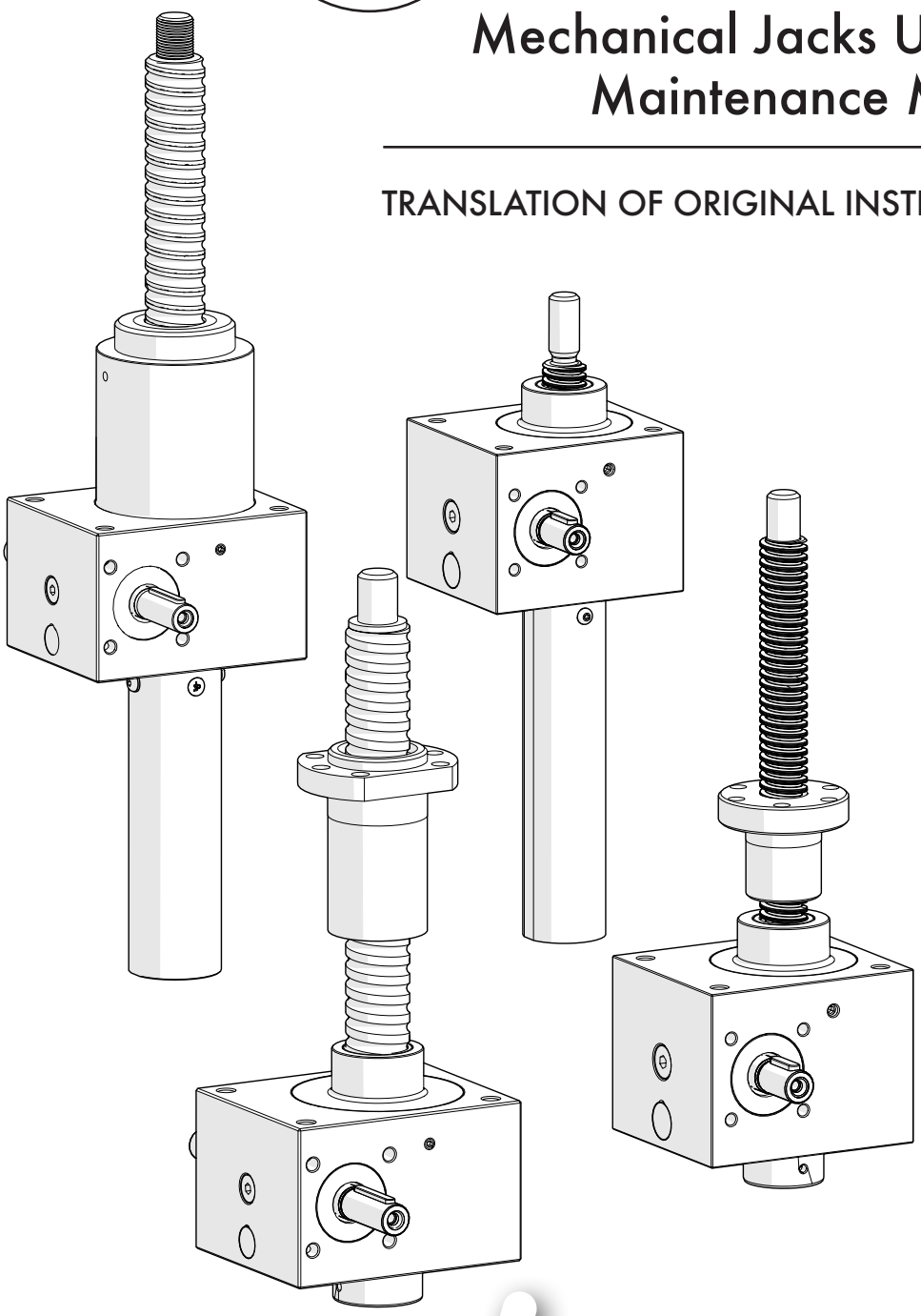
# UP Series

## Mechanical Jacks Use and Maintenance Manual

TRANSLATION OF ORIGINAL INSTRUCTIONS



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Page

# USE AND MAINTENANCE MANUAL FOR UP SERIES JACKS
## TRANSLATION OF ORIGINAL INSTRUCTIONS

# USE AND MAINTENANCE MANUAL FOR UP SERIES JACKS

## INTRODUCTION

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## 1. GENERAL INFORMATION ABOUT THE DOCUMENT

### 1.1 Consulting the operating manual

Read the operating manual carefully before installing and using the jack.
Keep the operating manual for the life of the jack.
Make this manual accessible to operating personnel and maintenance personnel at all times.

### 1.2 Symbols and markings


Warning sign: pay utmost attention: Failure to comply can cause very serious injuries or damage to people or things


Electrical hazard: indicates the danger for the operator caused by contact with live electrical equipmen


Pericolo di schiacciamento alle mani


Danger of crushing hands


Generic obligation: indicates the obligation to be observed in keeping the machine in good safety and working conditions


Mandatory sign: use protective gloves


Mandatory sign: use protective shoes


Mandatory sign: use a safety helmet


Consultation obligation: indicates the obligation to carefully read the Instruction Manual before performing start-up, adjustment, maintenance operations, etc. on the machine


General prohibition: indicates a prohibition to be respected for safety reasons or for the correct use of the product

# 2. SAFETY

The jack is not and must not be regarded as a safety device.
The range of **DZ Trasmissioni UP series** mechanical jacks has been designed and built to achieve ease of use and high reliability, respecting recognised technical safety rules.
However, during use, there may be dangers to the safety of the operator or damage to the jack or other material assets in the area of the jack.


Before carrying out any operation, carefully read the instruction manual.


All installation and maintenance operations must be carried out by specialised personnel


The jack cannot be used as a safety component


Do not use the jacks if there are faults that need to be repaired prior to commissioning


It is forbidden to modify the jacks unless authorised by DZ Trasmissioni


Use only original spare parts supplied by DZ Trasmissioni.


Power the equipment with the voltage indicated on the plate data.


Always make sure you have disconnected the power before carrying out any inspection, service or cleaning.


Do not use clothing that can get caught in moving parts, it is advisable to use clothing approved for accident prevention purposes. In any case, consult the employer on the safety regulations in force.

## 2.1 Intended use

The UP series jacks are only suitable for lifting, lowering, overturning and forward movements within the load and stroke limits indicated in the catalogue.
They can be used singularly or in lifting systems consisting of several jacks.
The responsibility for compliance with the load and use limits lies with the user.

## 2.2 Intended use

The **DZ Trasmissioni UP** series mechanical jacks cannot be used for applications as indicated below.

**It is forbidden:**


It is forbidden to use the jack in a construction configuration other than that provided in the catalogueo


It is forbidden to use the jack outdoors, without adequate equipment and degree of protection


It is forbidden to use the jack in places at risk of explosion and/or fire (the jack is not certified according to the CE ATEX directive)


It is forbidden to use the jack in places with chemically aggressive atmospheres


It is forbidden to use the jack in places where a special degree of electrical protection is required


It is forbidden to use the jack in places where a special degree of protection of the casings is required


It is forbidden to integrate other systems and/or equipment not considered by **DZ Trasmissioni** in the executive project


It is forbidden to use the jack with parts that have been removed, tampered with or wired differently

## 2.3 Residual risks

Although all available measures were adopted during the design phase to avoid dangers when using the jacks, the risk analysis highlighted possible residual risks that may occur during use, maintenance and replacement operations. The measures that the operator will have to take are listed below.

| | HAZARD | PART | MEASURE |
|---|---|---|---|
|  | Hightemperatures | Motor<br>Gearbox<br>Translating shaft | Wear the prescribed PPE<br>Wait for the components to cool down |
|  | Electric voltage | Motor | Cut off the power supply before any intervention |
|  | Crushing | Unprotected moving parts | Cut off the power supply before any intervention<br>Wear the prescribed PPE<br>Wear clothing that prevents the risk of being dragged |

## 2.4 User obligations

The user or manufacturer of the machine or system must ensure that the jacks are installed and used in accordance with this manual and the safety standards in force in the country of installation and use. The user must ensure that the personnel responsible for installing and using the jacks are qualified and authorised and have read and understood the operating manual, are aware of the safety regulations in force and are wearing personal protective equipment.

## 2.5 Standard environmental conditions of use

The mechanical jack must be used in an environment whose conditions comply with the requirements of DZ Trasmissioni.
The works necessary for obtaining and maintaining them are the responsibility of the user and, where applicable, the responsibility of the end user.

The mechanical jack must be installed and used in closed and dry premises, with environmental conditions as specified below:

- Room temperature +0°C ÷ +40°C
- Relative air humidity 5% ÷ 85%
- Without condensation

The jack must be installed and used in premises where the constant lighting conditions of at least 500lux required by the UNI EN 1837:2009 standard are met in the operating area, or according to specific regulatory requirements for the type of processing in question.

## 3. SUPPLY STANDARDS

The jacks are supplied in suitable packaging to prevent any damage caused by shipping.
The type and shape of the packaging may vary depending on the type of jack and the quantities. All jacks are supplied with an identification label showing the product code and model.
This manual is not provided in printed form but is available on www.dztrasmission.com.

## 4. PRODUCT DESCRIPTION

The mechanical jack makes it possible to transform the rotary movement provided by an electric, pneumatic, hydraulic or even manual motor into a linear movement that allows vertical lifting through pulling, pushing or horizontal positioning.

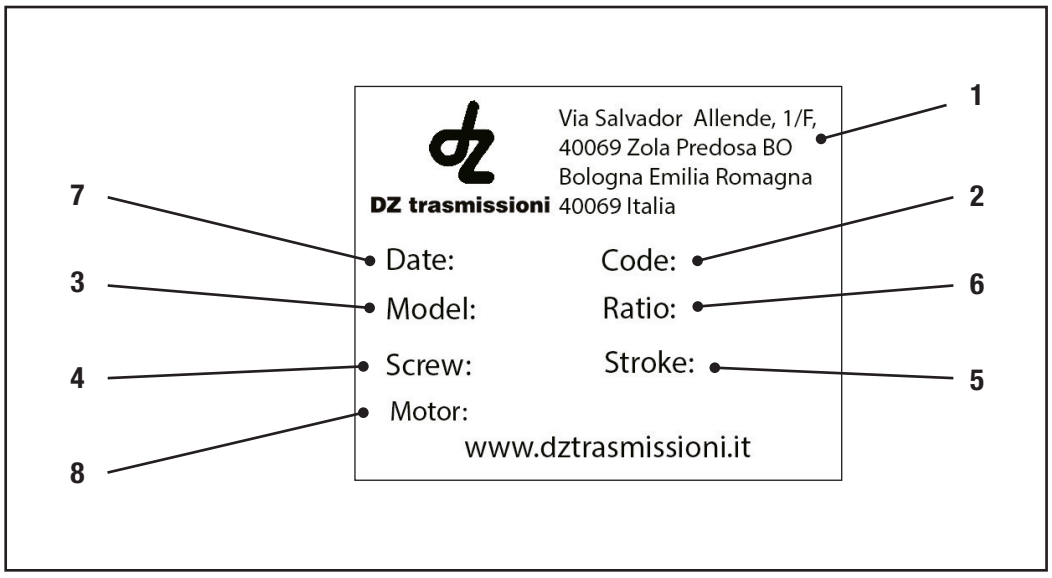
Our range of UP series mechanical jacks has been designed and built to obtain ease of use and high reliability, making them suitable for the most varied uses.
They can be used individually or in configurations consisting of several jacks connected to each other by means of right-angle mitre gearboxes, transmission shafts and couplings, allowing the creation of perfectly balanced lifting and drive systems even with unevenly distributed loads.

