

INSTALLATION – MAINTENANCE – LUBRICANTS

Transport and handling

Screw jacks with mounted acme screw and all relevant fittings can be often difficult to handle because of their overall dimensions. Therefore, we recommend to handle the products with care during transport and handling to avoid damages of the mechanical parts and/or fittings and also to prevent any risk for the employed personnel. Screw jack supporting points should be previously identified and used during transport or to raise it by handling. In case of doubts, please contact SERVOMECH S.p.A. for support to prevent any possible damage!

Storage

During storage, screw jacks shall be protected against atmospheric agents and the risk that dust or other pollutants settle on the acme screw and on other moving parts.

In case of long storage periods, for example more than 6 months, it is necessary to move the input shafts to avoid damaging of the bearings. Furthermore, keep all not painted parts properly lubricated to prevent oxidation.

Installation

The screw jack must be installed to work with push or pull axial load only, avoiding lateral and radial load. The correct perpendicularity between acme screw axis and screw jack fixing plane shall be checked carefully.

The installation of many screw jacks for synchronized lifting movement requires particular attention on two different factors:

- alignment of load supporting points: screw ends in case of travelling acme screw, bronze nut in case of travelling nut;
- use of shafts and couplings with high torsional stiffness, to assure a perfect synchronism of all lifting points.

Commissioning and use

SERVOMECH screw jacks are supplied with lubricant type and quantity as indicated in the lubricants table.

ATTENTION! If not otherwise agreed, the acme screw is usually not lubricated! The first acme screw lubrication must be done by the customer during the installation and strictly before using the screw jack.

Before activating the screw jack, the following checks must be carried out:

- input shaft rotating direction and relative acme screw or nut linear motion direction;
- stroke end switches position cannot exceed the given limits;
- proper connection of mechanical drive and electric motor (rotating direction and motor supply voltage).

During commissioning, do never exceed the duty cycle F_u [%] allowed for the screw jack! Any abuse of such duty cycle F_u [%] can cause overheating and unintentional premature damaging.

Maintenance

Scheduled maintenance shall be carried out on screw jacks depending on the relevant use and environment conditions.

Acme screws must be periodically greased with the lubricant stated in the table or equivalent one.

Further worm gearbox lubrication has to be done only in case of verified lubricant leakage.

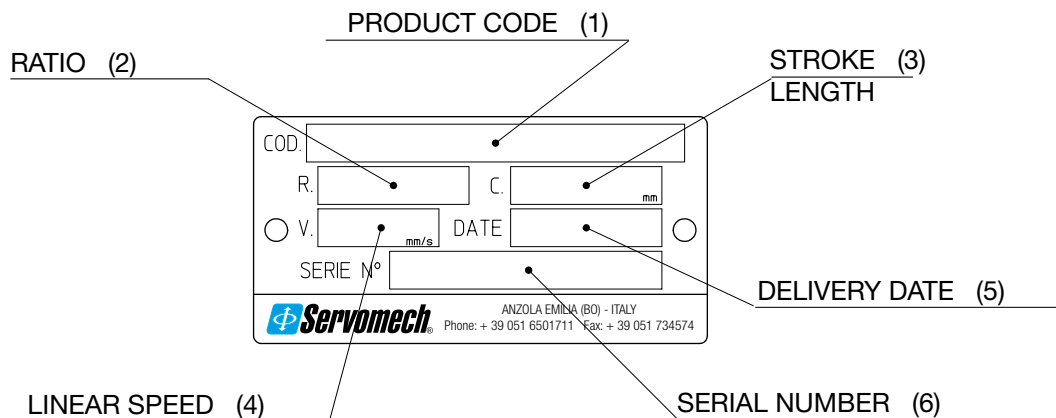
For further information about installation and maintenance refer to the screw jacks Use and Maintenance Manual.

Lubricants table

SCREW JACK	WORM GEARBOX		ACME SCREW - NUT
MA 5	AGIP Grease SLL 00	0.07 kg	SHELL DARINA Grease 2
MA 10		0.14 kg	
MA 25	AGIP BLASIA S 220 (oil)	0.35 liter	
MA 50		0.75 liter	
MA 80		0.75 liter	
MA 100		1.5 liter	
MA 200		2.3 liter	
MA 350		4 liter	
SJ 5	AGIP Grease SM2	0.07 kg	
SJ 10		0.14 kg	
SJ 25		0.23 kg	
SJ 50	AGIP Grease SLL 00	0.6 kg	
SJ 100		0.5 kg	
SJ 150		1.5 kg	
SJ 200		2 kg	
SJ 250		2 kg	
SJ 300		2 kg	
SJ 350		2 kg	
SJ 400		3 kg	
SJ 600		3 kg	
SJ 800		8 kg	
SJ 1000	8 kg		

PRODUCT LABEL

Every SERVOMECH screw jack is provided with a product label, see picture below, which allows the unit identification and gives technical information about the product.

