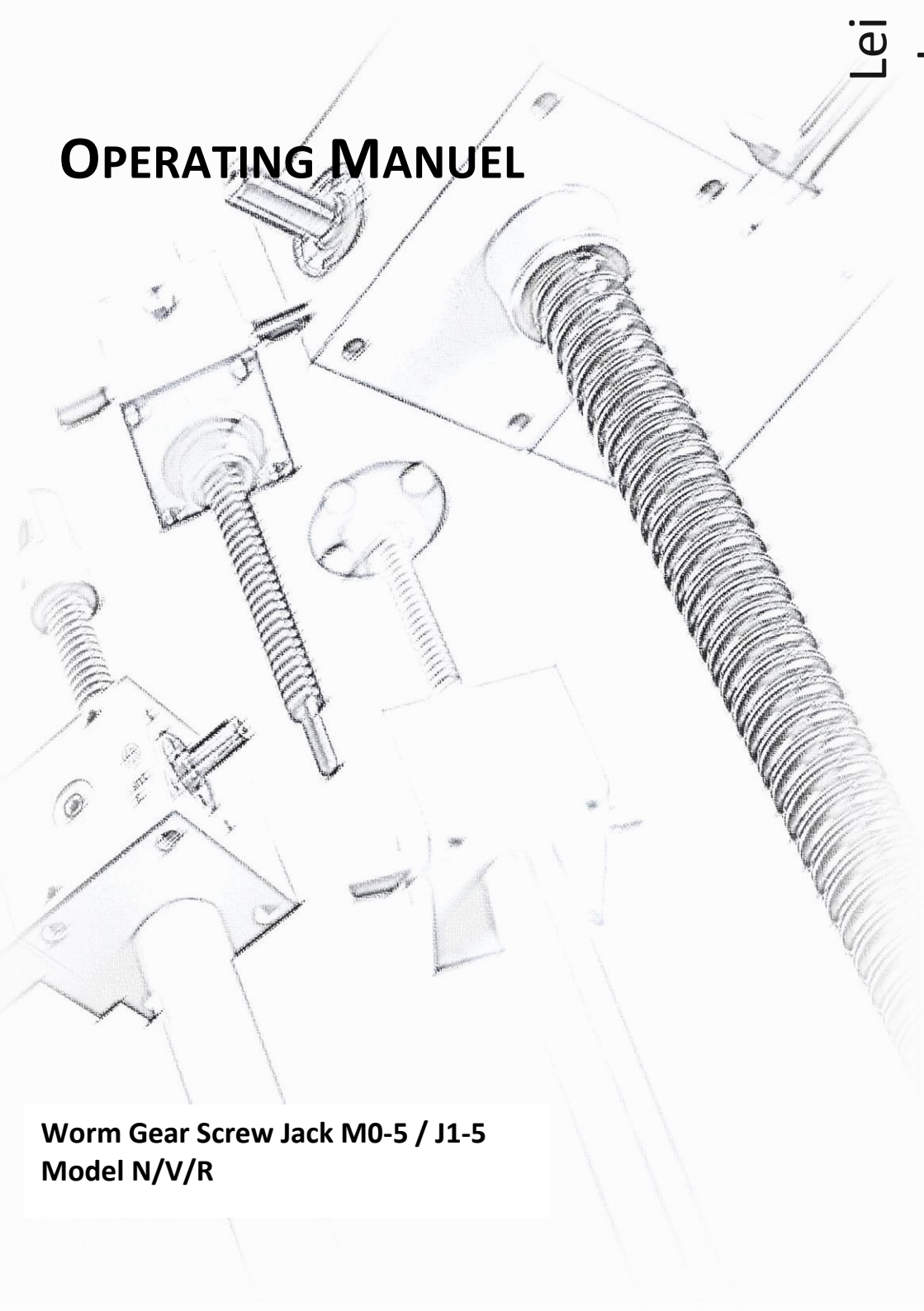


# OPERATING MANUAL



**Worm Gear Screw Jack M0-5 / J1-5  
Model N/V/R**



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# 1 Important Information

**This chapter contains important information on the safe handling of the product and on this operating manual.**

## 1.1 Instructions on Documentation

The following instructions will guide you through the entire documentation.  
We assume no liability for damages resulting from non-compliance with this operating manual.  
Forward this operating manual to the plant operator so that it is available if needed.

