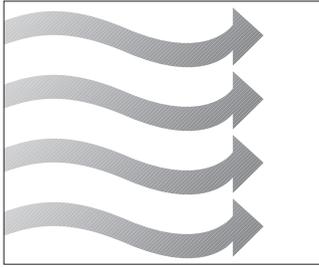
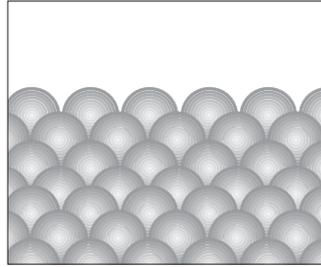


# The New Class defines the performance limits of screw jacks



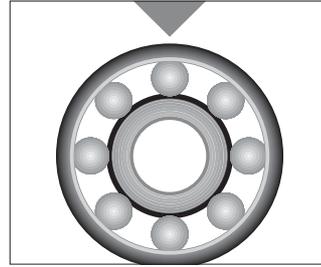
## The design

The cubic shape with integrated cooling fins permits a longer duty cycle, as the heat is dissipated more effectively, thus extending the service life of the lubricant. The surface coating simultaneously protects the jack against corrosion.



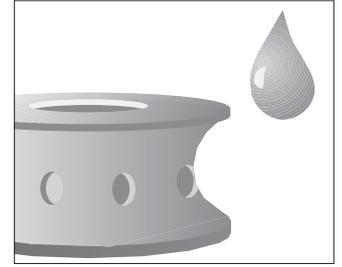
## The housing material

The mechanical strength of the housing has been improved, particularly at high temperature, through the use of spheroidal graphite iron instead of the former cast iron. This ensures greater reliability, even in tough service conditions.



## The bearings

Taper roller bearings on the worm shaft and heavy-duty ball bearings as the main thrust bearings make it possible to move higher loads, increase the safety reserve and extend the service life.