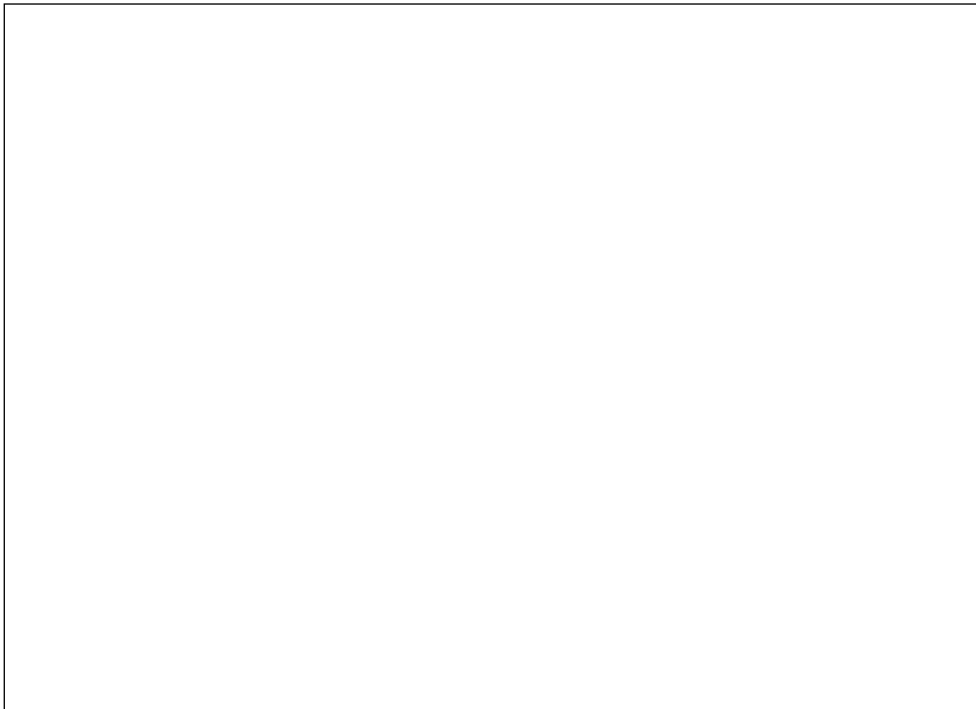


- 1) **Product code:** is an alphanumeric code stating the type, size ratio, input version and stroke end switches of the unit;
- 2) **Ratio:** is the ratio of worm gear;
- 3) **Stroke length:** is the stroke length in millimetres (mm) achievable by the screw jack;
- 4) **Linear speed:** is the screw jack linear speed in millimetres per second (mm/s), for screw jacks supplied with an electric motor; if the motor is not supplied, the field is blank;
- 5) **Delivery date:** is the assembly date, expressed in week/year (example: 37/10 = week 37 of year 2010), which usually is also the delivery date; this date is considered as warranty reference;
- 6) **Serial number:** is the number referred to the unit and assures the exact identification of the product, even after a long time; it must be given as reference when ordering spare parts for the unit.

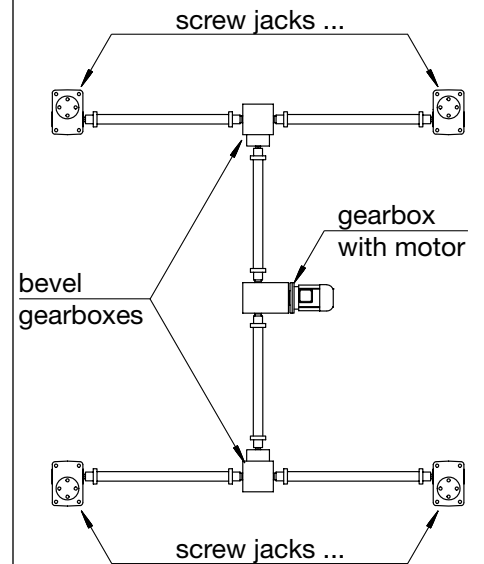
Company: _____
 Address: _____
 Contact person: _____ Position: _____
 Telephone: _____ Fax: _____ E-mail: _____

APPLICATION: _____

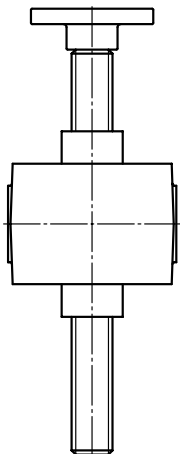
SKETCH - APPLICATION LAYOUT – plane view



