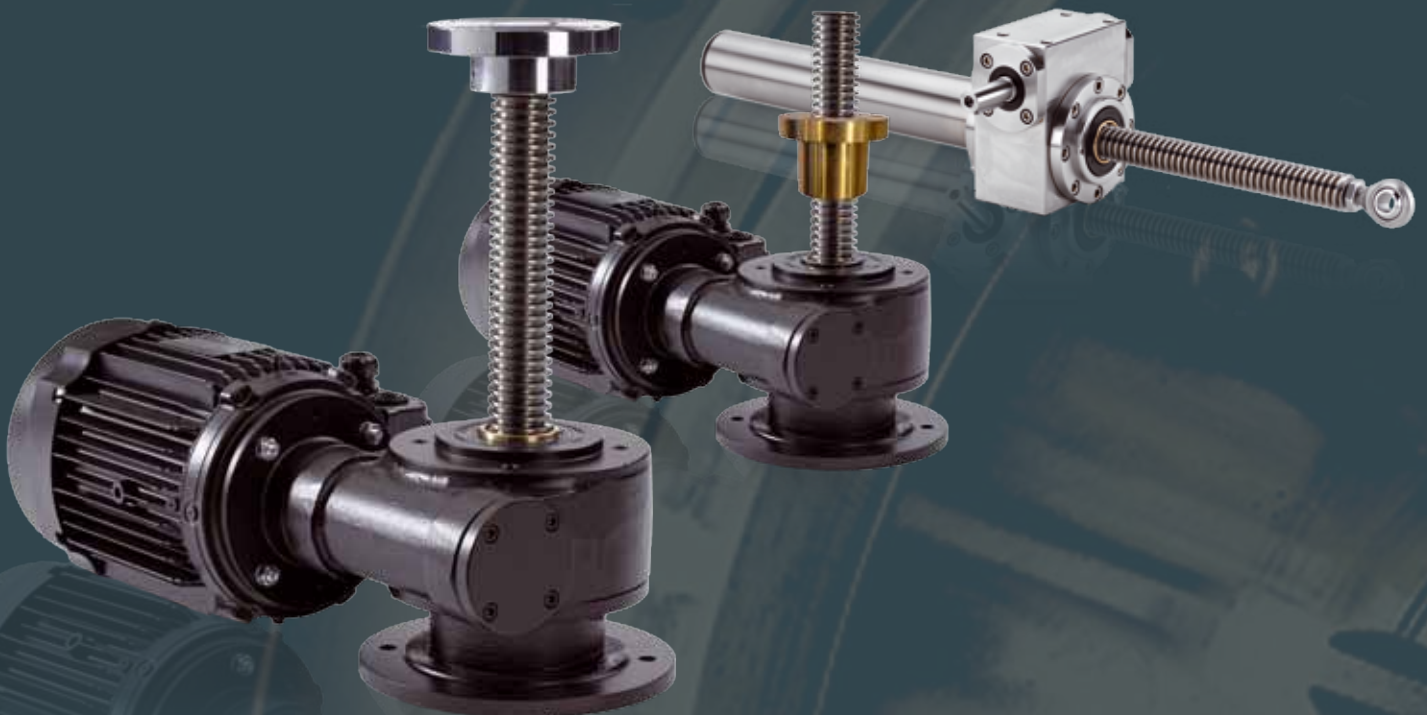


# Spindle Gear Manual

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