

# Ball screw drives KGT

## General technical data

### Manufacturing process

The thread profile is produced by cold rolling in the thread rolling method. Both screw and nut have a gothic thread profile. The lead angle is 45°.

### Linear speeds

At present, the permissible rotation limit is in the region of 3000 rpm. This limit defines the maximum rotation, which must be run only under ideal operating conditions.

### Installed position

The position in which the screw drive is installed can always be freely chosen. Please consider that all radial forces that occur need to be absorbed by external guides.

### Accuracy

The standard programme has a precision of 50 µm per 300 mm, screws from the **MICRON Line**® series, which are available on request, achieve an accuracy of 23 µm per 300 mm.

### Safety advice

Ball screw drives are generally not self-locking due to the low friction. It is therefore advisable to install suitable motors with holding brake, particularly when the ball screw drive is installed vertically.

### Duty cycle

The ball screw drive permits a duty cycle of up to 100%. Extremely high charges in combination with high duty cycles can reduce the life time.

### Temperatures

All screw drives are designed for continuous operation at ambient temperatures of -30° up to 80° C. Temperatures of up to 110° C are also permitted for brief periods. Ball screw drives are only in exceptional cases suitable for operation at subzero temperatures.

### Repeatability

The repeatability is defined as the capability of a screw drive to reach an actual position that has once been reached again under the same conditions. It refers to the average position variation according to VDI/DGQ 3441. The repeatability is influenced amongst others by:

- Load
- Speed
- Deceleration
- Direction of travel
- Temperature

### Aggressive ambient working conditions

In cases of heavy dirt and dust particles, an additional bellow or a spiral spring cover is recommended.

### Installation and maintenance

See page 60

### Technical Data

- Thread \_\_\_\_\_ Gothic profile (pointed profile)
- Diameter \_\_\_\_\_ Standard: 12 – 63 mm  
**MICRON Line**®: 12 – 40 mm
- Lead \_\_\_\_\_ Standard: 5 – 50 mm  
**MICRON Line**®: 5 – 40 mm
- Number of starts \_\_\_\_\_ 1 – 5
- Thread direction \_\_\_\_\_ Right hand thread, KGS 2005 also left hand thread
- Length \_\_\_\_\_ Standard: 5600 mm  
KGS 1205: 1300 mm
- Material \_\_\_\_\_ 1.1213 (Cf 53)  
Ball track inductively hardened and polished, soft-annealed screw end and core
- Lead accuracy \_\_\_\_\_ Standard: 50 µm/300 mm  
**MICRON Line**®: 23 µm/300 mm
- Straightness \_\_\_\_\_ L < 500 mm: 0.05 mm/m  
L = 500 – 1000 mm: 0.08 mm/m  
L > 1000 mm: 0.1 mm/m
- Left and right hand screw \_\_\_\_\_ KGS 2005 only
- End machining \_\_\_\_\_ To customer specs

### Ball screw drive KGS

# Ball screw drives

## Ball nuts

NEFF ball screw nuts are made as flanged nuts (KGF) and cylindrical nuts (KGM). They can be combined with all screws with any kind of end machining. Single nuts are also available on assembly sleeves.

Flanged ball screw nuts are made with attachment holes; cylindrical ball screw nuts have a spline.

NEFF manufactures ball screw nuts with three different ball return systems, depending on the diameter and the lead of the screw used. Profiled wipers reduce the seepage of lubricant, and help to repel dirt.

**Material:**

Steel 1.7131 (ESP65) / 1.3505 (100 Cr 6)

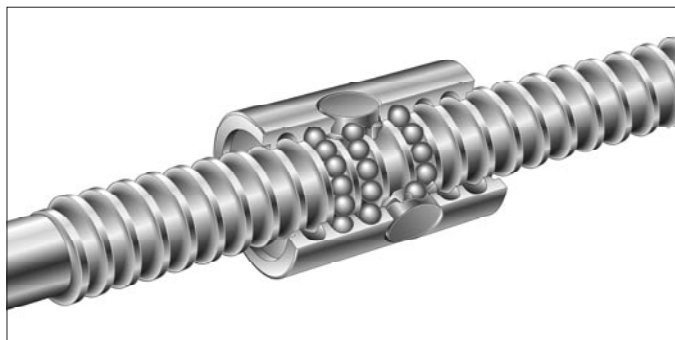
### NEFF ball return systems

#### Single return duct

For single-start screw drives.

The balls are lifted out of the track after every turn of the screw and are moved back one thread lead. The NEFF guide piece, made of fibre glass reinforced plastic, ensures perfect guidance and low ball wear.