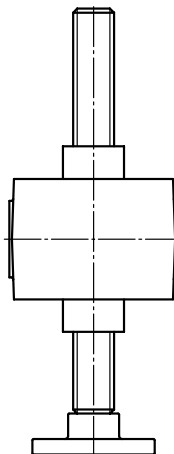
Example



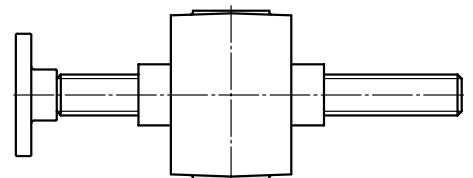
Side view of a single screw jack



UPWARD MOUNTING



DOWNWARD MOUNTING



HORIZONTAL MOUNTING

NUMBER OF SCREW JACKS PER APPLICATION: _____

STROKE REQUIRED: _____ mm ACME SCREW LENGTH: _____ mm

TOTAL STATIC LOAD FOR APPLICATION: PULL: _____ daN PUSH: _____ daN

MAX. STATIC LOAD FOR **SINGLE SCREW JACK**: PULL: _____ daN PUSH: _____ daN at STROKE _____ mm

SCREW JACK MOUNTING:

- Euler I (screw jack housing firmly fixed to the base – free travelling acme screw end)
- Euler II (screw jack housing and travelling acme screw end fixed to pivoting supports)
- Euler III (screw jack housing firmly fixed to the base – guided travelling acme screw end)

SCREW JACK SUBJECTED TO VIBRATIONS NOT SUBJECTED TO VIBRATIONS

TOTAL DYNAMIC LOAD FOR APPLICATION: PULL: _____ daN PUSH: _____ daN

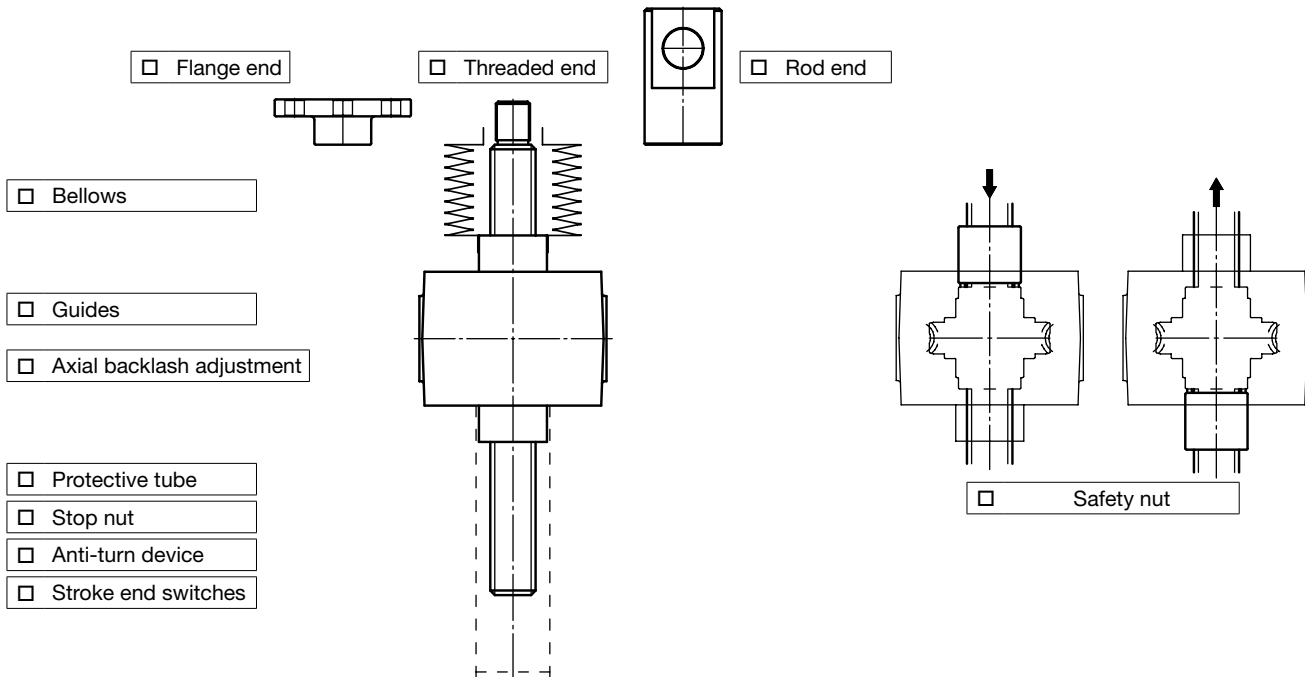
MAX. DYNAMIC LOAD FOR **SINGLE SCREW JACK**: PULL: _____ daN PUSH: _____ daN at STROKE _____ mm