## 1.2 Safekeeping of the Documentation

**Keep this operating manual and all other applicable documents safe so that they are available if needed.**

## 1.3 Used Symbols



### Information

Instructions and information on the operation of the worm gear screw jacks.



### Attention!

Non-compliance may result in material damage and impair the operation of the gear unit.



### Warning!

Safety instruction: non-compliance may result in serious or fatal injuries.



### QR Barcode

Provides a direct link to the products on our website.  
Compatible with QR barcode scanner apps for all Android, Apple and Windows smart phones / tablets.

## 1.4 Qualified Staff



Qualified staff according to this operating manual refers to specialists who are familiar with the installation, assembly, commissioning and operation of the worm gear screw jacks and the hazards involved and who possess the necessary capabilities on the basis of their specialist training and knowledge of the applicable standards.

### 1.5 General Safety Instructions

The following warnings, preventive measures and instructions are intended to guarantee your safety and to avoid damage to the lifting gear or the components connected to it. This chapter contains warnings and instructions that generally apply to the handling of the lifting gear.



#### **Intended Use:**

The M0-5 / J1-5 worm gear screw jacks are intended only to carry out lifting, lowering, tilting and feeding motions.

Please find lifting capacities in our catalog or at [www.neff-gewindetriebe.de](http://www.neff-gewindetriebe.de).

Any other use is considered misuse. The manufacturer assumes no liability for any damage resulting from misuse.

**If the device is installed in machines or plants, commissioning is prohibited until it is determined that it complies with the EC machinery directive.**

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#### **Attention!**

**Requirement according to the German accident prevention regulations VBG14 / VBG 70:**

If worm gear screw jacks are operated in theatre stages (VBG 70), lifting platforms (VBG 14) or lifting equipment where there is a danger to persons, we generally recommend using a safety nut for fall protection.

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#### **Attention!**

This operating manual must be kept close to the device and be easily accessible and available to all users.

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#### **Attention!**

**Risk of damage to the lifting gear resulting from storage and transport.**

Correct storage, installation and assembly as well as diligent operation and maintenance are prerequisites for the trouble-free and safe operation of the worm gear screw jacks.

The worm gear screw jack must be protected against mechanical impacts and vibrations during transport and storage.

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#### **Warning!**

**Work on live components:**

E.g. installation of limit switches or a drive unit must only be carried out by trained electricians.