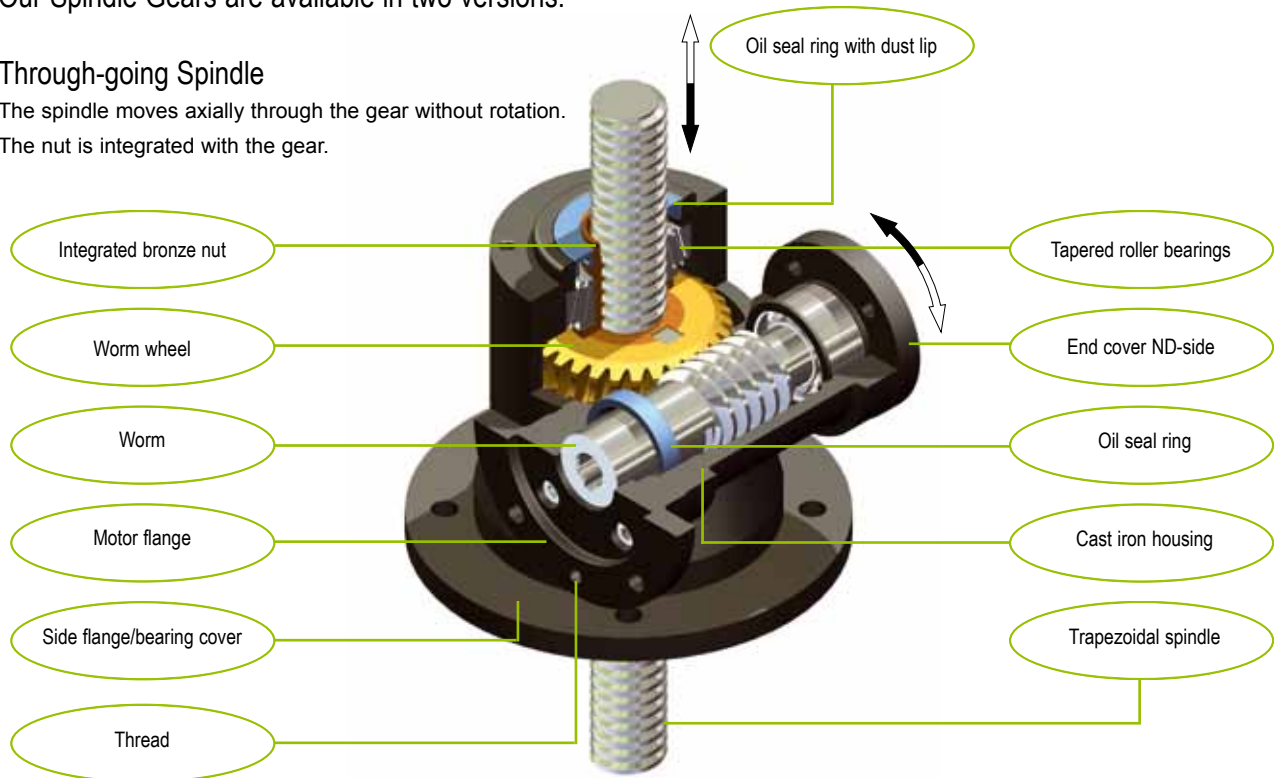


# Design of the Spindle Gear

Our Spindle Gears are available in two versions:

