking material. The standard back lash with new brake between armature disk 3 (**drw. 2**) and coil carrier 2, ranges around 0.6mm. Only in case it reaches 1.0mm the rotors and the braking lining must be replaced. For this purpose after having stopped the installation without applied loads, dismantle the brake following the previous instructions in reverse order; removing abrasive dust resulting from friction lining (wear dust masks). Replace rotors 4 and 4.1 and check that the values "a" and "b" of the air gaps correspond to those indicated in the chapter "Mounting".

## ELECTRICAL DATA.

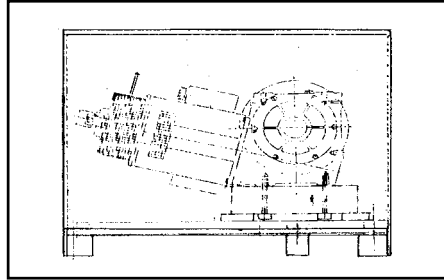
Feeding voltage : 207 V DC  
 Operating factor ED : 100 %  
 Mass : 45 kg  
 Power (maintening) : 90 W  
 Temperature in machine room: from -20 °C to + 40 °C  
 Electrical protection class : IP 54  
 Mechanical protection class : IP 20  
 Connection : 2 x 0.88 mm<sup>2</sup>

# PACKING AND TRANSPORT

## PALLET ARRANGEMENT



## CARDBOARD BOX ARRANGEMENT



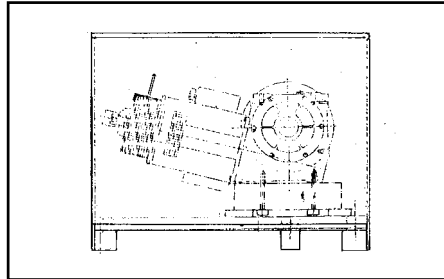
**NOTE:**  
No overstorage during transport

## BOX ARRANGEMENT

### NOTE:

One box (only one!) can be stacked onto another one only if:

- the boxes have identical dimensions
- the corners are coupled with angles



# OPENING THE PLYWOOD BOXES

The nails must be removed to open the plywood boxes.

In order to prevent the wood from splintering use the tool shown in figures **A** and **B**.

This special tool is a right-angle tube. Its short end has a **V shaped groove** with a sharpened edge. Place the centre of the sharpened side on the



nail and strike the tube with a hammer until the lip is inserted in the wood, then turn the tube using the tube elbow as leverage so that the nail head is lifted upwards.

Continue lifting so that the nail head fits into the **V** groove and is then removed.

## PERIODICAL CHECKS

Carry out the normal checks on the machine periodically. The frequency of the checks depends obviously on the operation cycles of the installation.

- every 6 months with operation cycles up to 2 hours a day
- every 3 months with operation cycles higher than 2 hours a day

Here follows we indicate the most important checks to be carried out on the machine.

**IMPORTANT! In case of interventions on the machine, please use only original spare parts supplied by ALBERTO SASSI.**

**OIL:** In case of light oil sweating in the ending part of the shaft or in the vent plug do not add oil.

Should anomalous oil leakages occur, please contact directly the after-sales department of **ALBERTO SASSI** indicating the machine serial number to fasten the solution of the problem. (see page 33 plate B)

**BRAKE:** Check the noise level of the brake with double front disks during the opening and closing operations.

The level should not exceed the average values, since the controls already carried out in our works foresee opening gaps extremely short .

Should the noise level increase in a strange way, please refer to the specific instructions regarding the dismantling and maintenance operations for the brake 30F0.

During machine running, control that any strange noise occur between the brake.

IN CASE DI NECESSITY CONTACT DIRECTLY THE SUPPLIER OF THE BRAKE.

AS FAR AS THE BRAKE DRUM IS CONCERNED, PLEASE REFER TO PAGE 44.

**GROOVES OF THE SHEAVE:** The sheaves are expressly designed for the gear LEO and do not present any sheave flange. During the periodical checks regarding the wear condition of the grooves, control the depth of the undercuts. We suggest to replace the sheave only when the ropes have worn the half of the undercut depth. To fix the sheave on the slow shaft use a special nut ring M55x2, which is locked by means of four high resistant screws M10. These screws are tightened in sequence with a tightening torque of 40 Nm and are specially developed to prevent the unscrewing of the ring nut. As additional safety measure, Loctite type 243 is applied on the threads of the 4 screws M10 to strengthen the tightening of the ring nut. A steel-made spacer between the ring nut and the sheave prevents the frontal screws from deforming the surface of the pig-iron hub, on which the a/m screws exert their pressure. This fact assures a constant thrust .

**BACKLASH:** the backlash between the worm/ worm-wheel should be checked every 3÷4000 running hours. With installation subject to high duty we suggest a check every 2 years.

Should the backlash exceeds 0,7 mm, please refer to **ALBERTO SASSI** or see relative chapter in the handbook for "Fitting and unfitting repair parts".

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