

# USE AND MAINTENANCE MANUAL

## LATERAL TURNOVER 360°

ORIGINAL INSTRUCTIONS

### INTRODUCTION

This manual includes instructions for assembly, maintenance (regular and extraordinary), and for possible faults with remedies.

The instructions provided in this manual do not replace but complement obligations for compliance with existing legislation on safety and accident prevention, which are the obligation of the User. The User is also bound to follow all instructions in this manual including training of personnel both in the use of the equipment and its maintenance.

### SPECIFICATIONS AND USE OF EQUIPMENT

Equipment for attachment to forklifts, where lateral rotation of the load is required to empty crates or containers. Consisting of a frame with hooks with ISO 2328 profile for attachment to the forklift; gearmotor with worm and worm wheel rotation control;

ball bearing with toothed outer ring to sustain the load to rotate; cover with bars with ISO 2328 profile for attachment of the supplied forklift forks; forks locking and positioning brackets.

### SYMBOLS USED



Situation with possible risk to the operator's safety.



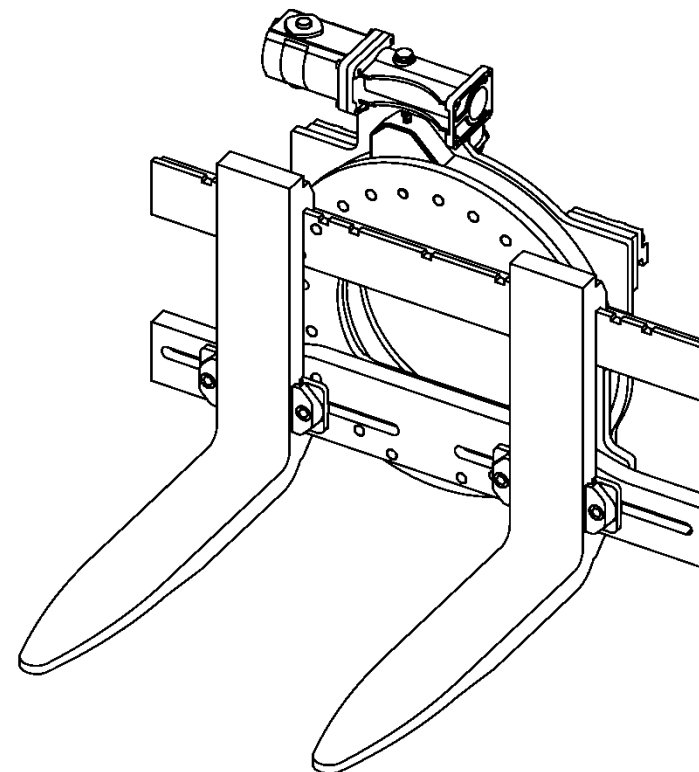
Mandatory procedures to be carried out.



Notes to be read carefully.

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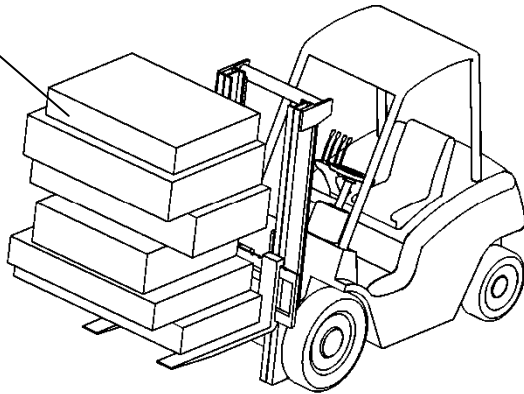


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## 1. ADVICE FOR THE EQUIPMENT'S USE

### 1.1. PROHIBITED HANDLING

Carry a load that is unstable, decentralised or on a single fork; too bulky reducing visibility; with a weight greater than the specified lifting capacity; move a load already deposited using the load to be deposited. using the equipment when structurally defective or malfunctioning.



Performing movements or manoeuvres with the load lifted high.

Proceeding at high speed in the presence of the uneven ground or uphill ramps.

Transporting people with the forklift or the equipment or performing manoeuvres with people in the operating range.

Parking the forklift truck with the engine running and/or load lifted on uneven ground or ramps.

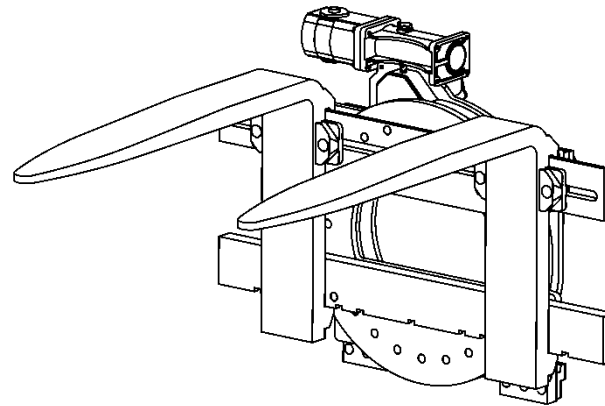
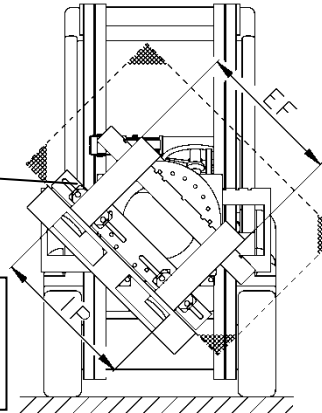
### 1.2. CORRECT HANDLING

The external distance of the forks "EF" must be 4-8 cm less than the internal measurement "IP".