They can be used to lift, pull, move, align any type of load with perfect synchronism, which is difficult to achieve with other types of movements.
They can be applied both with vertical assemblies facing up or down, and in horizontal assemblies. Our standard range includes 6 sizes with loads from 2.5 to 100 kN.

There are two standard reduction ratios that vary according to the size and pitch of the trapezoidal screw to always guarantee the same translation speed for all sizes.

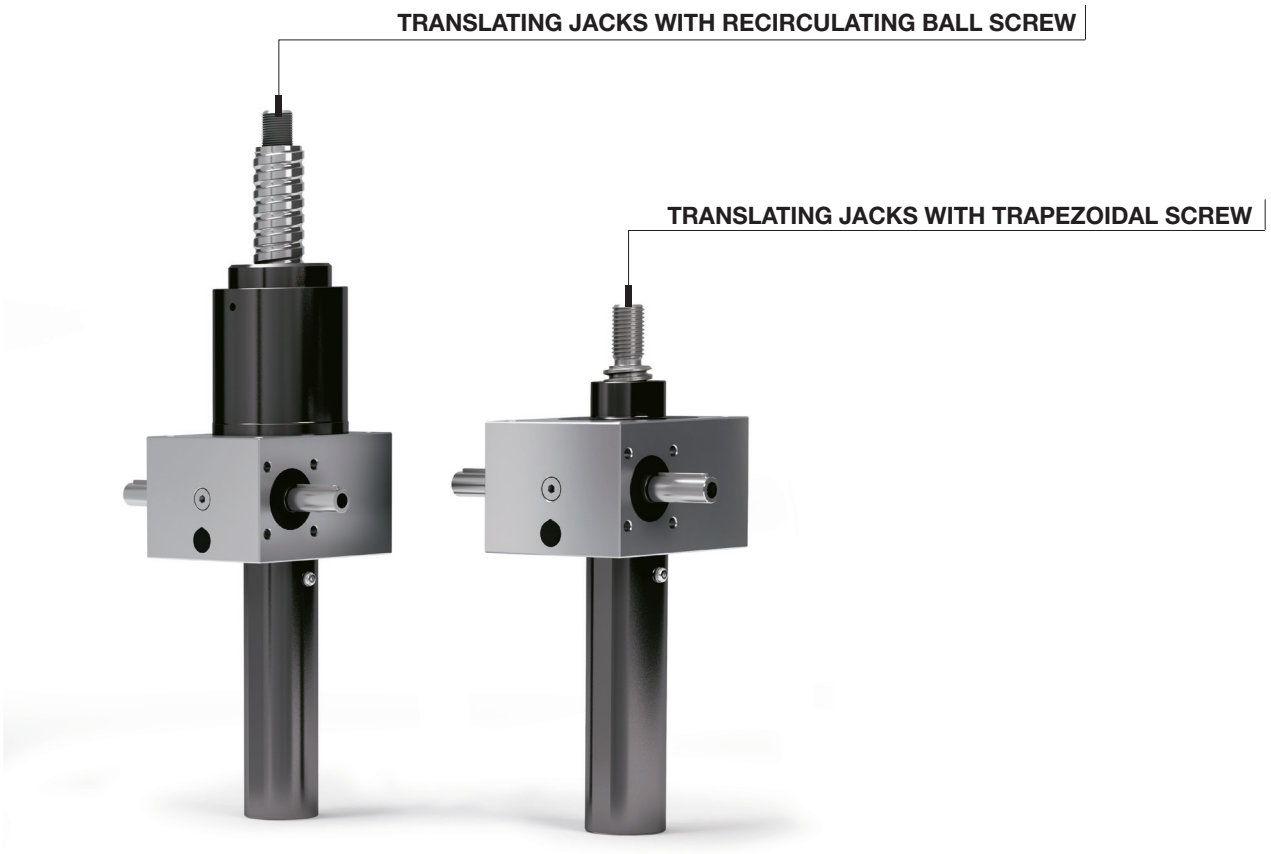
### 4.1 Plate

1 DZ Trasmissioni contact details.
2 Product code.
3 Model.
4 Screw type.
5 Stroke.
6 Reduction ratio.
7 Production date.
8 Motor.