LINEAR SPEED REQUIRED: _____ mm/s _____ mm/min _____ m/min SINGLE STROKE PERFORMING TIME: ____ s

DUTY CYCLE: _____ cycles / hour _____ working hours / day Notes: _____

LIFETIME REQUIRED: _____ cycles _____ clock hours _____ calendar days Notes: _____

ENVIRONMENT: TEMPERATURE _____ °C DUST HUMIDITY ____ % POLLUTER _____



Suggestions based on previous experiences of similar application: _____

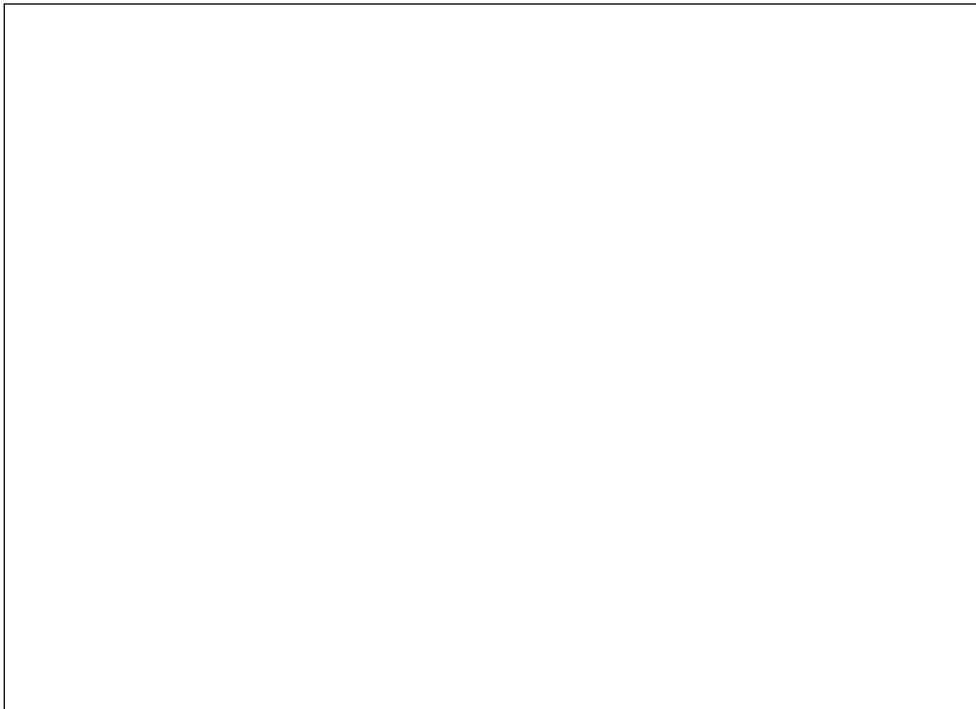
Notes: _____

Number of screw jacks required: _____

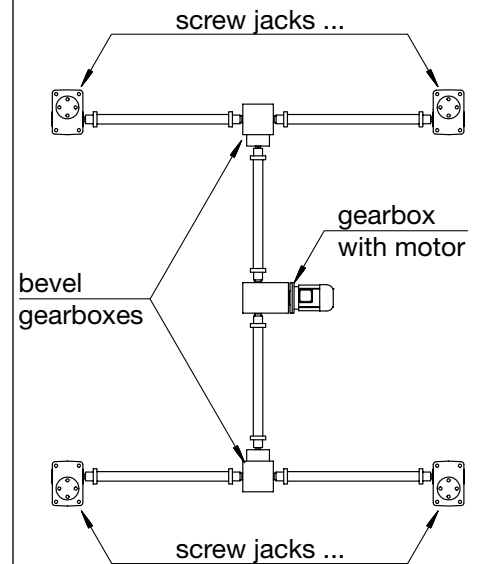
Company: _____
 Address: _____
 Contact person: _____ Position: _____
 Telephone: _____ Fax: _____ E-mail: _____

APPLICATION: _____

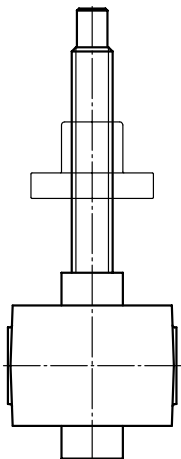
SKETCH - APPLICATION LAYOUT – plane view