Introduce the pallet or container from the side with slots closed on 4 sides.

Pay particular attention that the load does not hit the floor or side obstructions while rotating.

When moving with the forklift truck, keep the mast tilted (the tip of the fork up), the load slightly off the ground, adjusting the speed according to the state of the road surface and any obstacles or presence of people along the route.



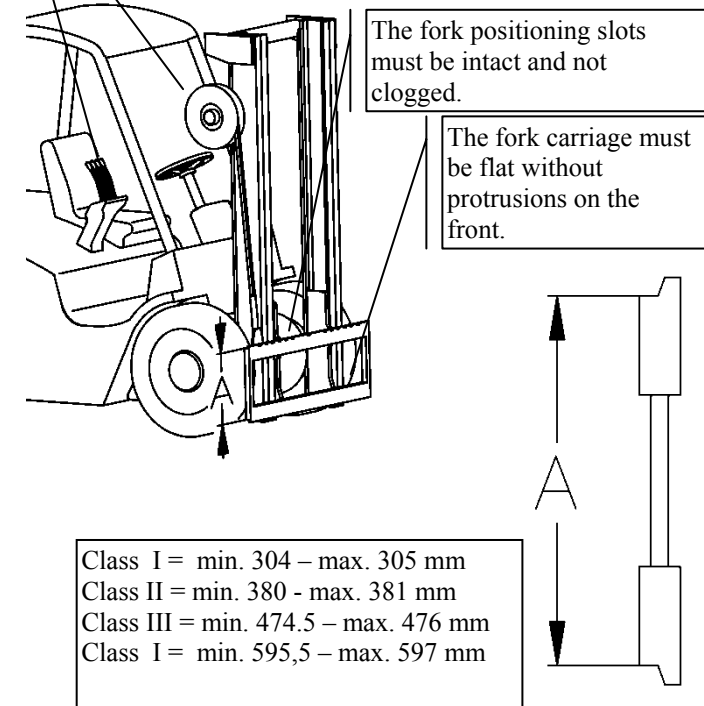
Use the equipment for emptying containers or bins only. The forks limit the capacity of the equipment during rotation (right or left). Suitable forks are required if full rotation of the load is necessary.

### 2. FORKLIFT CONTROLS

The hydraulic pump of the forklift must have a max. delivery pressure of 23 to 25 MPa to the distributor, and a capacity of:  
Class I = 15 l/min.      Class II = 25-35 l/min.  
Class III = 60 l/min.      Class IV = 90 l/min.

4-level distributor for movements control.

The recommended inner diameter for any additional supply system is at least 9.5 mm.



The fork positioning slots must be intact and not clogged.

The fork carriage must be flat without protrusions on the front.

Class I = min. 304 – max. 305 mm  
Class II = min. 380 - max. 381 mm  
Class III = min. 474.5 – max. 476 mm  
Class I = min. 595,5 – max. 597 mm



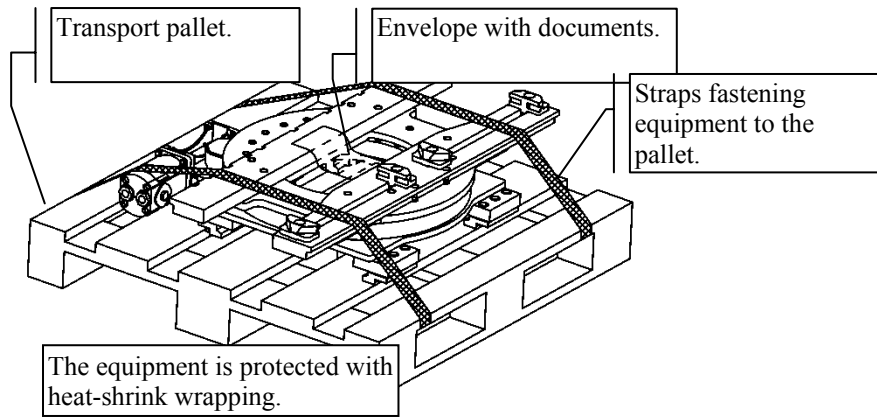
**USE OF THE EQUIPMENT FOR PURPOSES OR HANDLING DIFFERENT FROM THAT INDICATED IS PROHIBITED.**