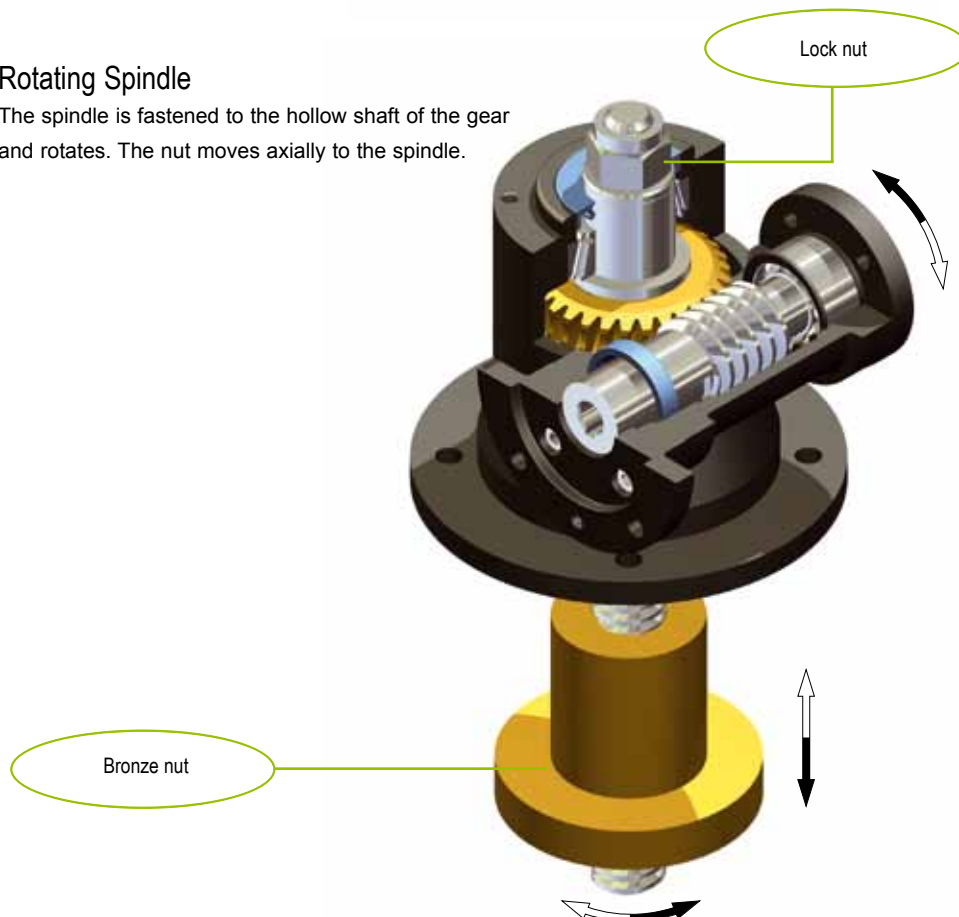
## Through-going Spindle

The spindle moves axially through the gear without rotation.  
The nut is integrated with the gear.



## Rotating Spindle

The spindle is fastened to the hollow shaft of the gear and rotates. The nut moves axially to the spindle.





## Mounting instructions

This instruction applies for spindle gears size 42, 52, 61 and 79. All according to our catalogues. Mounting and taking into service shall be done by trained and/or skilled personnel.

### Field of application

Unless otherwise agreed, the gears may be used in ambient temperature between 0 and +40° C and in normal atmosphere and normal atmospheric pressure.

If the gear is used in dusty or dirty environment, be sure that ingress in glands is avoided. The same goes for outdoor use or wet environment.

### Before mounting

- Examine the gear for damages and leakages.
- Ensure that the unit corresponds to the ordered.
- Some units are deliberately delivered without oil. If this is the case it is clearly marked. If the unit is delivered without oil, be sure to fill it with the right type and amount according to catalogues (can be found at [www.bj-gear.com](http://www.bj-gear.com) and on page 5).
- If possible, make a test run of the unit before mounting. (see page 4).
- If the unit is delivered with motor, electromagnetic brake or coupling, encoder etc., be sure to follow the operating instructions for these.
- Be sure that it is not possible to start the unit unintentionally during mounting.
- Before mounting the unit in the application, be sure to secure parts that could move unintentionally and make harm or damage. Please observe that not all units are self-locking.
- Be sure that the mounting planes are stable, clean and plane.

### Mounting of motor:

- Be sure that there is mounting grease between the motor shaft and the hollow input shaft of the gear.
- The gear input shaft should be pre-greased at delivery.
- Do not use hammering or excessive force during mounting of the motor. It can damage the bearings in the unit.
- If the motor and unit are connected by a coupling, be sure that the alignment is within the specifications of the coupling.

### Mounting of other accessories (brake, encoder etc.):

- Be sure to follow the operating instructions for these.
- Especially for brakes and clutches, be sure that no dirt, dust, oil or grease is present on or between any friction elements.