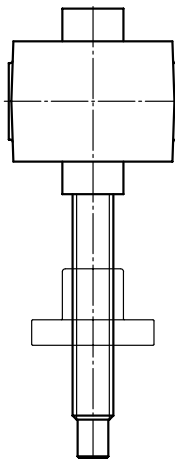
Example



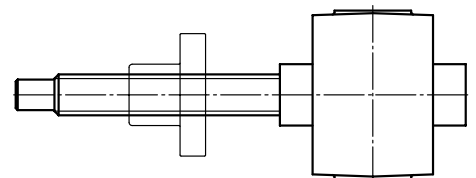
Side view of a single screw jack



UPWARD MOUNTING



DOWNWARD MOUNTING



HORIZONTAL MOUNTING

NUMBER OF SCREW JACKS PER APPLICATION: _____

STROKE REQUIRED: _____ mm ACME SCREW LENGTH: _____ mm

TOTAL STATIC LOAD FOR APPLICATION: PULL: _____ daN PUSH: _____ daN

MAX. STATIC LOAD FOR **SINGLE SCREW JACK**: PULL: _____ daN PUSH: _____ daN at STROKE _____ mm

SCREW JACK MOUNTING:

- Euler I (screw jack housing firmly fixed to the base – free travelling nut)
- Euler II (screw jack housing and travelling nut fixed to pivoting supports)
- Euler III (screw jack housing firmly fixed to the base – guided travelling nut)

SCREW JACK SUBJECTED TO VIBRATIONS NOT SUBJECTED TO VIBRATIONS

TOTAL DYNAMIC LOAD FOR APPLICATION: PULL: _____ daN PUSH: _____ daN

MAX. DYNAMIC LOAD FOR **SINGLE SCREW JACK**: PULL: _____ daN PUSH: _____ daN at STROKE _____ mm

LINEAR SPEED REQUIRED: _____ mm/s _____ mm/min _____ m/min SINGLE STROKE PERFORMING TIME: ____ s

DUTY CYCLE: _____ cycles / hour _____ working hours / day Notes: _____

LIFETIME REQUIRED: _____ cycles _____ clock hours _____ calendar days Notes: _____

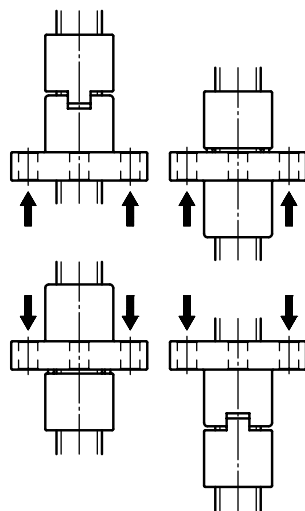
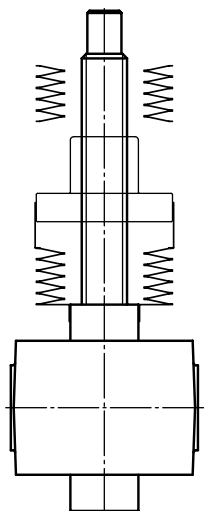
ENVIRONMENT: TEMPERATURE _____ °C DUST HUMIDITY ____ % POLLUTER _____