**THE EFFECTIVE COMBINATION CARRYING CAPACITY BETWEEN THE FORKLIFT TRUCK AND THE EQUIPMENT IS THE RESPONSIBILITY OF THE FORKLIFT TRUCK MANUFACTURER AND MAY NOT CORRESPOND TO THAT INDICATED ON THE RATING PLATE. CONTACT THE MANUFACTURER OF THE FORKLIFT TRUCK FOR THE DEFINITIVE CARRYING CAPACITY.**

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## 3. EQUIPMENT DESCRIPTION

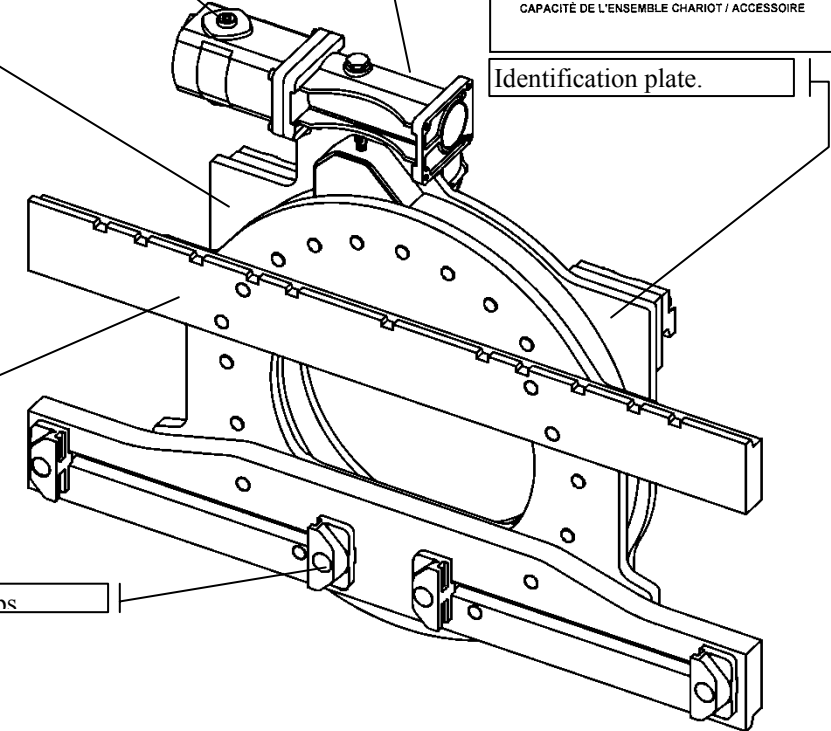
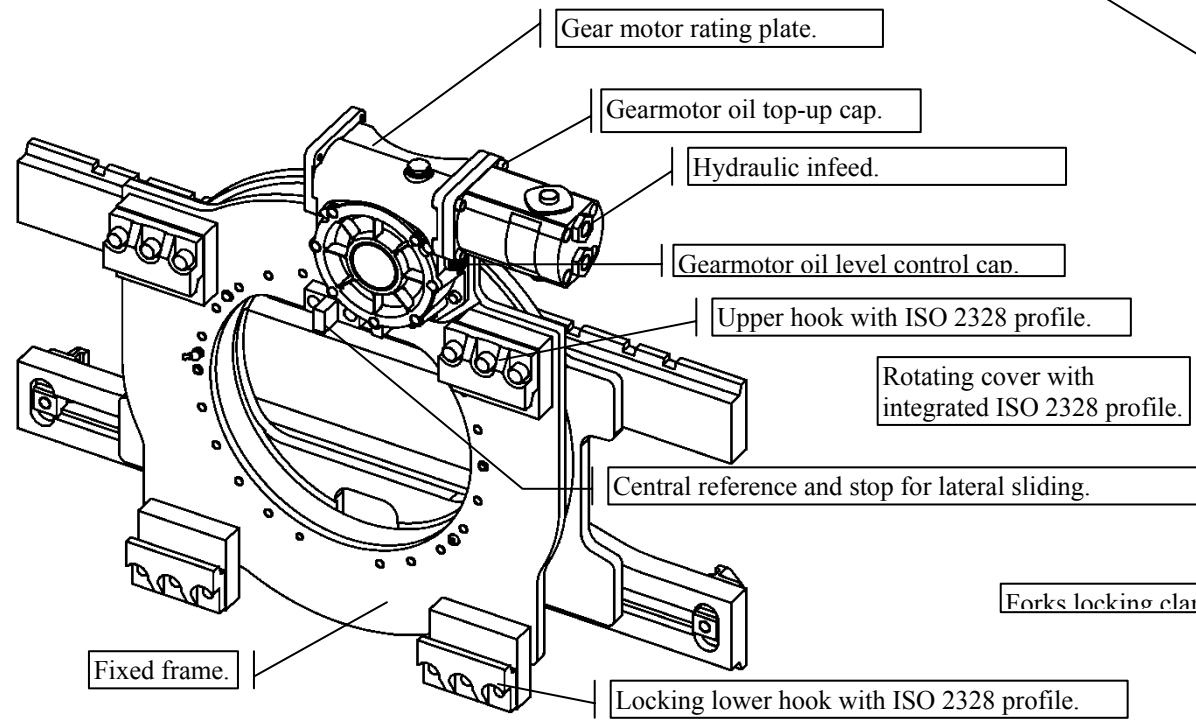


Safety stickers.