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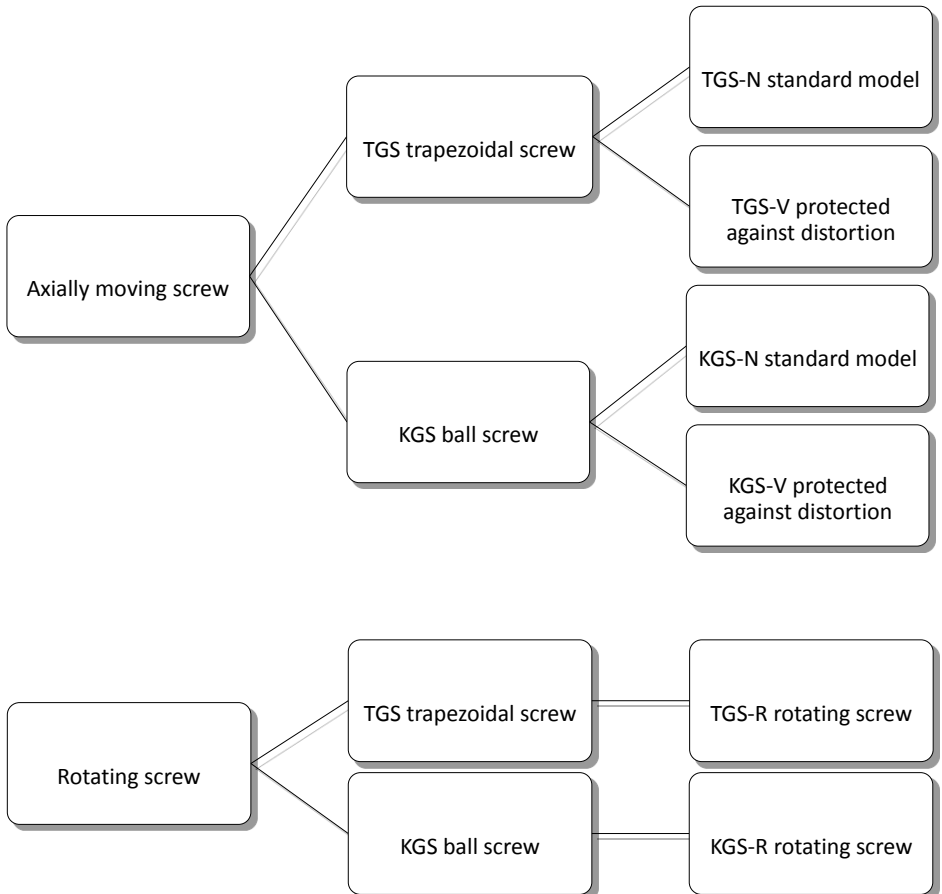
## 2 Overview of the Worm Gear Screw Jacks



### Description of a Worm Gear Screw Jack:

Neff worm gear screw jacks are used for applications where precise lifting, lowering, tilting and feeding motions are required. Our standard range comprises 11 models (Multi 0-5 / Jumbo 1-5). The cubic housing that is machined on 4 sides allows for the installation of motors, gears or pressure transducers. All models are designed to cater for pressure and tensile loads as well as position-independent operation.

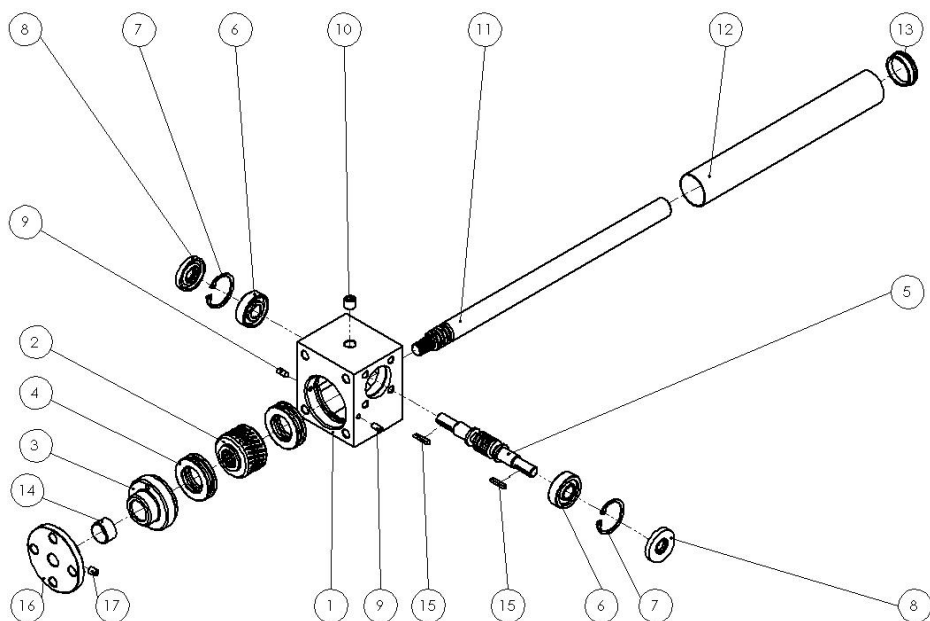
Basically, 2 different movement principles have to be distinguished:



### 3 Design of the Worm Gear Screw Jack

SHG-TGS-N model (standard)