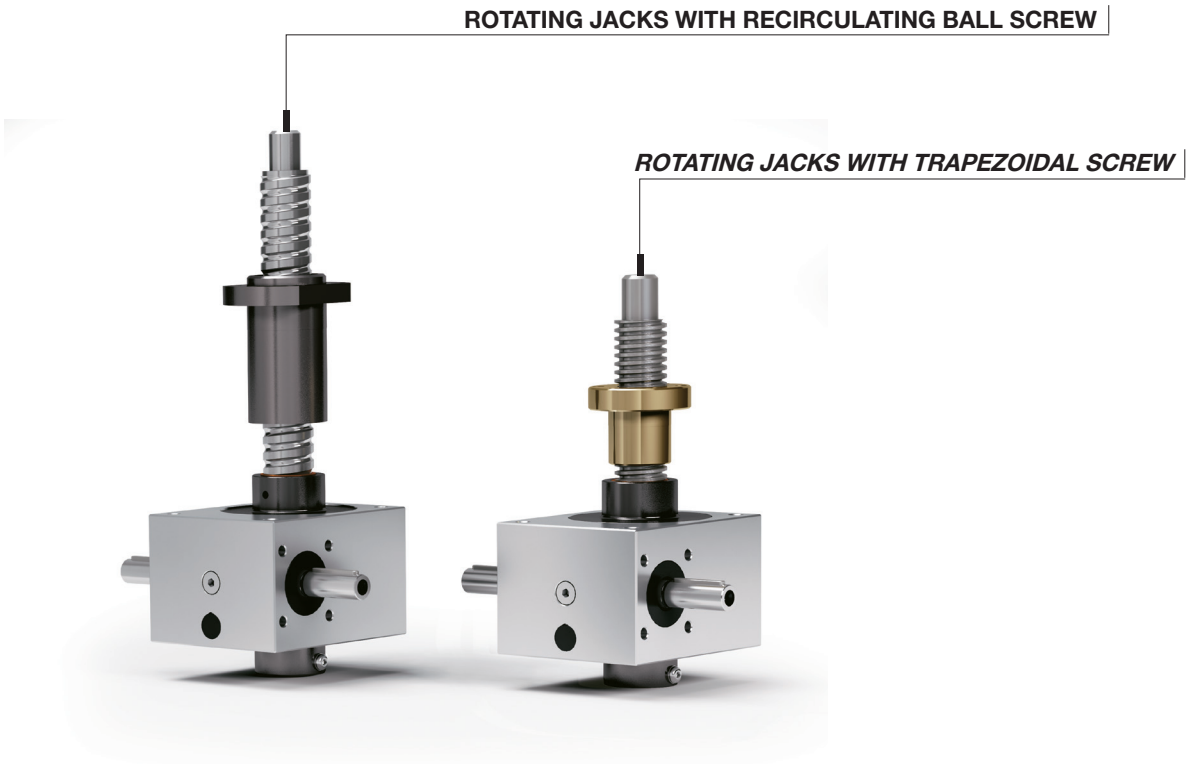


## 4.2 Versions.

### TRANSLATING JACKS

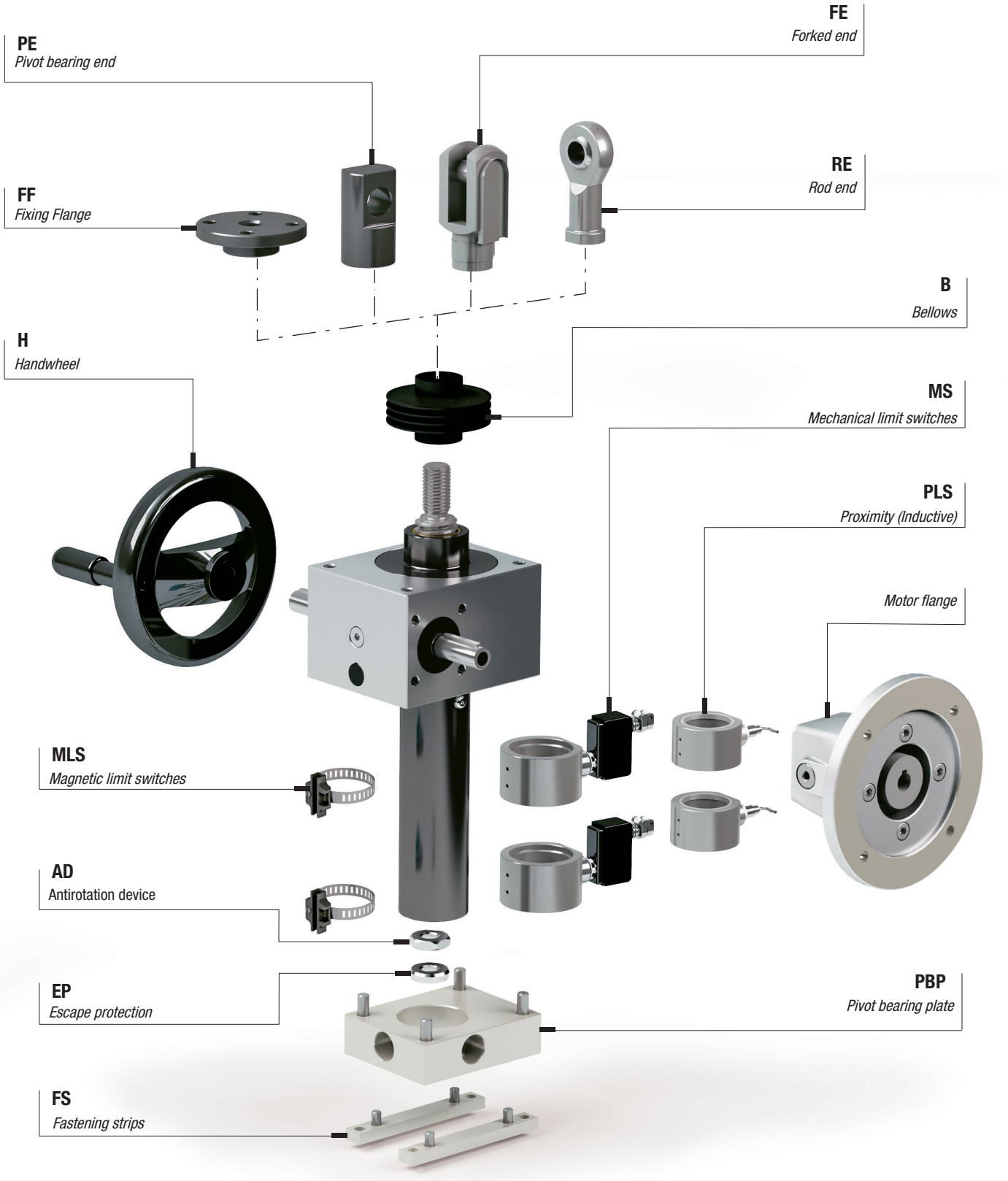



### ROTATING JACKS

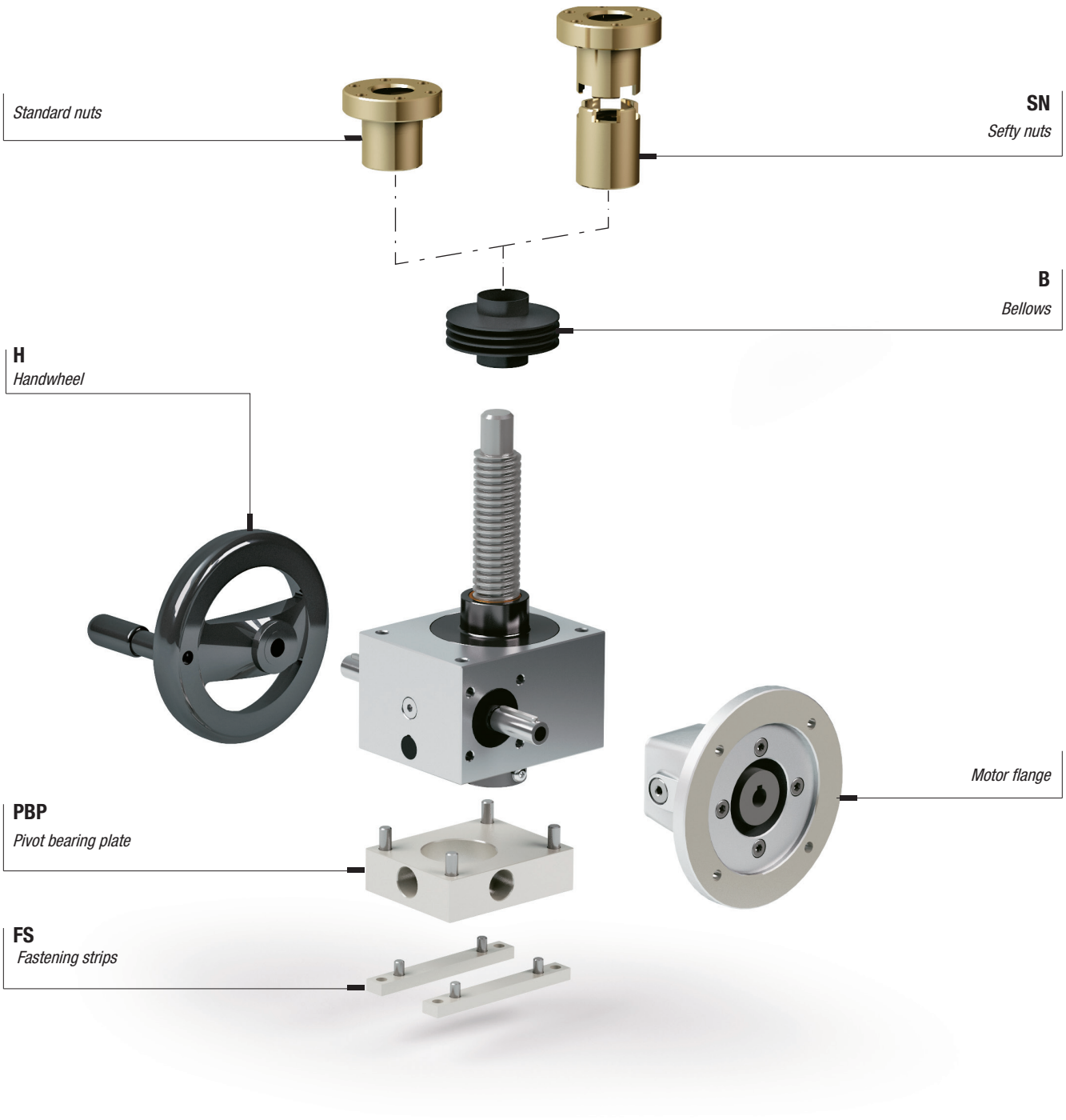


## 4.3 ACCESSORIES.

### ACCESSORIES FOR TRANSLATING JACKS



## ACCESSORI PER MARTINETTI ROTANTI



# 5 TRANSPORT AND STORAGE AND DISPOSAL.

## 5.1 Transport

**WARNING!**

**A FALLING LOAD CAN CAUSE SERIOUS INJURY TO PEOPLE OR THINGS AND DAMAGE TO JACKS**

Upon receipt, check the packaging to check for any damage

.

The products must be handled using suitable handling systems such as pallet trucks, forklifts, safety belts, etc.

If safety belts are used, make sure that they are positioned at the points indicated in the diagrams below and that they are firmly fixed and cannot slip

Do not manually transport jacks weighing more than 25 kg

Do not stand under the suspended load

Wear personal protective equipment: use protective gloves

Wear personal protective equipment: use protective shoes

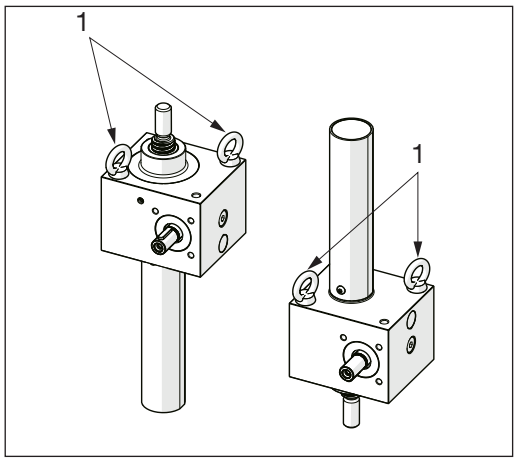
Wear personal protective equipment: use a protective helmet

Handle the screws with care, especially if they are long and thin, to avoid distortion

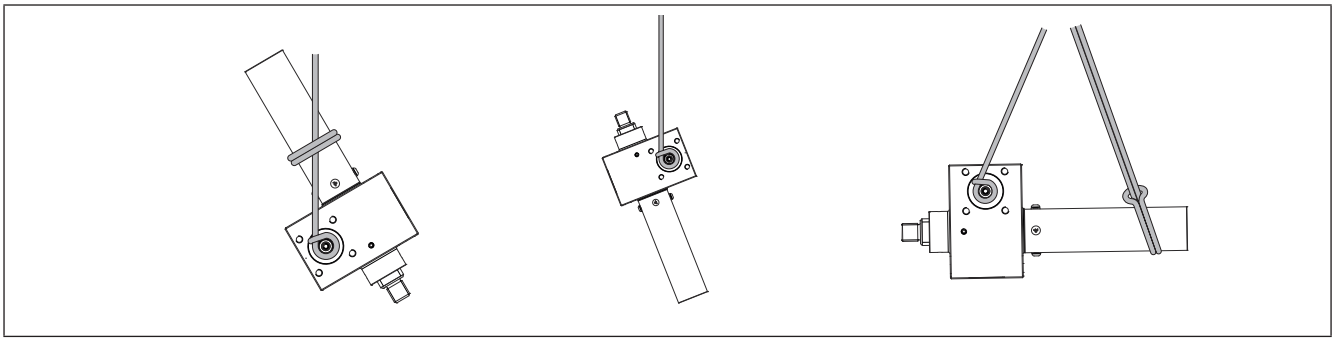
**TRANSPORT ANCHORING POINTS DIAGRAMS**

**T translating version**

For safe transport, fit eyebolts (1) in the fixing holes on the jack.



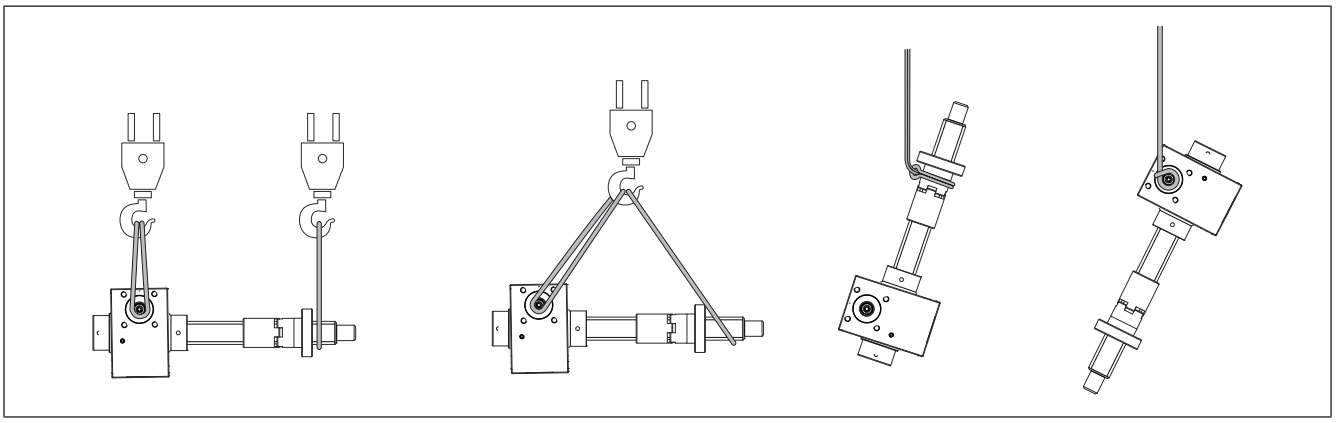

T translating version transport examples



During transport distribute the weight of the jack as evenly as possible on the fixing points.