Reduction unit with worm and worm wheel.

Hydraulic motor.

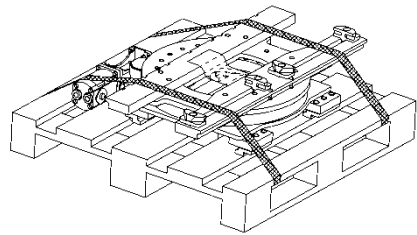
CE	ANNO FABBRIC. - BAUJAHR	
	MNFG. YEAR - ANNE FABRIC.	
TIPO - TYP		
TYPE - TYPE		
MATRICOLA - FABRIK NR.		
S. NUMBER - NR. FABRIC.		
PORTATA STRUTT. - TRAGKRAFT		KG
STR. CAPACITY - CAPACITE STRUCT.		
CON BARIC. A - MIT L. SP.		MM
WITH C.O.G. AT - AVEC C.D.G. A		
SPESORE - VORBAUMASS		MM
THICKNESS - EPAISSEUR		
MASSA - EIGENGEWICHT		KG
WEIGHT - MASSE		
BARICENTRO - SCHWERPUNKT		MM
C.O.G. AT - C.D.G. A		
PRESSIONE MAX ESERCIZIO - MAX		BAR
BETRIEBSDRUCK - MAX WORKING		
PRESSURE - PRESSION MAX SERVICE		
RISPETTARE LA PORTATA COMPLESSIVA DEL CARRELLO E DELLA ATTREZZATURA - TRAGFÄHIGKEIT VON STAPLER UND ANBAUGERÄT BEACHTEN - RESPECT CAPACITY OF TRUCK AND ATTACHMENT ASSEMBLY - RESPECTER LA CAPACITÉ DE L'ENSEMBLE CHARIOT / ACCESSOIRE		



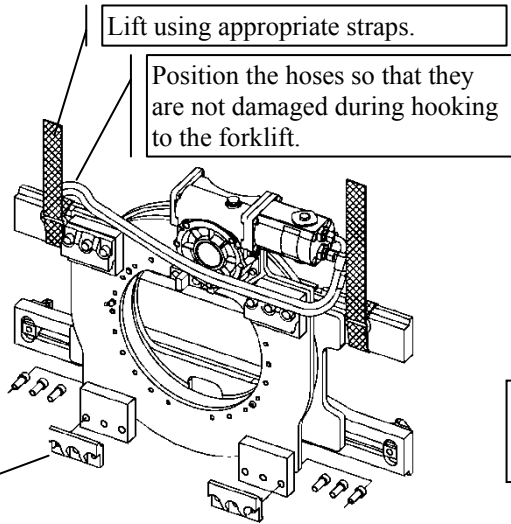
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## 4. FASTENING TO THE FORKLIFT

### 4.1. COUPLING



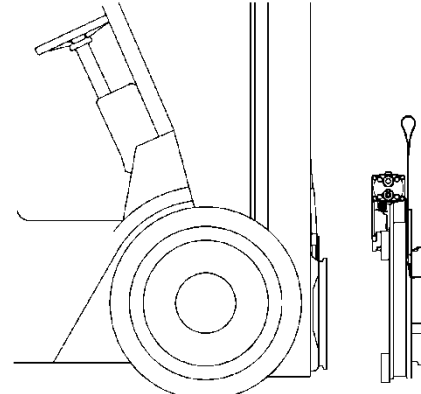
Remove the heat-shrink sleeve and the fixing belts.



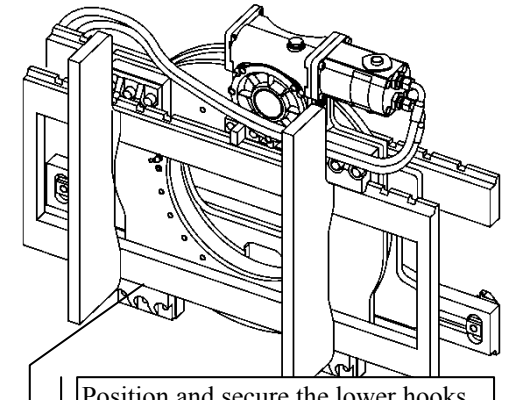
Lift using appropriate straps.

Position the hoses so that they are not damaged during hooking to the forklift.

Disassemble the lower hooks.  
ISO 2936 12 mm wrench.



Connect the equipment to the forklift so that the central stop engages the central notch of the fork carriage.