Position	Designation
1	Housing
2	Worm gear
3	Bering cover
4	Axial grooved ball bearing
5	Worm gear shaft
6	Grooved ball bearing or taper roller bearing
7	Snap ring acc. to DIN 471
8	Radial shaft seal ring acc. to DIN 3760
9	Grub screw
10	Lubrication nipple
11	Trapezoidal screw
12	Cover tube
13	Cover tube end cap
14	Sliding bearing
15	Fitted key acc. to DIN 6885
16	Mounting plate
17	Grub screw for mounting plate



## 4 Assembly

### 4.1 General Assembly Instructions



The worm gear screw jack is fastened via the housing or other fastening components (mounting plates or cardan adapters, see QR code below). The housing always needs to be screwed to a machined surface (not to rolled steel profiles or similar) in order to avoid misalignment or noise.

Depending on the respective application, the worm gear screw jack and the screw have to be precisely aligned at a right angle or in parallel to the machine component and tightened during assembly.

The tolerances of the four assembly sides correspond to the DIN ISO 2768-mH standard.

Size	M0	M1	M2	M3	M4	M5	J1	J2	J3	J4	J5
<b>Bolts (min. 8.8)</b>	M6	M8	M8	M10	M12	M20	M24	M30	M30	M36	M42
<b>Length of engagement</b>	12	13	15	15	16	30	40	45	45	54	80
<b>Max. torque in Nm</b>	10	25	25	50	80	400	730	1450	1450	2600	4000

The torques mentioned in the table are only rough and nonbinding guidelines – see VDI 2230.



Lateral forces have to be absorbed by suitable guiderails; otherwise the device lifecycle would be shortened.



#### Attention!

The lubrication nipples must always be accessible during operation.



#### Attention!

Do not hammer the shaft end or the screw when aligning the worm gear screw jack.

QR barcode to Neff fastenings:



QR barcode to Neff attachments:



### 4.2 Mounting Several Worm Gear Screw Jacks in Parallel

**Requirement:**

One worm gear screw jack is already installed and fastened as described in chapter 4.



1. Bring the second worm gear screw jack into the planned position, but do not fasten it yet.
2. If rotating screws are used, bring the travelling nuts into the same position.
3. Push the coupling or drive shaft onto the worm gear shaft of the worm gear screw jack that is already fastened.
4. Push the coupling or drive shaft onto the worm gear shaft of the second worm gear screw jack.
5. Fasten the worm gear screw jack.
6. Repeat steps 1-5 with any other gear units.

**Attention!**

Check the sense of rotation of all lifting elements before assembly.

**Attention!**

Use torsionally flexible couplings, drive shafts or cardan shafts in order to compensate for any misalignment of the worm gear screw jackets.

**Attention!**

Observe the lubricating film and screw temperature during run-in. If the screw quickly runs dry (or if there are loud running noises with ball screws) and if the temperature is increased despite observing duty time and permissible power, this indicates impermissible lateral forces.

QR barcode to Neff couplings:



QR barcode to Neff drive shafts:





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## 5 Commissioning

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### Attention!

Check the operation of the limit switch. If possible, start the worm gear screw jack without any load and increase the load slowly.

During commissioning, continuously check the operating temperature, power consumption of the motor and the screw contact pattern.

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## 6 Maintenance

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- **With trapezoidal screws, regularly** lubricate the screw.
  - **With ball screws (R-Version), observe the following guideline:** lubricate approx. every 200 hours with 1ml per 10mm of screw diameter. For N-Version: Ball screw with lifetime lubrication
  - **Approx. 5 operating hours** after commissioning: Retighten all attachment bolts.
  - **After approx. 200 operating hours or 1 year** (sooner in tough operating conditions): Check the screw nut for signs of wear and tear. Clean the screw of old grease and relubricate.
  - **After approx. 5 years:** Disassemble gear, clean it of old grease and relubricate:
    1. Remove the two grub screws at the bearing cover
    2. Take the screw out (remove screw protection if required).
    3. Unscrew the bearing cover.
    4. Remove the old grease.
    5. Refill with new grease.
    6. Strongly press the bearing cover down (10 times the normal contact force).
    7. Loosen the bearing cover again.
    8. Put the bearing cover into place and fasten it with two grub screws.
- 



### Attention!

When assembling the bearing cover, make sure it fits smoothly and that there is no axial play.