**R rotating version**

R rotating version transport examples



**WARNING!** Handle the screws with care, especially if they are long and thin, to avoid distortion.

Before moving the jacks, consult the tables relating to their respective weights

| Tr Version Weights | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Type | | UP2,5 | | UP5 | | UP10 | | UP25 | | UP50 | | UP100 | |
| Weight of the jack without stroke. | [kg] | T | R | T | R | T | R | T | R | T | R | T | R |
| | | 0,82 | 1,1 | 1,6 | 1,8 | 2,8 | 3,16 | 5,7 | 6 | 20,3 | 22,1 | 37,4 | 40,3 |
| Weight for every 100 mm of stroke. | [kg] | T | R | T | R | T | R | T | R | T | R | T | R |
| | | 0,16 | 0,12 | 0,22 | 0,15 | 0,27 | 0,19 | 0,62 | 0,44 | 1 | 0,8 | 2 | 1,55 |
| Gearbox lubrication | [kg] | 0,02 | | 0,03 | | 0,05 | | 0,1 | | 0,3 | | 0,4 | |

| Pesi Versione VRS | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Type | | UP2,5 | UP5 | UP10 | UP25 | | UP50 | | UP100 | |
| Weight of the jack without stroke. | [kg] | R | R | R | T | R | T | R | T | R |
| | | 1,1 | 1,8 | 3,16 | 5,7 | 6,3 | 20,3 | 22,2 | 37,4 | 40,2 |
| Weight for every 100 mm of stroke. | [kg] | R | R | R | T | R | T | R | T | R |
| | | 0,12 | 0,2 | 0,2 | 0,75 | 0,56 | 1 | 0,83 | 1,8 | 1,35 |
| Gearbox lubrication | [kg] | 0,02 | 0,03 | 0,05 | 0,1 | | 0,3 | | 0,4 | |

## 5.2 Storage

**WARNING!!**

**INCORRECT STORAGE CAN CAUSE DAMAGE DUE TO CORROSION**

Store indoors and in the dry

Only store in open areas if covered with a roof and for a short time

Carry out commissioning no later than 1 year after delivery. (the delivery date is valid)

## 5.3 Disposal

The products must be disposed of in accordance with the regulations in force in the country of use and installation of the product, dividing them according to their type: packaging, steel, aluminium, bronze, lubricants, plastics, etc.

It is forbidden to dispose of any type of waste resulting from the use of the product into the environment.

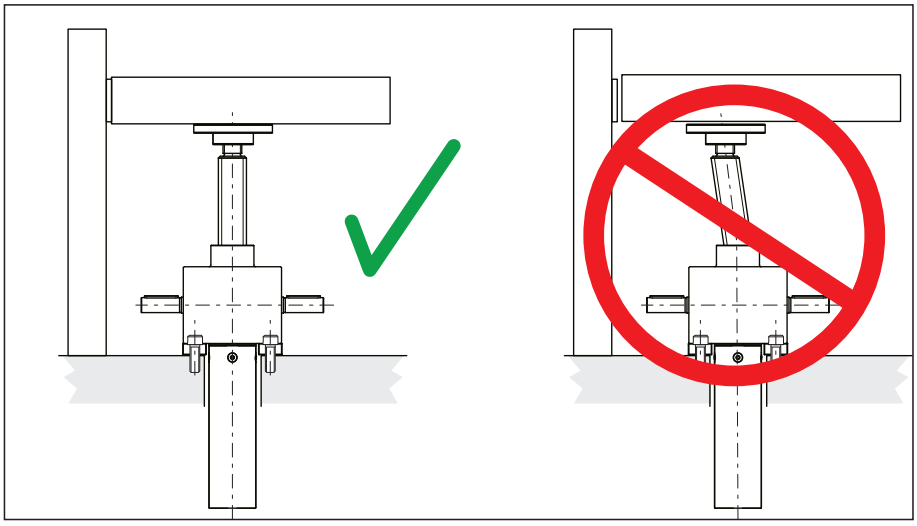
# 6. ASSEMBLY

**WARNINGS!**

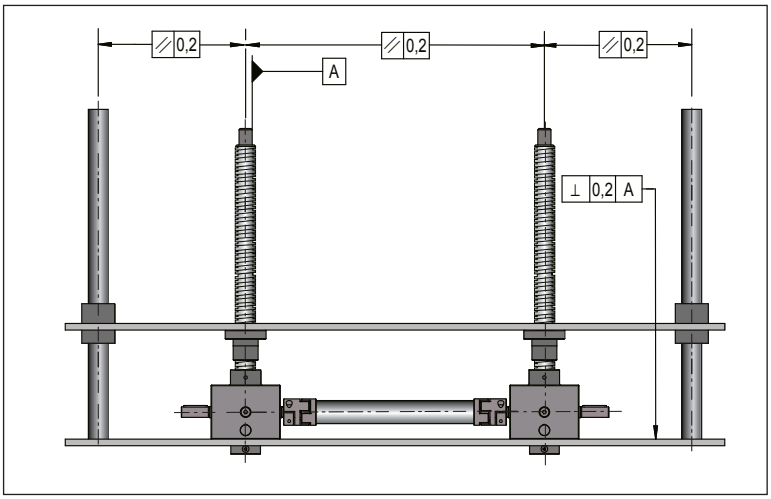
- Assembly must only be carried out by qualified personnel wearing personal protection equipment
- Wear personal protective equipment: use protective gloves
- Wear personal protective equipment: use protective shoes
- Wear personal protective equipment: use a protective helmet
- The jack must be installed in such a way that the loads applied to it act only in an axial direction
- During assembly, it is necessary to take care of the alignment of the fixing points, respecting the tolerances of parallelism and angularity. Misalignments could cause malfunction and leakage of lubricant
- Check that the translation and rotation directions are correct
- Check that the jack works within the established stroke, avoiding mechanical stops
- For versions with ball screws, provide motors with a brake
- Provide operating and safety limit switches to ensure reliable stopping of the jack. For jacks without limit switches, the customer must provide them on their machine/structure
- Before operating the jack, make sure that the limit switches have been calibrated and connected correctly.
- To connect and calibrate the limit switches supplied with the jack, refer to chapter 6.6

## 6.1 Jack assembly

Do not apply lateral loads to the jack's screw or the jack itself.



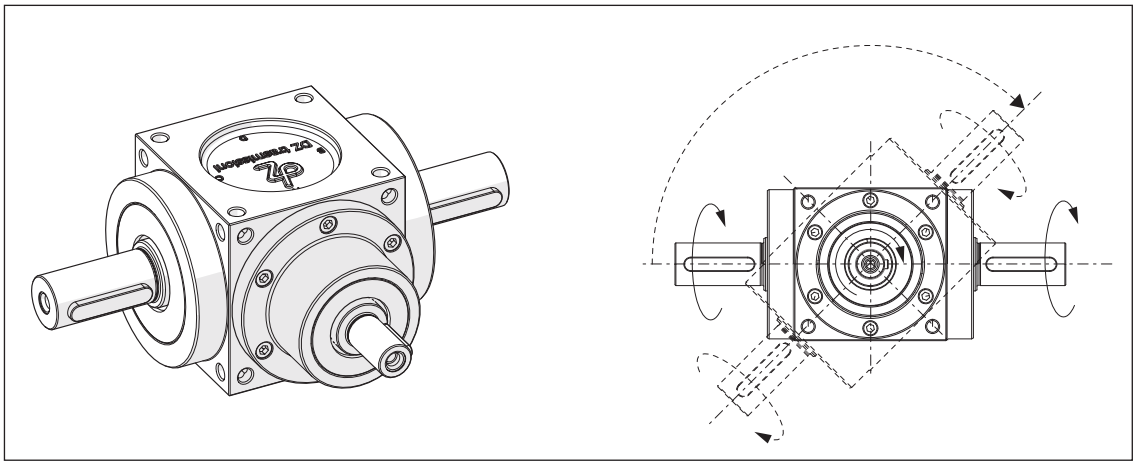
For correct operation, respect the tolerances of planarity, parallelism and angularity.



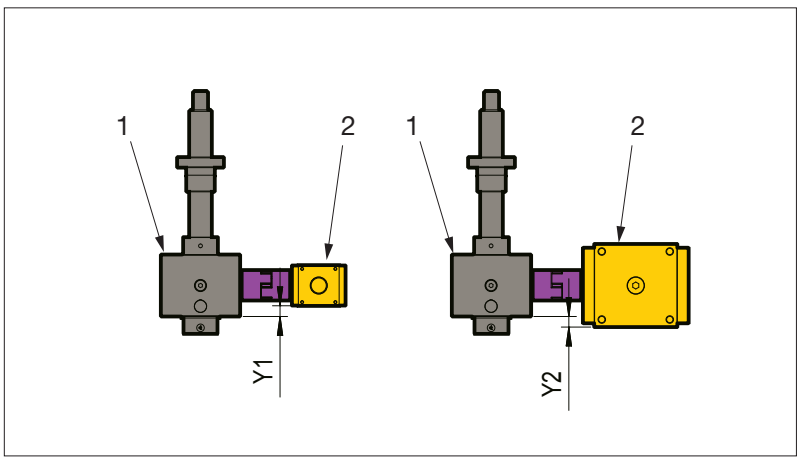

## 6.2 Installation of gearboxes for multi-jack systems

For the choice of gearboxes to be combined with the possible assembly options, refer to the UP series screw jack catalogue.
Pay attention to the directions of rotation. (refer to the UP series screw jack catalogue).
In version 1, the direction of rotation can be changed by turning the gearbox itself.

**Note: during assembly, pay attention to the direction of rotation according to the configuration chosen from the catalogue**



Take care of the alignment of the gearbox shafts with the worm screws of the jacks.

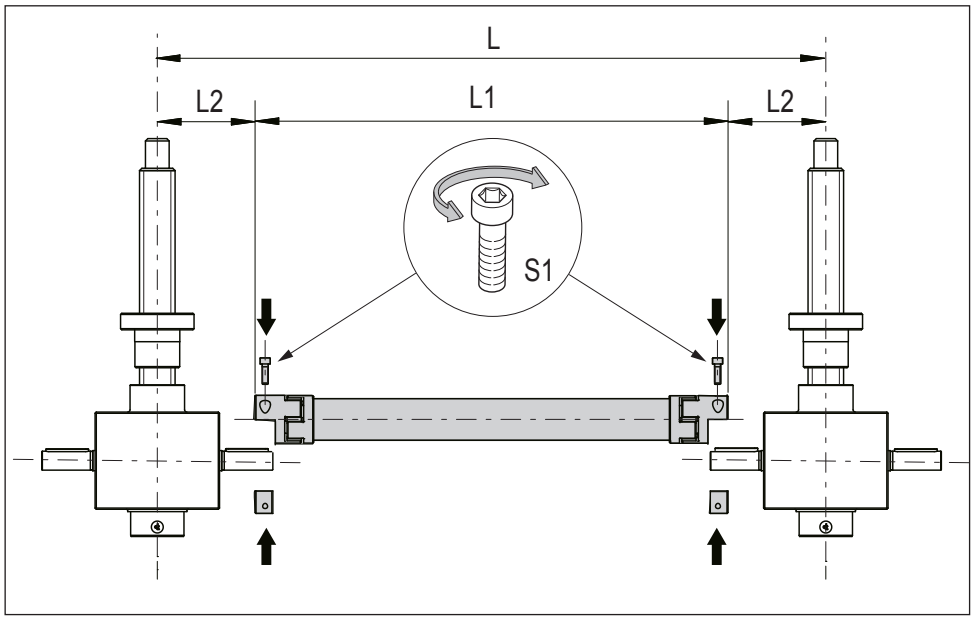



**WARNING:** The Y1 and Y2 heights between the jack (1) and gearbox (2) can have different measurements depending on the gearbox models used.