Position and secure the lower hooks, ISO 2936 wrench.  
Wrench size (mm) / bolt tightness (N/m): Class2= 12/ 219  
Class3= 14 / 341 Class4= 14 / 471

### 4.2. HOSE CONNECTIONS



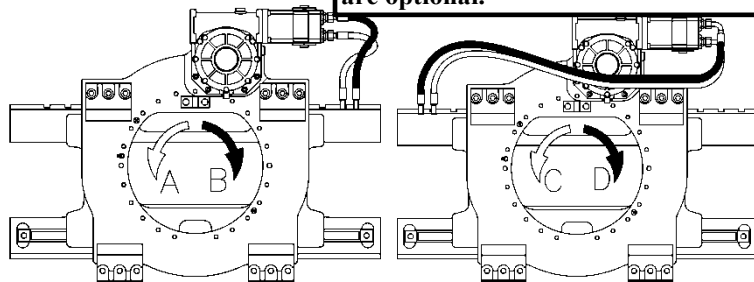
Before connecting the hydraulic hoses, follow the manufacturer's instructions to remove the pressure in the forklift's circuit.



Possible leakage of oil from pipelines. Prepare a container to collect fluid.

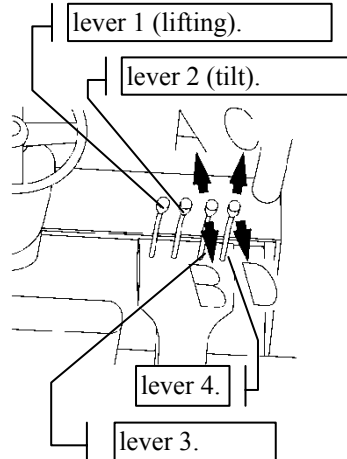


The connecting hoses between the motor and the system of the forklift are optional.



Hose connections using lever 3.

Hose connections using lever 4.



To check the connections, perform 5 complete movements, with and without the load.

### 4.3. FORK ASSEMBLY

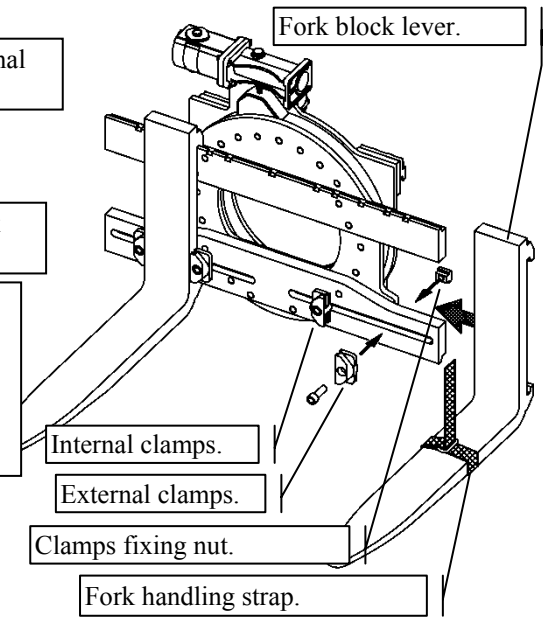
1) Loosen the screws of the internal clamps to allow sliding.

2) Remove the external clamps.

3) Place the fork stop in the "fork free" position.

4) With the help of a suitable strap, laterally insert the forks onto the ISO 2328 profile of the rotating cover and position them in relation to the container to be moved.

5) Position the internal and external clamps in contact with the forks. Tighten the screws of the claps.



Wrench size ISO 2936 (mm) / tightness (N/m) for clamp screws:  
-Class2 and 3= 14 / 341 -Class4=14 / 471



The forks are off balance during handling.

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## 5. DAILY CONTROLS

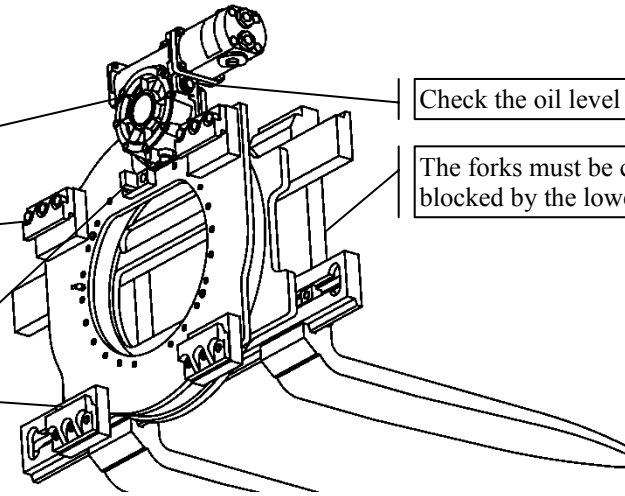
**At the beginning of the shift check the points indicated and report any problem to the maintenance personnel.**

Check for leaks of oil on the gearmotor or grease in the coupling of the rotating cover and the base frame.

Check the correct tightness of the upper hooks fixing screws.

The centre tooth of the equipment must engage the central notch of the forklift's fork carriage.

Check the correct positioning and fastening of the lower hooks.