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### Attention!

Change the screw nut if the axial play exceeds 1/4 of the thread pitch (trapezoidal thread).

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## 6.1 Lubricants and Fill Quantities

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Types of factory grease:

**Worm gear screw jacks / trapezoidal screws:**

Aral Aralub MKL 2

Aral safety data sheet:



**Ball screws:**

Interflon Fin Grease MP 2/3

Interflon safety data sheet:



**Fill quantities:**

Type	M0	M1	M2	M3	M4	M5	J1	J2	J3	J4	J5
Fill quantities in grams	15	45	65	120	420	900	1200	1200	1200	2500	5000



In addition to our factory lubricants, other equivalent brand lubricants may also be used. This only applies if they are compared to the data sheets of the above manufacturers.

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To much grease increases friction and therefore causes an increase in temperature. There is a sufficient amount of lubricant when a small amount of grease begins to exit at the sealing lips.

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## 7 Malfunctions



**Service:** Should malfunctions occur during operation, first try to identify the manner of the malfunction with the table below and to repair it. If it is a malfunction you can not repair, please contact our technical service (see last page).

Malfunction	Cause	Remedy
Unusual, constant running noises.	<ul style="list-style-type: none"> <li>➤ Rolling / grinding: Bearing damage</li> <li>➤ Tapping: Irregularity in gearing</li> </ul>	Check grease fill level. Consult the technical service.
Unusual, irregular running noises.	Foreign object in the grease.	Check grease fill level. Stop drive. Consult the technical service.
Unusually high temperature at the housing.	<ul style="list-style-type: none"> <li>➤ Not enough grease.</li> <li>➤ Defective gearing or bearing.</li> </ul>	Check and correct grease filling. Consult the technical service.
Grease or oil exists at the shaft seal ring.	Defective sealing.	Consult the technical service.
Grease or oil exists at the shaft seal ring and at the screw.	Too much grease in the gear.	Check and correct grease fill level. Consult the technical service.
Trapezoidal screw quickly runs dry.	Assembly fault: Impermissible lateral forces.	Repair assembly fault. Consult the technical service.
The worm gear shaft does not turn or the screw turns but does not move although the worm gear shaft is turned.	The connection between the shaft and the hub or the gearing is broken.	Have the gear repaired.

## 8 Manufacturer's Declaration

**We hereby declare that the following product:**

Worm gear screw jack, version M and J  
with trapezoidal screws or ball screws  
model N, R or V  
in the sizes  
M0 – M5, J1 – J5  
for lifting and lowering loads

was manufactured in accordance with the EC machinery directive 2006/42/EC annex II B on incomplete machinery.

This incomplete machinery must not be commissioned until the machine it is to be incorporated in has been declared to comply with the provisions of the EC machinery directive, the harmonized standards, European standards or the applicable national standards.

The manufacturer undertakes to forward the documentation on the incomplete machinery to national authorities on request. The technical documentation was created according to annex VII B.

**Person responsible for documentation:**

Sandro Garofano, QA manager

**Address of the person responsible for documentation:**

Neff Gewindetriebe GmbH  
Karl-Benz-Str. 24  
71093 Weil im Schönbuch  
Germany

**The following harmonized standards have been applied:**

- DIN EN ISO 12100-1** Safety of machinery – Basic concepts, general principles for design, part 1:  
Basic terminology, methodology
- DIN EN ISO 12100-2** Safety of machinery – Basic concepts, general principles for design, part 2:  
Technical principles and specifications

**The following national standards, guidelines and specifications have been applied:**

**BGV D8** Accident prevention regulations for hoist gears, lifting and towing equipment

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