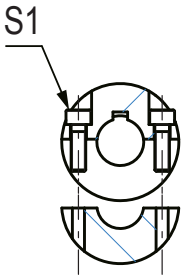
### 6.3 6.3 Gearbox shaft assembly.

For correct positioning of the shafts, refer to the drawing below:

L = Jack spacing.
L1 = Total shaft length including couplings.




Rest the connecting shaft on the ends of the worm screws of the jack or of the gearbox shafts.
Make sure jacks and or gearboxes are aligned correctly.
Use the fixing screws to secure the clamp hubs, respecting the tightening torques.




| Size | S1 | Tightening torqu [Nm] |
|---|---|---|
| 14 | M4 | 3.1 |
| 19 | M5 | 6.2 |
| 24 | M6 | 10.5 |
| 28 | M8 | 25 |
| 38 | M8 | 25 |

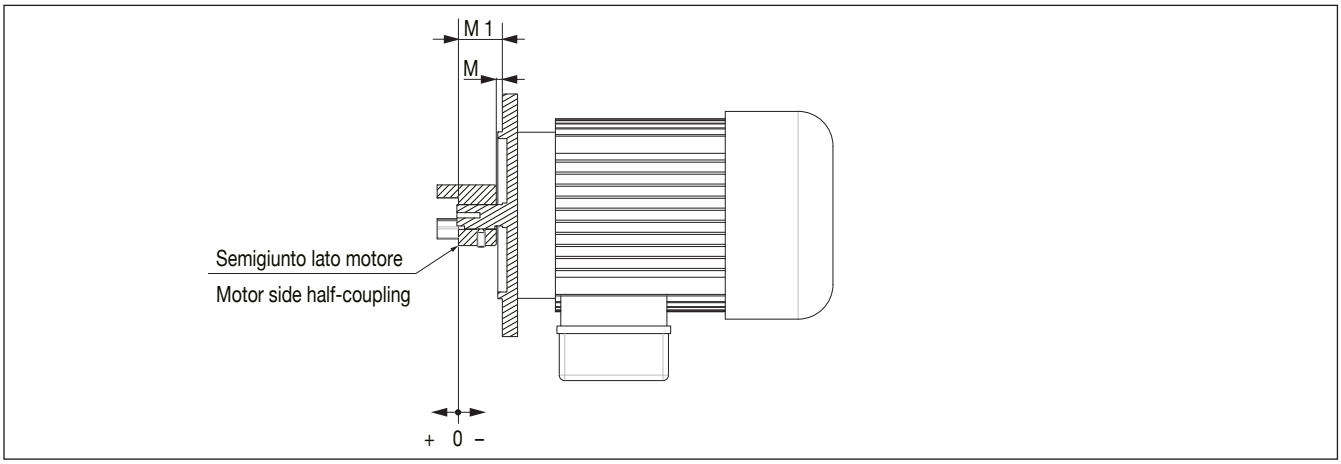
## 6.4 6.4 Motor assembly.

**WARNING!**

**MOVING PARTS!**
**POSSIBLE INJURY DUE TO ROTATING PARTS.**
**TURN OFF THE ENTIRE SYSTEM AND PROTECT IT FROM RESTARTING.**

### Positioning of the coupling on the motor

**WARNING!:** For the correct positioning of the coupling on the motor shaft, follow the instructions in the following table.

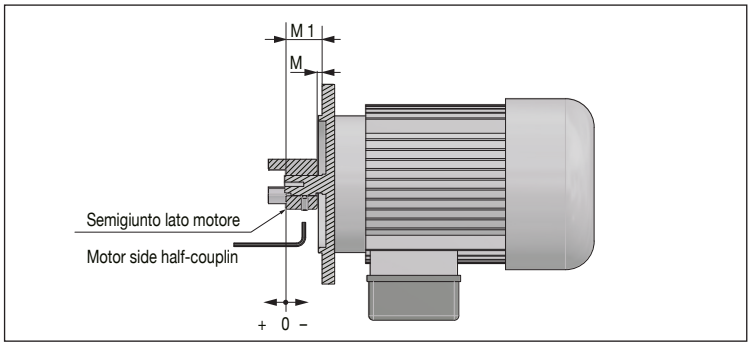


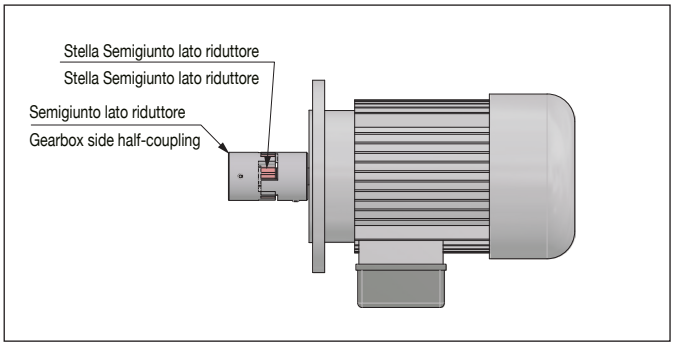

| | | RIF. PIANO FL.MOTORE | RIF. PIANO FL.MOTORE | RIF. ALBERO MOTORE |
|---|---|---|---|---|
| | | M (0 / -0,5) | M1 (0 / -0,5) | POS. |
| UP2,5 | IEC56B14 | 9 | 20 | 0 |
| | IEC63B14 | 11 | 22 | -1 |
| UP5 | IEC56B5 | 9 | 20 | 0 |
| | IEC63B5 | 12 | 23 | 0 |
| | IEC71B5 | 18,5 | 29,5 | -0,5 |
| UP10 | IEC63B5 | 0 | 25 | 2 |
| | IEC71B5 | 4 | 29 | -1 |
| | IEC80B5 | 14 | 39 | -1 |
| UP25 | IEC71B5 | 4 | 29 | -1 |
| | IEC80B5 | 12 | 42 | 2 |
| | IEC90B5 | 14 | 44 | -6 |
| UP50 | IEC80B5 | 13,5 | 43,5 | 3,5 |
| | IEC90B5 | 18,5 | 48,5 | -1,5 |
| | IEC100/112B5 | 29,5 | 59,5 | -0,5 |
| UP100 | IEC90B5 | 8 | 43 | -7 |
| | IEC100/112B | 21 | 56 | -4 |
| | IEC132B5 | 32 | 77 | -3 |

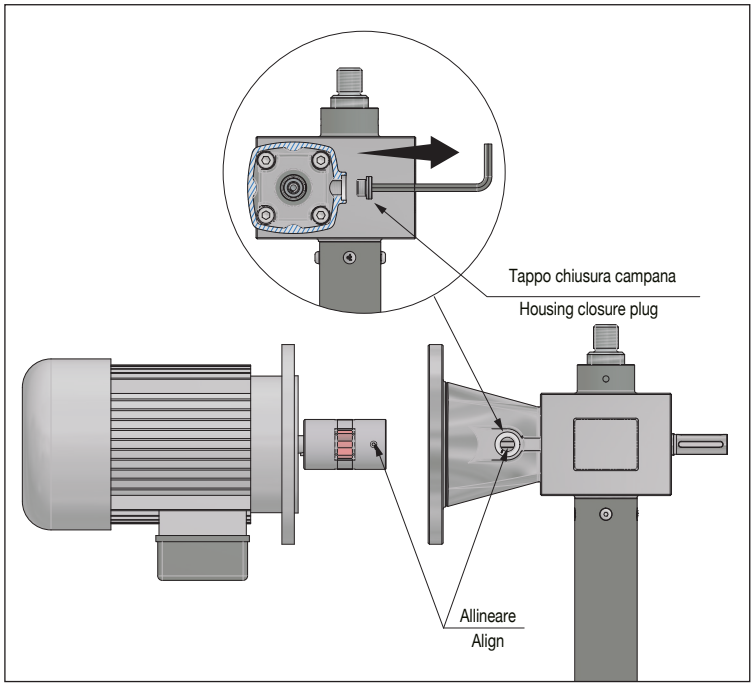
Only assembly position (therefore the ONLY positioning tool) of the half-coupling on the jack side (with the same size of jack).