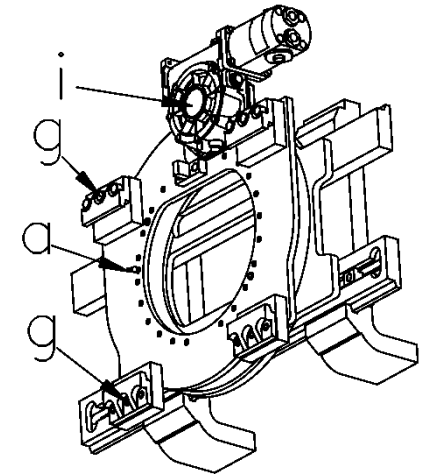
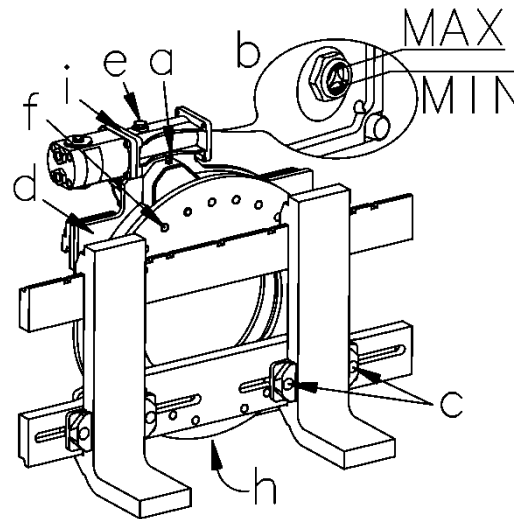


Check the oil level of the gearmotor.

The forks must be correctly hooked and blocked by the lower clamps.

## 6. ROUTINE MAINTENANCE

PERIODIC MAINTENANCE SCHEDULE	
OPERATIONS	Working hours
Lubrication in point "a". Repeat the operation every 90° of rotation.	100
Check the oil level of the reduction unit "b". Use cap "e" for eventual top-up.	
Control of bolts tightness and hydraulic connections.	
Check that the clamps "c" are in contact with the forks and the screws are tightened (see point 5.)	
Verify that the identification plates and warning stickers in "d" remain clearly legible.	
In addition to the operation every 100 working hours, carry out:	
Check tightness (see point 4.1.) of the upper and lower hook fixing screws "g".	500
Check the tightness of the rotating cover fixing screws "f". See procedure in points 7.1. and 7.5.	
Check for leaks at points "h" and "i" for eventual replacement of seals or covers.	
Control the condition of the hoses and connectors.	
In addition to the operation every 100 and 500 working hours, carry out:	
Control the wear of the lifting forks.	2000
Examination for deformation or break in the structure or welds.	



Position "a" grease nipple UNI 7763-AM6-5.8

**Advised lubricants.**  
Grease for points "a": AGIP F1 GR MU/EP2.  
Oil for point "e": AGIP BLASIA 460.

**Before disconnecting-connecting the hydraulic hoses, follow the manufacturer's instructions to remove the pressure in the forklift's circuit.**

**THE WORKING HOURS SHOULD BE HALVED WHEN USING THE EQUIPMENT IN DUSTY, DAMP OR CORROSIVE ENVIRONMENTS.**

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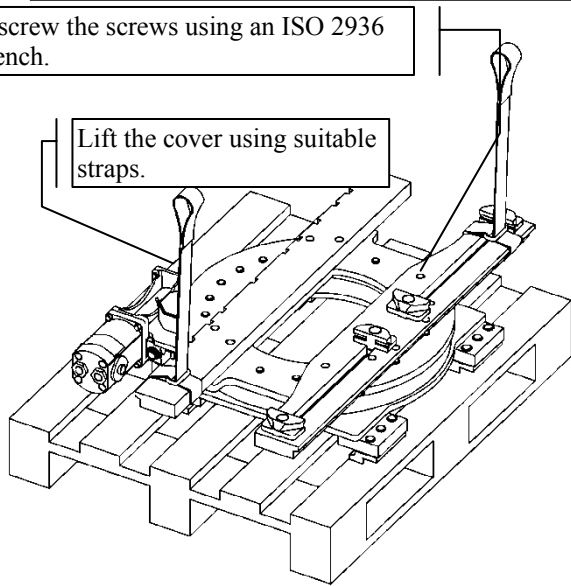
## 7. EXTRAORDINARY MAINTENANCE

### 7.1. DETACHMENT OF THE ROTATING COVER

Place the equipment on the ground or on a pallet.

Unscrew the screws using an ISO 2936 wrench.

Lift the cover using suitable straps.



To attach the cover, tighten the screws following the procedure in paragraph 7.4.

Wrench size and screw tightness.