Available for our thread leads 5 and 10 mm.

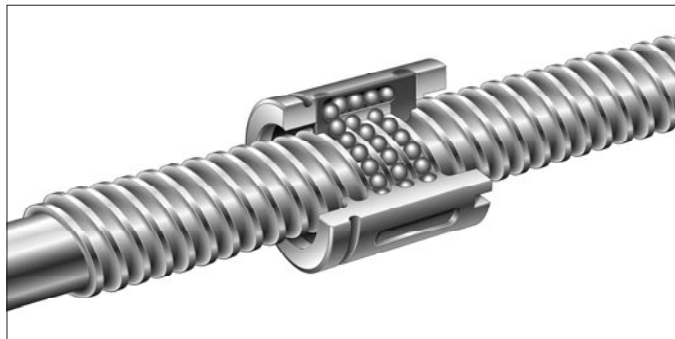


#### Return duct

For single- and multi-start screw drives.

After several revolutions, the balls are returned through a patented reverse and return system that is integrated in the nut.

Available for our thread leads 5, 10 and 20 mm.

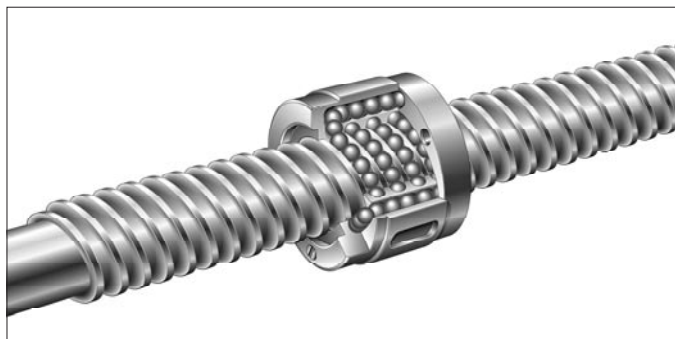


#### Multi-turn return duct

For multi-start screw drives.

The balls are returned via two special recirculating lids and the return duct is integrated in the nut.

Available for our thread leads 20, 25, 40 and 50 mm.



# Ball screw drives

## Ball nuts

### Ball nut units – pre-loaded

As a rule all nuts can be combined to form backlash-free, pre-loaded nut units except when the lead is equal to or greater than the diameter of the screw. NEFF supplies ready-to-install units with "O" pre-loading.

#### O pre-loading:

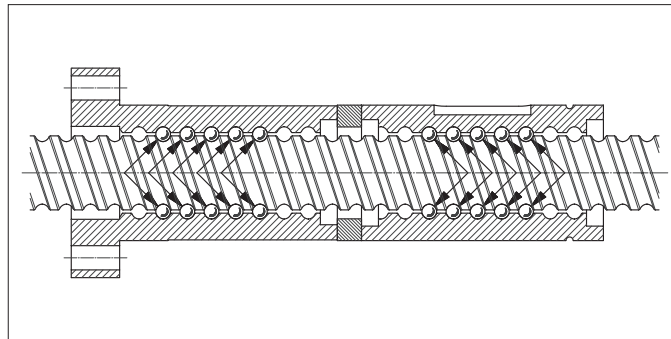
With this type of pre-loading the lines of forces run in a rhomboidal pattern (O-shaped), i.e. the nuts are pressed apart by the pre-loading force. This configuration offers particularly high

rigidity against tilting. The standard pre-loading is equal to 10% of the dynamic load rating C.

### Pre-loading variants

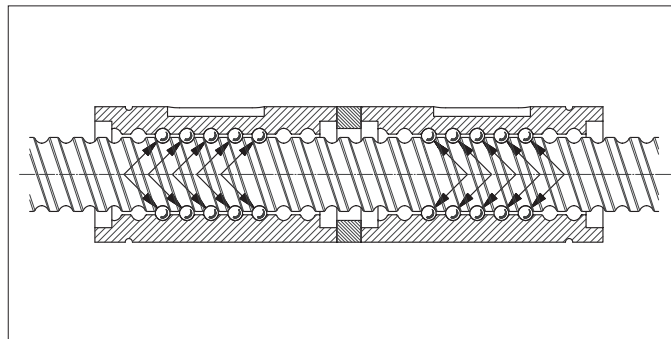
#### KGT-FM

Ball screw drive with one KGF flanged nut and one KGM cylindrical nut with O-pre-loading.



#### KGM-MM

Ball screw drive with two KGM cylindrical nuts and O-pre-loading. Only one of the two feather keys transmits the drive torque.



#### KGT-FF

Ball screw drive with two KGF flanged nuts with O-pre-loading.