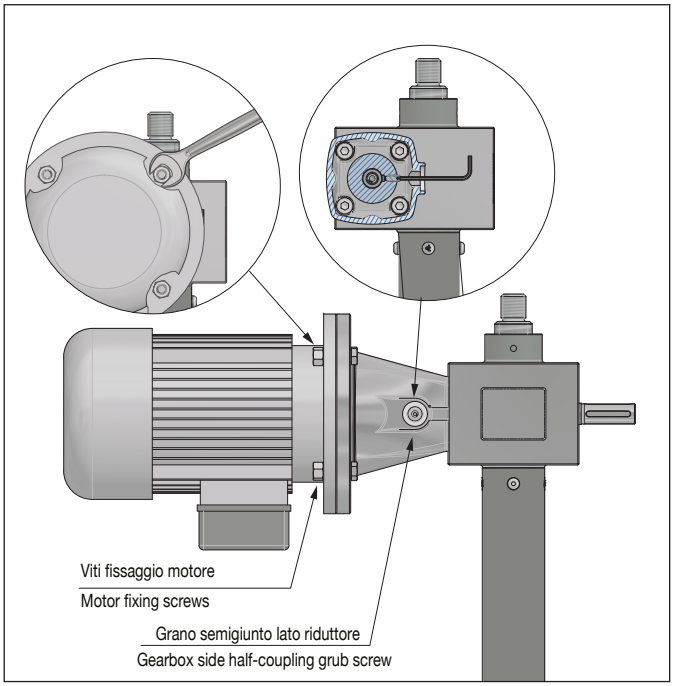
## Coupling and motor keying

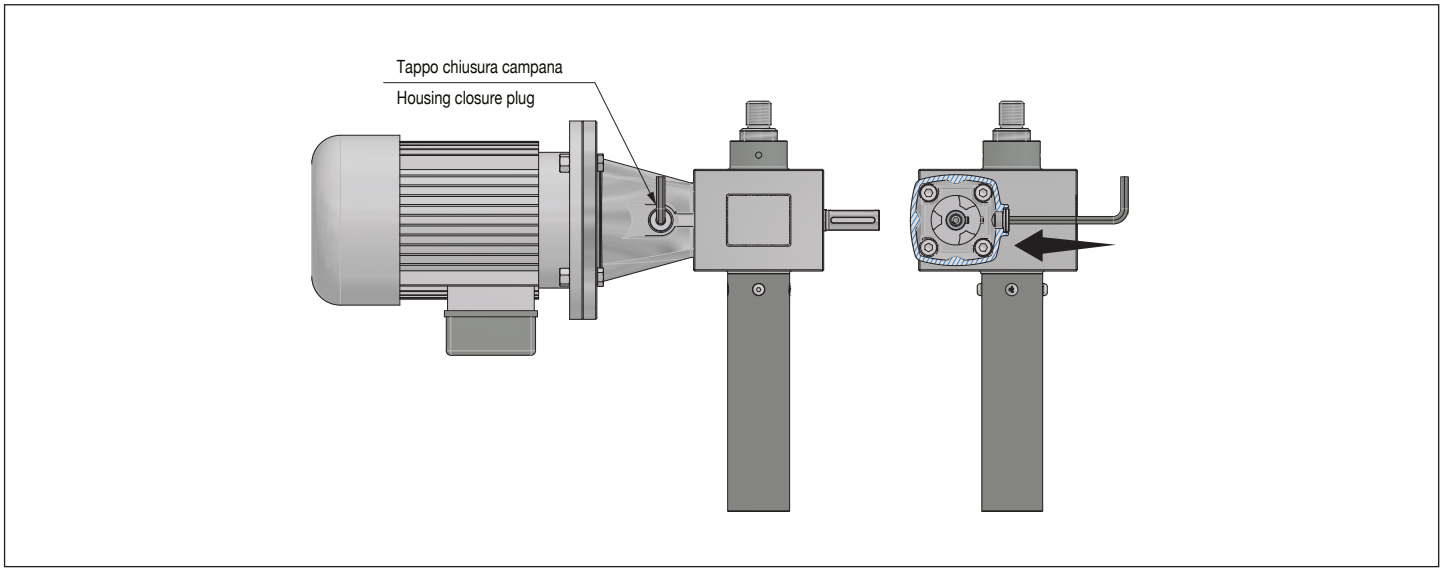
- Fit the motor side half-coupling to the shaft, respecting the position indicated in the table.
- Tighten the motor side half-coupling grub screw.
- Fit the gearbox side star and half-coupling.
- Unscrew the motor housing closing plug.
- Turn the worm screw, aligning the key on the shaft with the hole on the motor housing.
- Align the gearbox half-coupling grub screw with the hole on the motor housing.
- Insert the motor complete with coupling in the motor housing.
- Tighten the motor fixing screws.
- ighten the gearbox side half-coupling grub screw.
- Tighten the motor housing closing plug.



## 6.5 Electrical connections

**WARNING!**

**POSSIBLE LETHAL OR SERIOUS INJURY DUE TO ELECTRIC SHOCK.**
**ONLY HAVE ANY INTERVENTIONS ON THE ELECTRICAL SYSTEM CARRIED OUT BY SPECIALISED AND AUTHORISED PERSONNEL.**

Before making connections, follow the basic rules:

- Disconnect the voltage.
- Protect from restarting
- Make sure there is no voltage in any pole
- Earth and short circuit
- Cover contiguous live parts

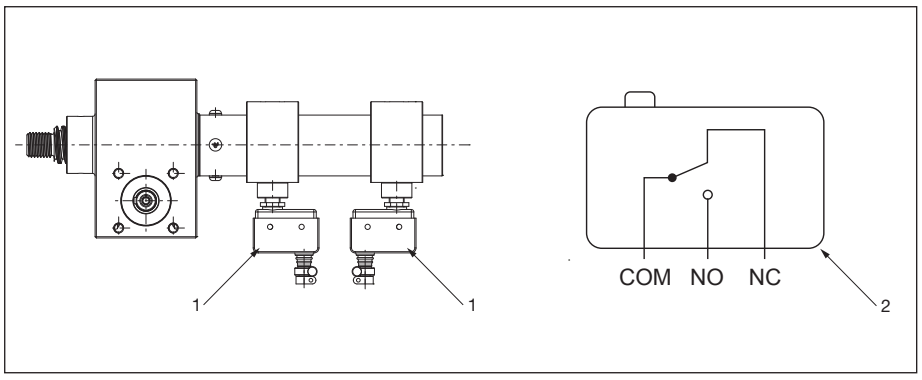
**Motor**

- The motor is fitted (if included in the supply).
- Open the motor terminal box cover. The connection terminals are located on the terminal block.
- Connect the motor according to the wiring diagram.

**Mechanical limit switches (MS)**

The mechanical limit switches are fixed on the protective tube of the threaded stem, using the special support that allows an adjustment of +/- 5 mm.
Standard switches have a double NO and NC auxiliary contact.

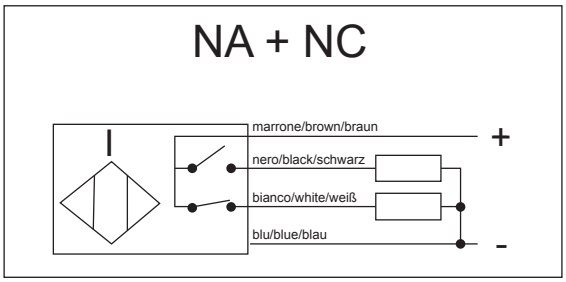
- Remove the microswitch protective cover (1).
- Connect the limit switch as shown in the diagram (2).
- Refit the protective cover (1).



**Inductive (proximity) limit switches (PLS)**

The inductive limit switches are fixed on the protective tube of the threaded stem, using the special support that allows an adjustment of +/- 5 mm.
Standard sensors have a double NO and NC contact.

- Connect the limit switch as shown in the diagram (2).




| Caratteristiche tecniche: | |
|---|---|
| Tensione di alimentazione (UB): | 5 ÷ 40 Vdc |
| Temperatura di funzionamento: | - 25° ÷ + 75°C |
| Grado di protezione: | IP67 |
| Visualizzazione stato di uscita: | LED giallo |

**Magnetic limit switches (MLS)**

The magnetic limit switches are fixed on the protective tube of the threaded stem, using the special support that allows adjustment along the entire stroke.
Three types of sensors are available.

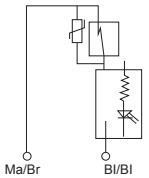
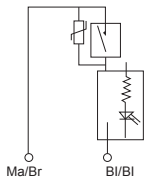
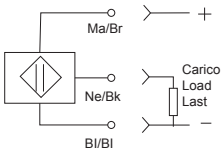
**NC Reed Circuit**
Circuit with a normally closed Reed interrupter protected by varistor against overvoltages generated when the circuit is opened, and an LED display system.

**NO Reed Circuit**
Circuit with a normally open Reed interrupter, protected by varistor against overvoltages generated when the circuit is opened, and an LED display system.

**NPN Circuit**
Hall effect circuit with NPN output. Protected against polarity inversion and against overvoltage peaks. LED display system. They are fixed on the protective tube of the threaded stem, using the special support that allows an adjustment of +/- 5 mm.

Standard sensors have a double NO and NC contact.

**WARNING!** The connection diagram is shown in the sensor bag.

| Sensor type | NC Reed | NO Reed Circuit | NPN Circuit |
|---|---|---|---|
| Reference Order code | 2MLS0<br>2 NC Reed circuit sensors (standard version) | 2MLS1<br>2 NO Reed circuit sensors | 2MLS2<br>2 NPN sensors |
| DC voltage | 3 / 110 V | 3 / 30 V | 6 / 30 V |
| AC voltage | 3 / 110 V | 3 / 30 V | - |
| Current | 0,5 A | 0,1 A | 0,20 A |
| Power | 20 VA | 6 VA | 4 W |
| Power cable | PVC 2 x 0,14 mm | PVC 2 x 0,14 mm | PVC 3 x 0,14 mm |
| Cable length | 2500 mm | 2.500 mm | 2.500 mm |
| Protection | IP67 | IP67 | IP67 |
| Schema circuito | Circuito Redd NC / NC Reed Circuit / Reed-NC-Kreislauf<br>  | Circuito Redd NC / NC Reed Circuit / Reed-NC-Kreislauf<br>  | Circuito Redd NC / NC Reed Circuit / Reed-NC-Kreislauf<br>  |

## 6.6 Limit switch calibration

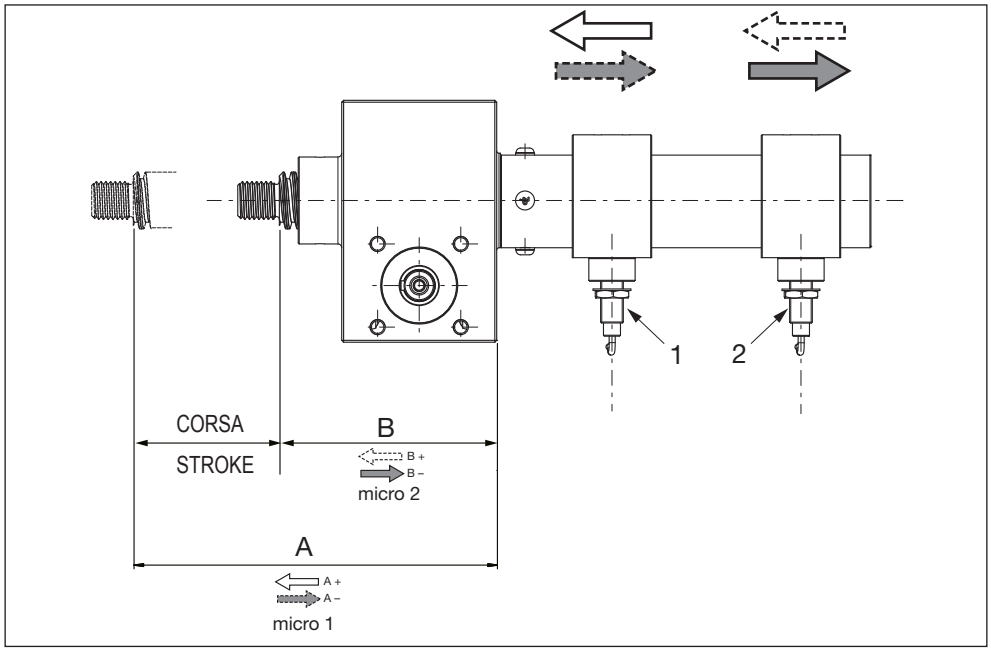
**Mechanical limit switches and inductive (proximity) sensors. (MS) (PLS)**

Il The support allows an adjustment of +/- 5 mm.