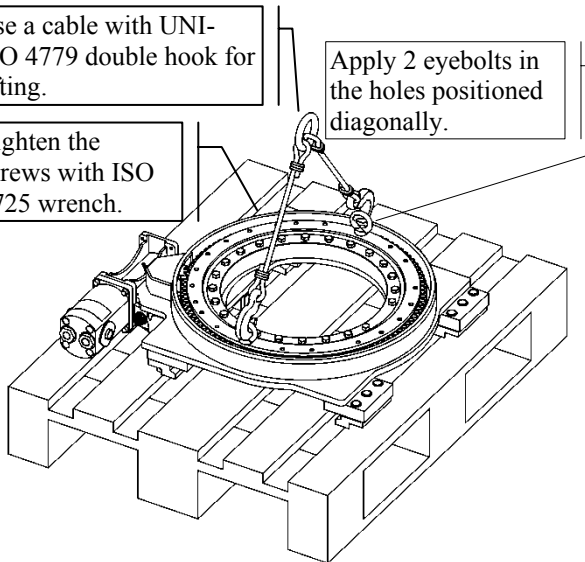
Capacity TON.	Wrench mm	Tightness N/m
2,0	8	79
2,5	10	136
3,5	10	136
4,5	10	136
5,5	12	219

### 7.3. DETACHMENT OF THE TOOTHED BEARING

Use a cable with UNI-ISO 4779 double hook for lifting.

Apply 2 eyebolts in the holes positioned diagonally.

Tighten the screws with ISO 2725 wrench.



To fix the toothed bearing, tighten the screws following the procedure in paragraph 7.4.

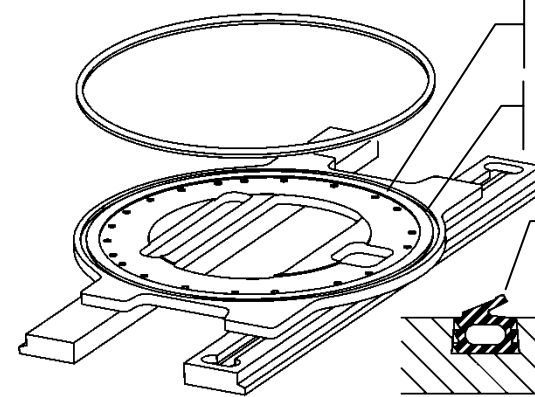
Dimension of UNI 2947 eyebolt	Wrench size and screw tightness.		
	Capacity TON.	Wrench mm	Tightness N/m
M 12	2,0	19	79
M 10	2,5	17	46
M 12	3,5	19	79
M 12	4,5	19	79
M 14	5,5	22	127

### 7.2. REPLACEMENT OF COVER SEAL

If necessary, remove the worn seal with an ISO 2380 screwdriver.

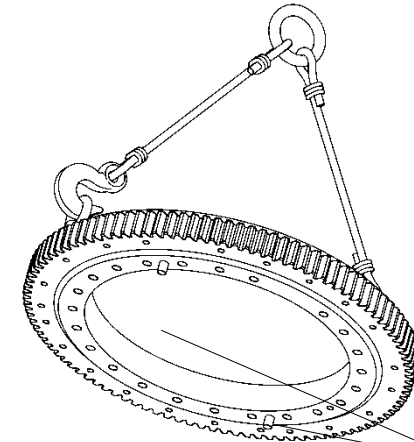
Insert, with pressure, the new seal in the clean slot.

Arrangement and direction of the seal.



The seal does not lose its functionality even if it does not have the ends glued together.

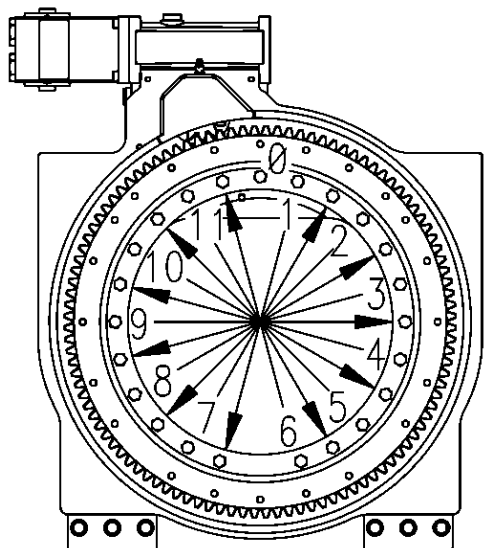
### 7.4. ASSEMBLY OF THE TOOTHED BEARING



During the positioning and assembly of the toothed bearing, check that the pins are fully inserted into the holes of the bearing and the base frame.

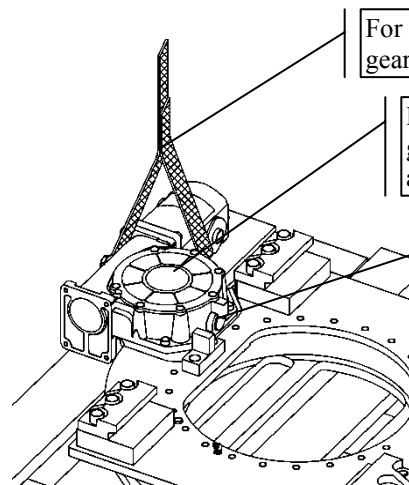
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## 7.5. BOLTS TIGHTENING PROCEDURE



1) Tighten the screws with about  $\frac{1}{4}$  of the N/m force, in opposing pairs, indicated by numbers and arrows, following the sequence: 1-4-7-10-2-5-8-3-6-9-11-0.  
2) Repeat the tightening in sequence with the full force (see 7.1. and 7.3.)