Cylindrical end

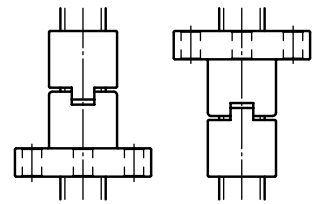
Bellows

Bronze nut

Bellows



Safety nut



Axial backlash adjustment

Suggestions based on previous experiences of similar application: _____

Notes: _____

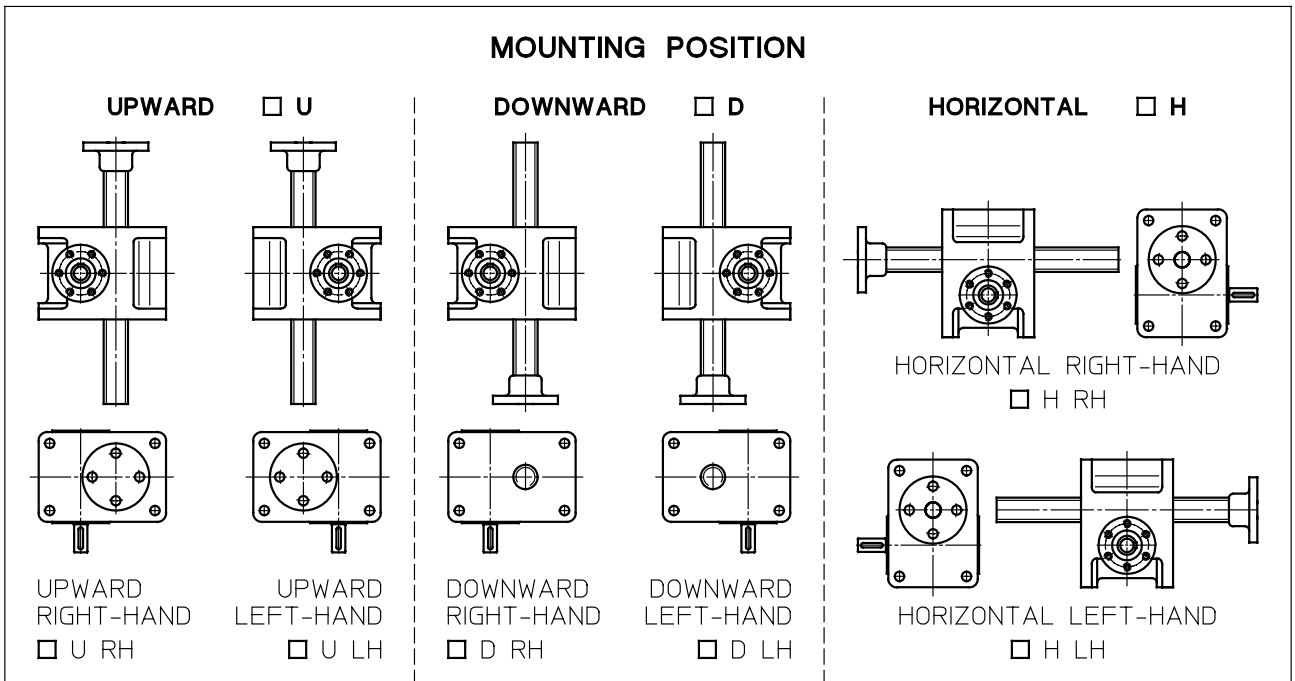
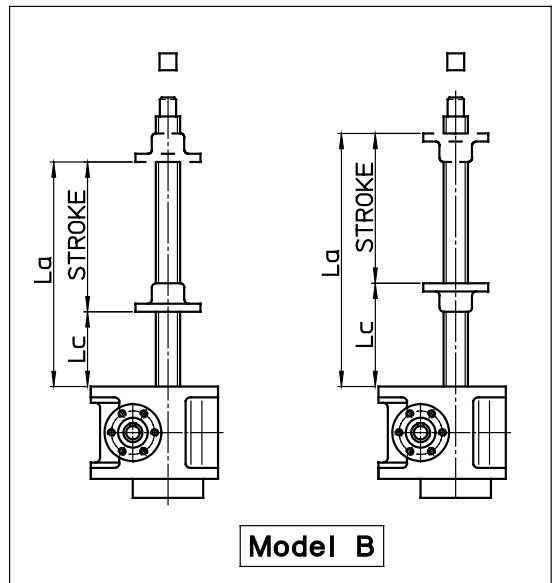
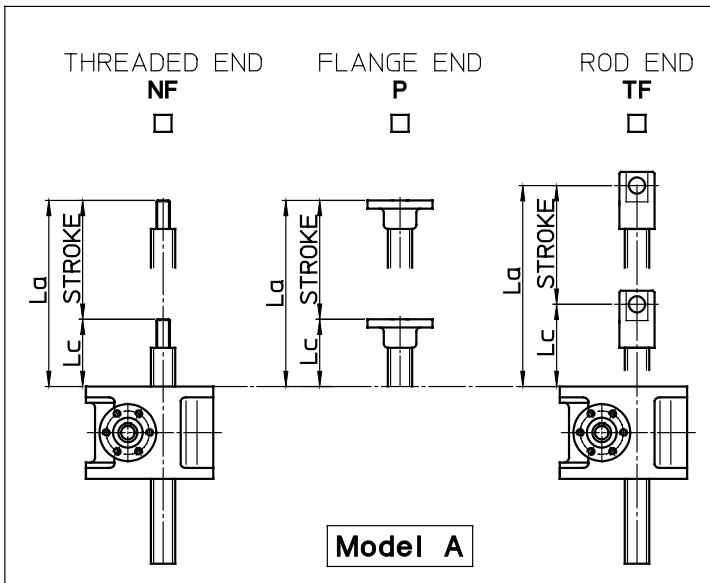
Number of screw jacks required: _____

CODE: _____

STROKE: _____

ACME SCREW: _____ BALL SCREW: _____

ACCESSORIES: _____



SCREW JACKS MAIN DIMENSIONS:

RETRACTED JACK LENGTH: **Lc** = _____ mm

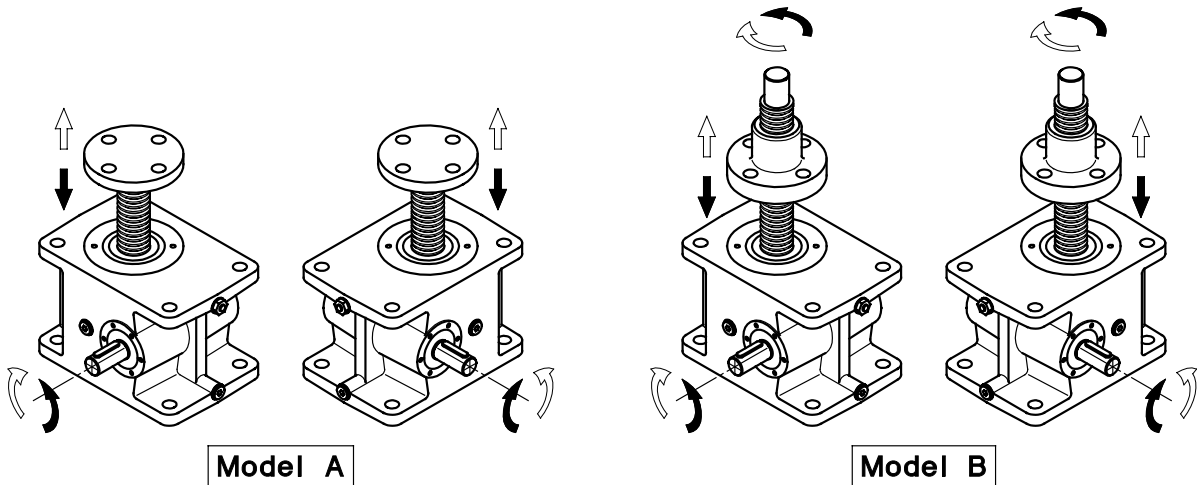
EXTENDED JACK LENGTH: **La** = _____ mm

MAX. WORKING STROKE (La – Lc): **C** = _____ mm

Servomech QMS
PASSED
Date: _____
Signature: _____

4

INPUT SHAFT ROTATION – SCREW OR NUT LIFTING DIRECTION



WARNING!

1. The values **Lc** (retracted jack length), **La** (extended jack length) and **C** (max. working stroke) are the extreme permissible values.
2. For a correct installation and commissioning of the screw jack see The Installation, Use and Maintenance Manual.
3. The following operations must be done **BEFORE** commissioning:
 - ensure that the breather plug is in the highest position respect to all other plugs;
 - lubricate acme or ball screw – nut;
 - connect the stroke limit device to the electric control circuit of the screw jack or lifting system;
 - check the lifting direction of the acme or ball screw (Model A) or nut (Model B).

NOTE: _____

WORMGEAR LUBRICANT: _____

SCREW – NUT LUBRICANT: _____

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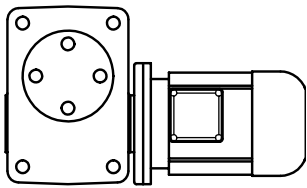
Screw jacks

SCREW JACK LIFTING SYSTEMS

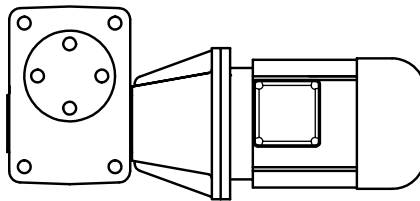
SERVOMECH can support customers by selecting the complete drive solution for screw jack systems:

- screw jacks with flange for motor mounting or with input shaft,
- AC 3-phase or 1-phase electric motors, DC electric motors, servomotors
- inverter drives
- screw jacks with control of axial position and linear speed
- bevel gears
- connecting transmission shafts and couplings
- general technical support, for example:
 - screw jack selection
 - lifetime estimation and calculation
 - lay-out system drawings
 - 3D models and 2D drawings available through web-configurator on www.servomech.com or via e-mail, on specific request to SERVOMECH Engineering Dpt.