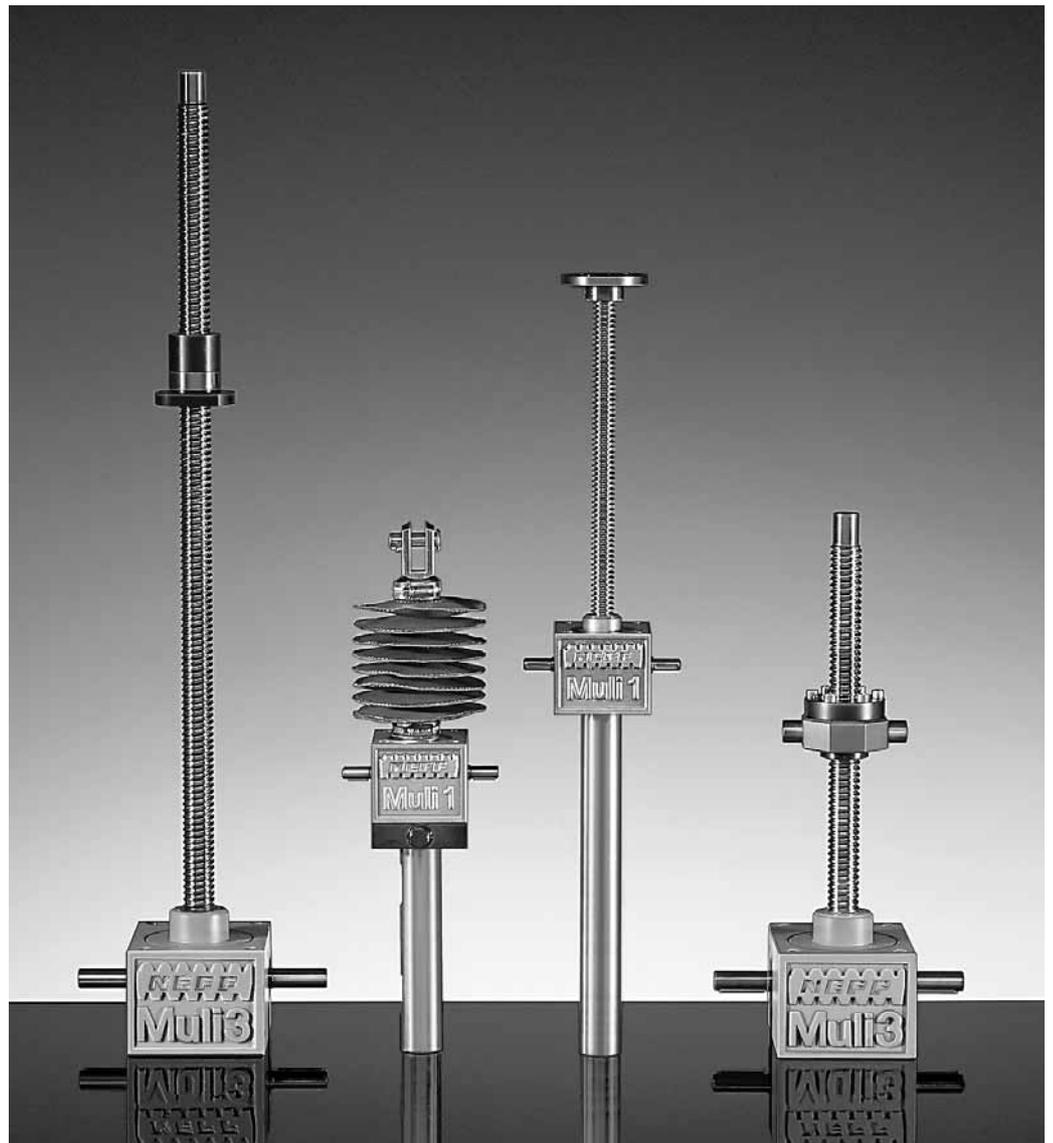


## The lubrication

The trapezoidal screw (version N) is greased by radial lubrication holes on the worm wheel. The resultant lower friction and temperature extends the service life, particularly when operating with longer stroke lengths.

The range of NEFF worm gear screw jacks comprises ten models with lifting capacities from 5 to 500 kN. All versions are designed for both tensile and compressive loads and will operate in any orientation or mounting position. They meet the most demanding technical standards:

- Wide range of load capacities
- High and low speeds
- Cubic shape of the housing with predrilled flange bores allows ideal attachment of a motor, gearbox or rotary encoder
- Standard mounting parts and end fittings
- Easy synchronization of several worm gear screw jack units
- With ball screw or trapezoidal screw, as required for the application concerned
- Extensive variations, also for special requirements (e.g. safety nut)
- Complete range of accessories



# Worm gear screw jacks

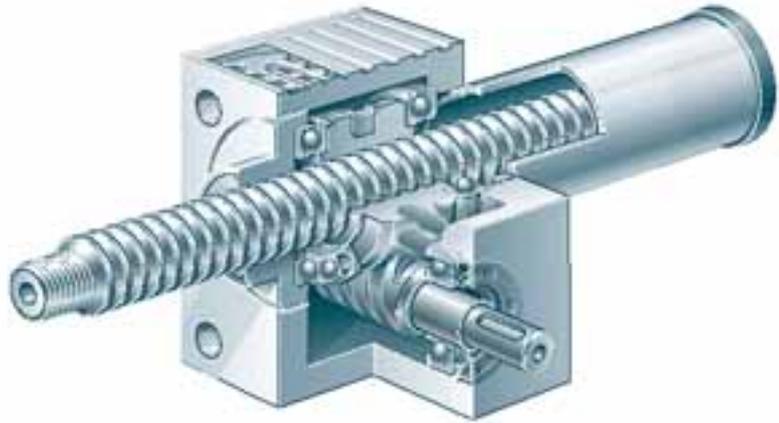
## Design versions

**MULI® 1  
to  
MULI® 5  
(5–100 kN)**

### **Axially translating screw**

The rotary motion of precision worm gearing (worm shaft and internally threaded worm wheel) is converted into axial linear motion of the screw, which travels/translates through the gearbox housing. The load is attached to the end of the screw.

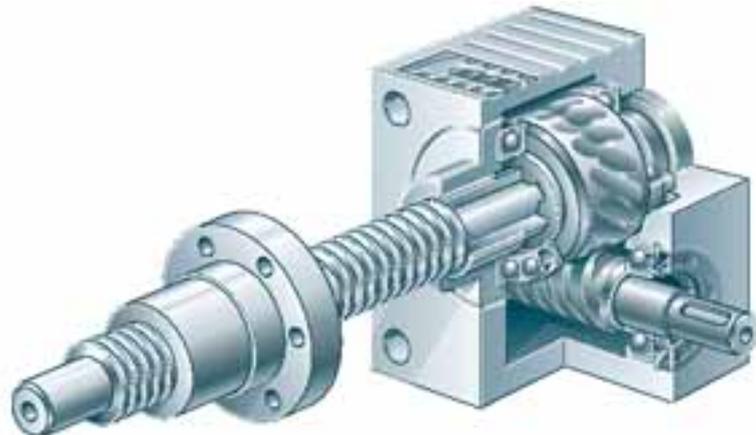
### **Version N or V**



### **Rotating screw**

Driven by a precision worm gearing (screw keyed to the worm wheel), the rotary motion of the screw is translated into linear motion of the travelling nut on the screw.