## 7.6. GEARMOTOR DETACHMENT



For capacities of 2.0-2.5 tons, move the gearmotor unit using appropriate straps.

For capacities 3.5-4.5-5.5 Tons, move the gearmotor unit using eyebolts inserted in the available holes.

Unscrew the screws using an ISO 2936 wrench.

For the fixing of the gearmotor unit.



The balance may be insecure during the handling of the gearmotor unit.

Wrench size and screw tightness.		
Capacity TON.	Wrench mm	Tightness N/m
2,0	8	79
2,5	8	79
3,5	10	136
4,5	10	136
5,5	12	219

## 8. LIST OF POSSIBLE FAULTS WITH CAUSES AND REMEDIES

Rotation is not performed or it is too slow.	Insufficient oil pressure and/or flow rate.	Control and/or regulation of the forklift's hydraulic pump.
	Hydraulic circuit blocked or broken.	Eliminate obstruction or replace damaged hose.
	Residual air in the hydraulic circuit.	Control of the oil level in the tank of the forklift. Bleed the residual air in the hydraulic circuit.
	Hydraulic motor worn.	Replace the motor.
A forward jolt occurs when exceeding the upper neutral point.	Load too decentralised and/or greater than indicated on the rating plate.	Checking the load and its position relative to the centre of rotation.
	Load too decentralised and/or greater than indicated on the rating plate.	Checking the load and its position relative to the centre of rotation.
	Hydraulic motor worn.	Replace the motor.
Excessive noise or unusual vibration.	Reduction unit gears worn.	Replace the gears.
	Obstructions in the hydraulic circuit.	Eliminate obstruction or replace hose.
	Insufficient oil flow.	Control and/or regulation of the forklift's hydraulic pump.

**IN CASE OF PROBLEMS OTHER THAN THOSE DESCRIBED ABOVE, PLEASE CONTACT OUR SERVICING DEPT.**

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## 9. NOISE EMISSION



**THE FOLLOWING SPECIFICATIONS APPLY TO THE FORKLIFT-EQUIPMENT UNIT.**

- Sound pressure level of the weighted emission A in the workplace, where this exceeds 70 dB (A); if said level does not exceed 70 dB(A), it must be indicated.

-Maximum weighted instantaneous sound pressure C in the workplace, where this exceeds 63 Pa (130 dB relative to 20 µPa).

- Weighted sound power level A emitted by the machine, if the sound pressure level of the weighted emission A in workplaces exceeds 80 dB (A).

## 11. WARRANTY

The manufacturer guarantees all its products for 12 months or 2000 working hours (whichever situation occurs first) from the date of shipment.

If used more than 8 hours per day the warranty period shall be reduced proportionately.

The warranty is limited to the replacement, ex-factory of the manufacturer, of those parts identified as being defective due to defects in materials or workmanship; it does not include the cost of labour or travelling expenses for the replacement of such parts.

It is further understood that recognition of the warranty is void if the anomaly results from the inappropriate use of the product, if the implementation was not carried out according to the manufacturer's specifications or if non-original parts have been used for modifications or replacement.

The equipment is not guaranteed for uses that exceed the performance indicated on the rating plate and in the documentation.

All equipment is covered by insurance for any damage caused to third parties by defective parts or their malfunction; damage caused by improper use or misuse is not included.

## 10. RECYCLING

Replaced parts should be disposed of, as in the case of complete destruction, separately depending on the nature of the material and in compliance with the requirements of the law on the disposal of solid industrial waste.

NB: The pieces not mentioned in the table are made of steel.

Transport pallet	Wood
Straps and protective cover for shipment	Heat shrink polyester
Reduction unit worm wheel	Bronze and cast iron
Hoses / connectors	Polyester / steel
Seals	Polyurethane and NBR
Paint	Epoxy polyester
Gearmotor oil and grease	Dispose of in compliance with local regulations

## 12. FACSIMILE OF THE EC CONFORMITY CERTIFICATE

Dichiarazione CE di Conformità

Noi NOME COSTRUTTORE

INDIRIZZO COSTRUTTORE

XXXXXXXXXXXXXXXXXX

Dichiariamo sotto la nostra esclusiva responsabilità che il prodotto:

Tipo YYYYYYYYYYYYYYYYYY

Marca XXXXXXXXXXXXXXXXXX

Modello XXXXXXXXXX

Matricola JJJJJJJJJJ

Anno di fabbricazione VVVV

è conforme alle disposizioni della Direttiva Macchine 2006/42/CE e alle disposizioni della norma EN 1726-2

Persona autorizzata a costituire il fascicolo tecnico

Nome Pietro

Cognome Foroni

Posizione Direttore Ufficio Tecnico

Indirizzo 29027 Casoli di Podenzano - Piacenza (Italy)

Persona autorizzata a redigere la dichiarazione

Nome Claudio

Cognome Carnieletto

Posizione Direttore Assicurazione Qualità e Post Vendita



Piacenza, 10 dicembre 2009