- Loosen the support locking grub screws.
- Slide the support in the desired direction.
- Lock the support by tightening the grub screws.

**Microswitch 1 adjustment (closed jack position)**
Moving the support towards the casing (white arrow) increases dimension B
Moving the support from the opposite side of the casing (grey arrow) decreases dimension B.

**Microswitch 2 adjustment (open jack position**)
Moving the support towards the casing (white arrow) lengthens the stroke (increases dimension A).
Moving the support from the opposite side of the casing (grey arrow) shortens the stroke. (decreases dimension A).



**Magnetic limit switch sensors. (MLS**

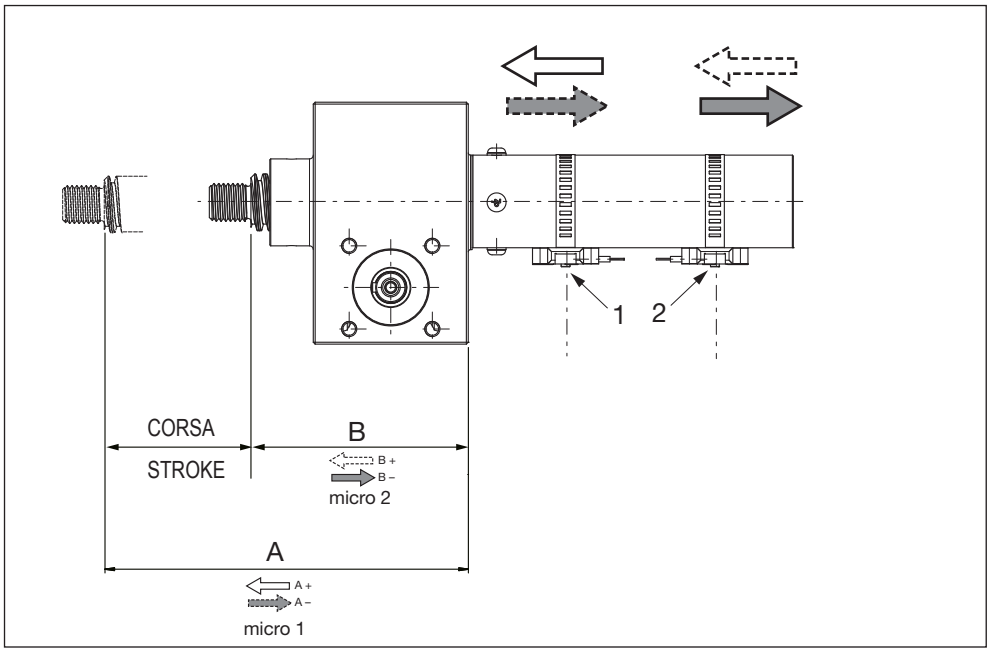
**Sensor 1 adjustment (closed jack position)**
Moving the support towards the casing (white arrow) increases dimension B.
Moving the support from the opposite side of the casing (grey arrow) decreases dimension B.

- Bring the translating stem to the desired position.
- Loosen the support clamp using the appropriate screw.
- Slide the sensor support into the reading position (LED on).
- Tighten the support clamp using the appropriate screw.

**Sensor 2 adjustment (open jack position)**

Moving the support towards the casing (white arrow) lengthens the stroke (increases dimension A).
Moving the support from the opposite side of the casing (grey arrow) shortens the stroke (decreases dimension A).

- Bring the translating stem to the desired position.
- Loosen the support clamp using the appropriate screw.
- Slide the sensor support into the reading position (LED on).
- Tighten the support clamp using the appropriate screw.




**WARNING!**

**TO BRING THE STEM TO THE DESIRED POSITION, ACTIVATE THE JACK MANUALLY OR BY MEANS OF THE MOTOR, BEING CAREFUL NOT TO EXCEED THE STROKE LIMITS OF THE JACK.**

**IF THE JACK STROKE LIMITS ARE EXCEEDED, THERE IS A RISK OF DAMAGING THE JACK AND/OR THE STRUCTURE OR MACHINE TO WHICH IT IS CONNECTED.**

## 6.7 Test run

Before commissioning the jack, perform a full stroke.

If possible, run with no load or with a limited load, checking the following points:

- The limit switch is operating properly.
- Compliance with the stroke limits of the jack.
- Checking constant motor absorption.
- Check the jack's temperature, avoiding overheating especially for long or repeated strokes.
- Check that there are no vibrations and oscillations. Their presence indicates misalignments or deformations.

**WARNING!**

**IF VIBRATIONS OR OSCILLATIONS ARE FOUND DURING THE TEST RUN, CHECK THE ASSEMBLY AND ALIGNMENT OF THE JACKS AGAIN.**

## 6.8 Commissioning

Commissioning the jack is **FORBIDDEN** until it is incorporated into a machine/system in compliance with the EC Machinery Directive

Only commission the jack after a successful test run, making sure the screw is lubricated (see chapter 7.2. Lubrication).

After performing a few cycles, possibly not at maximum load, lubricate the screw again.

**Settling and running-in phase**

For the first few hours of operation, both the torque required to move the load and the temperature may be higher.

# 7. USE AND MAINTENANCE

## 7.1 Periodic maintenance

**WARNING!**

**JACK MAINTENANCE INVOLVES RISKS DUE TO THE PRESENCE OF LIVE PARTS, MOVING PARTS, ETC., THEREFORE IT MUST BE DONE BY SPECIALISED AND AUTHORISED PERSONNEL.**

**WARNING!**

**MOVING PARTS!**
**POSSIBLE INJURY DUE TO ROTATING PARTS.**
**TURN OFF THE ENTIRE SYSTEM AND PROTECT IT FROM RE-STARTING.**

**WARNING!**

**POSSIBLE LETHAL OR SERIOUS INJURY DUE TO ELECTRIC SHOCK. BEFORE ANY INTERVENTION, DISCONNECT THE JACK FROM ANY ELECTRICAL POWER SOURCE.**

**WARNING!**

**BEFORE ANY INTERVENTION, CHECK THAT THE SURFACE TEMPERATURE OF THE JACK'S COMPONENTS ARE SUITABLE TO ALLOW THE INTERVENTION TO BE CARRIED OUT IN FULL SAFETY.**


Wear personal protective equipment: use protective gloves


Wear personal protective equipment: use protective shoes


Wear personal protective equipment: use a protective helmet


Handle the screws with care, especially if they are long and thin, to avoid distortion

- To ensure proper operation of the jack, regular periodic inspections must be performed.
- The jack only requires limited routine maintenance:
- Cleaning.
- Lubrication.
- Check for wear of the nut.
- State of insulation and conservation of the electrical connection cables.
- Check the conservation status of any moving part protections.

**Maintenance times.**

Carry out initial maintenance after approximately one month of work. Inspections at least every year.

For systems with multiple jacks including transmission shafts, gearboxes and couplings, the following checks must also be carried out:
- Check for any oil leaks in the gearboxes.
- Check that couplings and transmission shafts have been correctly tightened.
- Visual check for possible wear of the coupling stars and transmission shafts.

### 7.1.1 INSPECTION

For perfect operation, the jacks must be inspected regularly.

First inspection maximum after 1 month

Further inspections at least once a year

Document the inspections; by model (see Chapter 10. Inspection report).
If necessary, carry out Troubleshooting.
If it is not possible to contain and eliminate the problems, contact DZ Trasmissioni s.r.l.

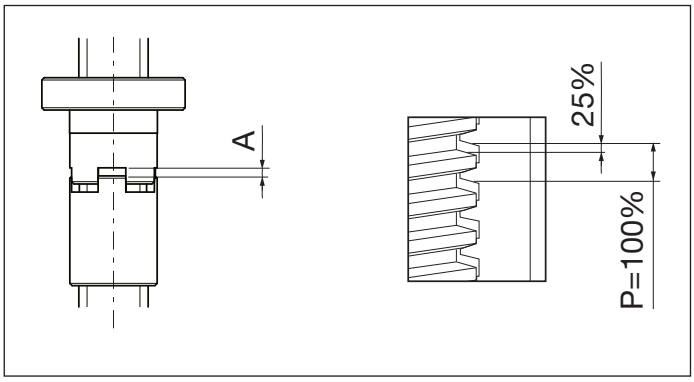
#### VISUAL INSPECTION

The machine must be switched off and protected from being restarted and the jack disconnected from power sources.

1. Check the lubrication of the screw, relubricate if necessary and adjust the maintenance interval.
2. Check fixing screws and couplings/connecting shafts and tighten if necessary.
4. Carry out a visual check on the coupling stars.
5. Operate the machine with the following in mind:
   - cycle without jerks or vibrations.
   - no excessive noise.
   - constant current absorption.
   - heat generated in the permitted range.

### 7.1.2 SAFETY NU

The safety nut is used to carry the load in case of wear of the main nut.
It allows the control of thread wear, preventing permissible levels of wear from being exceeded or thread collapse.
There is an axial play between the threaded stem and the nut, which is necessary for the correct functioning of this type of coupling.
This axial play is only detectable in applications where the load changes from compression to traction or vice versa.
When the nut starts to wear out, the play between the nut and the threaded stem increases, moving the safety nut towards the nut so that it begins to receive part of the load.
When the safety nut starts to work, it generates a decrease in dimension A which cannot go below the minimum value. When this minimum value is reached, it is ESSENTIAL to replace the nut and the safety nut. Failure to replace these components could lead to such wear as to cause the collapse of the load.
The wear control of the nut must be done periodically at regular intervals by measuring the A dimension, to be aware of the progress of the wear status of the nut.
The maximum wear allowed between screw and nut is equal to 25% of the pitch as shown in the table below.