### **Version R**



**JUMBO® 1  
to  
JUMBO® 5  
(150–500 kN)**

### Version N

Rotation of the screw is prevented by its permanent attachment to the guided load.

### Version V

Version V with anti-rotation device is recommended if the screw cannot be secured externally to prevent rotation.

### Version R

Note:  
The travelling nut must be ordered separately.

### Gear ratio H

One full turn of the worm shaft produces a stroke of 1 mm (see page 10/11).

### Gear ratio L

One full turn of the worm shaft produces a stroke of 0.25 mm (see page 10/11).

### Trapezoidal screw

For tough conditions, good price/performance ratio.

### Ball screw

For longer duty cycles, with higher efficiency, high positional accuracy.

# Technical data

## Worm gear screw jacks

The range includes a total of ten worm gear screw jack models in two series: MULI® 1 to MULI® 5 with lifting capacities up to 100 kN and JUMBO® 1 to JUMBO® 5 with lifting capacities from 150 kN to 500 kN statically.

### Speed of travel

#### Gear ratio H (high speed)

For worm gear screw jacks fitted with standard trapezoidal screws, one full turn of the worm shaft produces a stroke of 1 mm and therefore a **linear speed of 1500 mm/minute at 1500 rpm**. The figures for units fitted with ball screws range from 1071 mm/minute to 2142 mm/minute depending on size and pitch.

#### Gear ratio L (low speed)

For worm gear screw jacks fitted with standard trapezoidal screws, one full turn of the worm shaft produces a stroke of 0.25 mm and therefore a linear speed of 375 mm/minute at 1500 rpm. The figures for units fitted with ball screws range from 312 mm/minute to 535 mm/minute depending on size and pitch.

Please note that higher speeds of travel can be achieved with larger screw pitches or multiple start screws. **The worm gear screw jack's maximum drive revs of 1500 rpm must not be exceeded.**

The higher efficiency of the ball screw drive also permits a longer duty cycle.

### Tolerances and backlash

- The gearbox housings are machined on the four mounting sides. The tolerances conform to DIN ISO 2768-mH. The sides that are not machined (the cooling ribs) conform to DIN 1685, GTB 18.
- The axial backlash of the jack screw under alternating load is as follows:
  - Trapezoidal screws: up to 0.4 mm
  - Ball screws: 0.2 mm
- The lateral play between the outside diameter of the screw and the guide diameter is 0.2 mm.
- The backlash in the worm gears is  $\pm 4^\circ$  of the input shaft. A predetermined axial float is built into the input shaft bearing assembly of all models from MULI® 4 upwards to accommodate thermal expansion during operation.
- Trapezoidal screws are manufactured to a straightness of 0.3-1.5 mm/m, ball screws to a straightness of 0.08 mm/m over a length of 1000 mm and to the following pitch accuracies:
  - MULI® 1-MULI® 5: 0.05 mm/300 mm length
  - JUMBO® 1-JUMBO® 5: 0.2 mm/300 mm length

### Lateral forces on the jack screw.

Any lateral forces that may occur should be taken by an external guide rail.

### Stop collar A

Prevents the screw from being removed from the jack gearbox. Fitted as standard on ball screw versions N and V. Optionally available for screw jacks with trapezoidal screws. The stop collar cannot be used as a fixed stop.

### Self-locking

The self-locking function depends on a variety of parameters:

- Large pitches
- Different gear ratios
- Lubrication
- Friction parameters
- Ambient influences, such as high or low temperatures, vibrations, etc.
- The mounting position

Versions with ball screw and large pitches are consequently **not self-locking**. Suitable brakes or braking motors (on request) must therefore be considered in such cases. **Limited self-locking** is available for smaller pitches (single-start).

### Special versions

In addition to the extensive standard range, NEFF can also supply anticlockwise, multi-start and special material worm gear screw jacks on request.