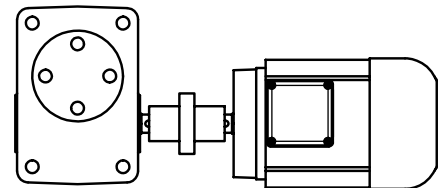
Single motorized screw jack



Screw jack
with plug-in flange and hollow input shaft+
IEC B5 or B14 motor

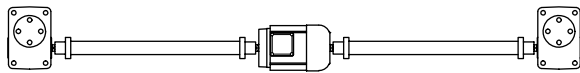


Screw jack
with bell-housing and coupling +
IEC B5 or B14 motor

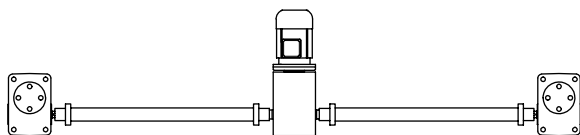


Screw jack with single input shaft +
coupling +
IEC B3 motor

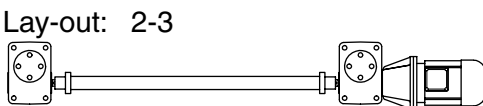
LAY-OUT: Two points lifting systems



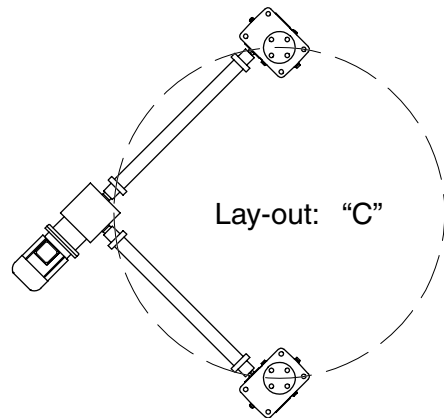
Lay-out: 2-1



Lay-out: 2-2



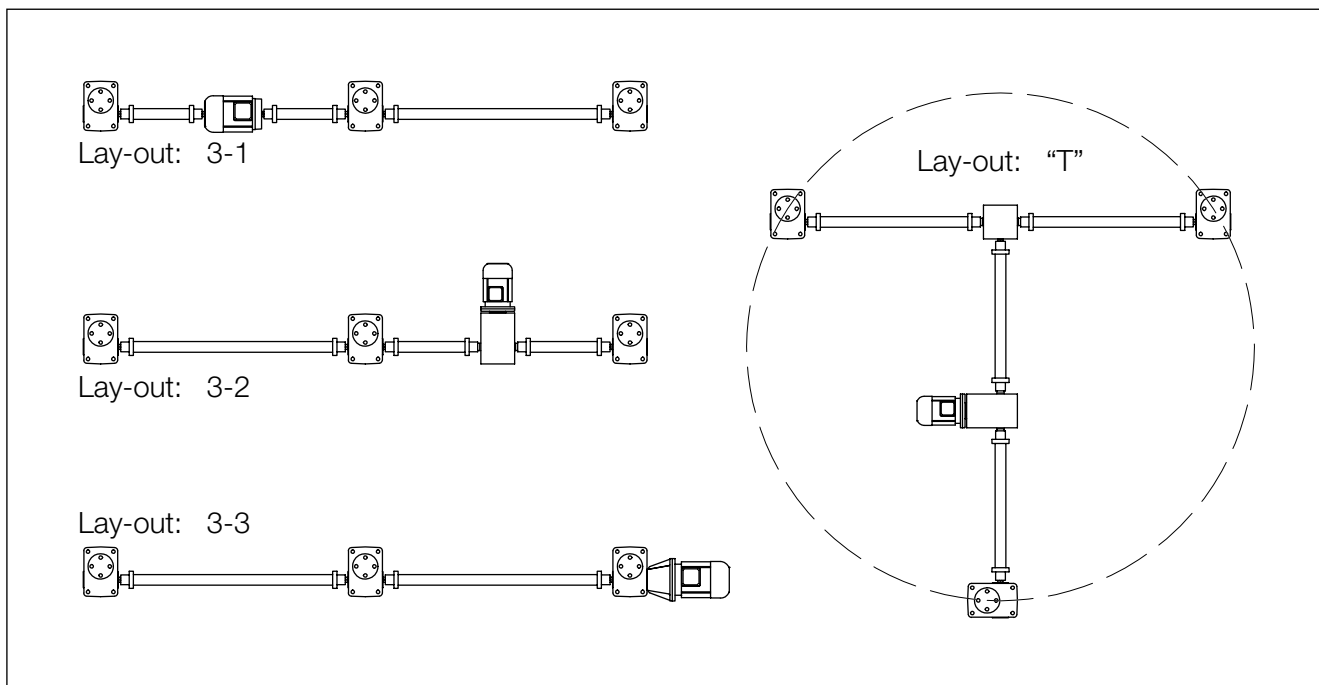
Lay-out: 2-3



Lay-out: "C"

SCREW JACK LIFTING SYSTEMS

LAY-OUT: Three points lifting systems



LAY-OUT: Four points lifting systems