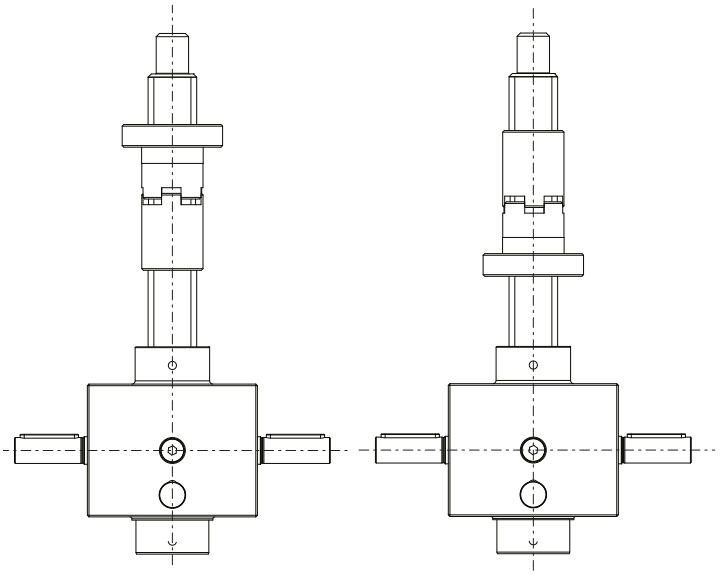


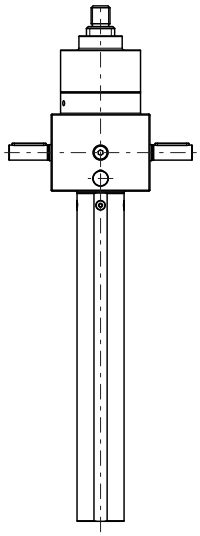
| Screw type | Pitch [mm] | Maximum allowable wear [mm] |
|---|---|---|
| Tr16x4 Tr18x4 Tr20x4 | 4 | 1 |
| Tr30x6 | 6 | 1.5 |
| Tr40x7 | 7 | 1.75 |
| Tr55x9 | 9 | 2.25 |
| Tr70x10 | 10 | 2,5 |

**SN-R SAFETY NUT FOR ROTATING VERSION**

**SN-T SAFETY NUT FOR TRANSLATING VERSION**

**Compression load** **Tensile load**





## 7.2 Lubrication

**WARNING!**

**MOVING PARTS!**
**POSSIBLE INJURY DUE TO ROTATING PARTS.**
**TURN OFF THE ENTIRE SYSTEM AND PROTECT IT FROM RE-STARTING.**

Lubrication is a fundamental element for correct operation and long life of the jack.
This is why the Up series has been designed to have two separate lubrications between the gearbox and the threaded stem, allowing the use of different specific lubricants.

**JACK GEARBOX LUBRICATION**
The gearbox unit is filled with a high-quality synthetic liquid grease which guarantees lifetime lubrication under normal conditions.

**THREADED STEM LUBRICATION**
The lubrication system present on the **TRANSLATING** version allows the stem to be lubricated during operation, guaranteeing the distribution of grease over its entire length. To lubricate, remove the plastic plug (1) and use the lubricator (2) using a suitable tip applicator for concave grease nipples (3).

For the **ROTATING** version, nuts with a grease nipple can be supplied on request.

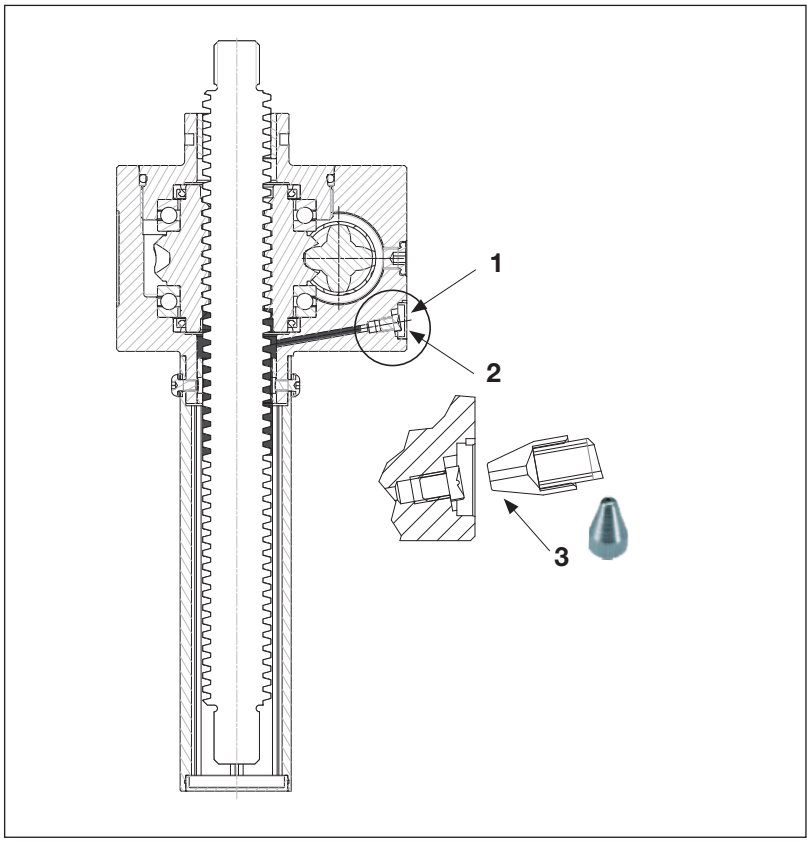
**TRAPEZOIDAL SCREW LUBRICATION INTERVALS.**

The trapezoidal screw jack must be lubricated regularly and/or as needed.

Under normal conditions, relubrication must take place approximately every 500 cycles.
The screw must be cleaned and relubricated where there is dirt and in any case once a year.

**NB.** The relubrication time interval is indicative and depends on the application.

**PERIODICALLY CHECK THE STATUS OF THE LUBRICANT TO ESTABLISH THE LUBRICATION INTERVAL.**



**QUANTITY AND TYPE OF LUBRICANT**

**Standard lubricants:**

**STEM**

| Stem lubrication table | | | | |
|---|---|---|---|---|
| Brand | | Type | Tmin °C | Tmax °C |
| Standard grease | Tmax | Berulub FG-H 2 EP | -40 | +160 |
| Equivalent greases | Klueber | Staburags NBU 8EP | -20 | +140 |
| | Total | CERAN WR2 | -25 | +180 |
| | Rothen | 2000/P Special | -6 | +287 |
| | Total Carter | EP 2200 standard | -3 | +200 |

| Stem dimension | Quantity ml/m |
|---|---|
| 16 | 25 |
| 18 | 28 |
| 20 | 30 |
| 30 | 45 |
| 40 | 65 |
| 55 | 85 |
| 70 | 100 |

**GEARBOX**

| Tabella Lubrificazione stelo | | | | | |
|---|---|---|---|---|---|
| Brand | | | Type | Tmin °C | Tmax °C |
| Standard grease | UP2.5 | TAMOIL | TAMLITH GREASE 2 EP | -20 | +130 |
| | UP 5 10 25 50 100 | TAMOIL | TAMLITH GREASE 00 EP | -25 | +110 |

## 8. TROUBLESHOOTINGI

Recognisable faults can be isolated according to certain criteria and eliminated with the corresponding measures. The following table helps in finding the solution for each problema

| FAULT | CAUSE | REMEDY |
|---|---|---|
| The screw screeches or vibrates | Inadequate screw frequency | Change the rpm: slower or faster (observe the limit values) |
| | Too heavy load | Reduce the load when settling |
| | The vibrations are transmitted to the system | Fit a rubber or plastic base under the rotating nut (in version R) |
| | Geometric error in the system | Check the alignment:<br>• parallelism of the screws<br>• parallelism of the screws with respect to the guides<br>• angularity of the screwing surfaces (jack, nut, flange, etc.) |
| | Long and thin screw | If possible, add additional supports or bearings. Reinforce the structure |
| | Screw temperature too high (> approx. 90 °C) | Check the operating parameters.<br>Reduce load or operating tim |
| | Wrong screw oil, stick slip | Use another grease:<br>• with high viscosity base oil<br>• with additives<br>• possibly with solid lubricants |
| Noises at the coupling or connecting shaft | Attrito sulla stella del giunto | Lubrificare la stella del giunto con la vaselina o con grasso compatibile con la plastica. |
| | Offset ammesso superato | Controllare l'allineamento e correggerlo. |
| Very worn trapezoidal thread | Load too high | Contact DZ Trasmissioni |
| | Geometric error in the system | Check the alignment:<br>• parallelism of the screws<br>• parallelism of the screws with respect to the guides<br>• angularity of the screwing surfaces (jack, nut, flange, etc.) |
| | La vite è sporca | Clean the screw and relubricate it.<br>Reduce the lubrication intervals |
| | Wrong screw grease | Check the grease for the screw.<br>If necessary, clean the screw and relubricate it |
| | Lack of lubricant | If necessary, clean the screw and relubricate it.<br>Reduce the lubrication intervals. |
| Operating temperature too high | Wrong screw grease | Check the grease for the screw<br>(load, number of revolutions, etc..).<br>Clean the screw and relubricate it. |
| | Excessive load or operating time | Check the operating parameters |
| | Geometric error in the system | Check the alignment:<br>• parallelism of the screws<br>• parallelism of the screws with respect to the guides<br>• angularity of the screwing surfaces (jack, nut, flange, etc.) |
| Small leak on the oil seal ring | Slight leak | A slight leak is normal and is not a technical problem.<br>Dry the leak and check again. |
| Big leak | Defective oil seal or overpressure in the jack | Contact DZ Trasmissioni |

## 9. DICHIARAZIONE DI INCORPORAZIONE

DZ Trasmissioni s.r.l.
Via Salvator Allende 1/F
40069 ZOLA PREDOSA (BO)
ITALY

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Fax +39 051/753.903
info@dztrasmissioni.com
www.dztrasmissioni.com

DZ trasmissioni

# DECLARATION OF INCORPORATION

**FOR INCOMPLETE MACHINES**

((according to the EC Machinery Directive 2006/42/EC, Appendix II B)

With this document, the manufacturer:

"DZ Trasmissioni s.r.l."

Via Salvator Allende 1/F - 40069 ZOLA PREDOSA (BO) - ITALY

herby declares that all **UP SERIES** "Mechanical Jacks"

meet the following basic requirements of the **Machinery Directive 2006/42/EC:**
Appendix I, articles 1.3.3, 1.1.5, 1.3.4 and 4.1.2.3

Furthermore, we declare that the specific technical documentation for these incomplete machines has been drawn up in accordance with Appendix VII and we undertake to transmit it at the request of the market surveillance authorities.

The model, serial number and year of construction are shown on the manufacturer's plate attached to the partly completed machine.

**Person in charge of compiling the relevant technical documentation:**
**DZ TRASMISSIONI S.R.L. TECHNICAL DEPARTMENT**

**Commissioning of the incomplete machine is prohibited until the machine is incorporated into a machine in accordance with the requirements of the EC Machinery Directive and until the EC Declaration of Conformity according to Appendix II A is available.**

**Annex: updated installation manua**

**DZ Trasmissioni s.r.l."**
ZOLA PREDOSA (BO) - ITALY
01-08-2020

Claudio Pullega
Sole Director

Declaration of incorporation_08_2020_GB

## 10. INSPECTION REPORT

The jack must be periodically inspected as indicated in chapter 7.1.1

**DZ TRASMISSIONI JACK MODE.....CODE.....**
(Refer to the data shown on the plate on the jack)

| DATE | ACTIVITY PERFORMED | OBSERVATIONS | OPERATOR |
|---|---|---|---|
| | Installation and commissioning | | |
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