### Mounting:

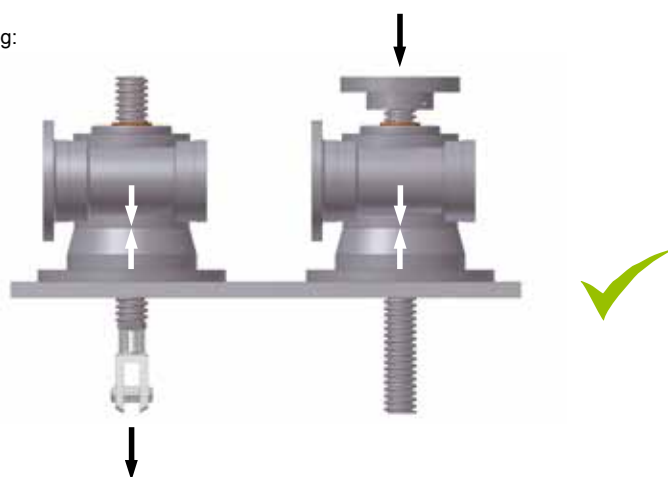
- Use only the holes or threads of the unit that is intended for mounting.
- Do not make changes to units unless approved by BJ-Gear.
- If torque arm is used, be sure not to over-constrain.
- Be sure to mount it in such a way that sufficient cooling is provided. If gear or motor is provided with cooling fan, be sure that sufficient air flow is accessible.
- Do not use hammering or excessive force during mounting.
- If the gear is supplied with air vent screw, be sure to position the gear in such a way that it is placed above the oil level. If the gear is delivered with a transport screw, be sure to interchange the transport screw with the air vent screw.
- Do not use a motor with higher power than allowed according to catalogue or documentation.
- Do not load the gear with higher torque or forces than allowed according to catalogue or documentation.
- Mount the gear in such a way that vibrations are minimized or eliminated.
- Secure screws so they don't get loose.
- Be sure to place feather keys where needed.

## Mounting instructions

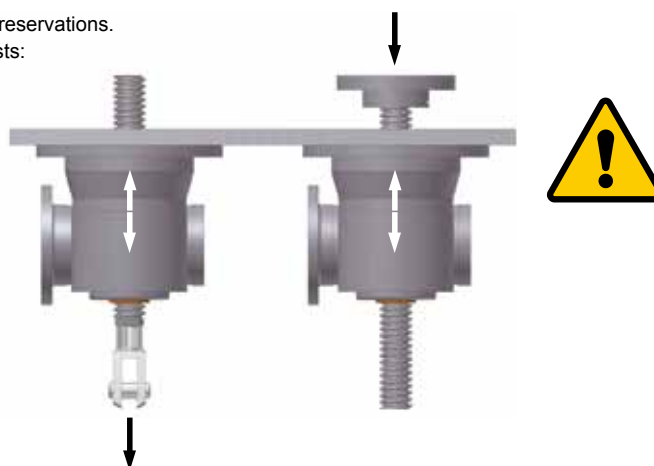
- There must only be a maximum load by compression of the gear to avoid that the side flange and the gear housing move apart from each other.
- On mounting, please make sure that the fixing on to the spindle gear is perpendicular to the working direction of the spindle. Ensure a stable and even surface for the spindle gear. See picture A for an ideal way of mounting.
- All data are based on axial forces seeing that the spindle gear must not be affected by radial forces (bending strain).
- There is no build in mechanical end stops in the spindle gears. Take the proper means to ensure that it stops correctly. Uncontrolled stops must be avoided, i.e. running against mechanical stop or gear housing must not occur.
- The spindle must always be 100% in mesh with nut.
- Before mounting be sure to secure the load it is meant to drive.
- Please notice that spindles are not always self- locking.
- Ensure that the spindle and spindle nut is always greased properly.
- Be sure not to over-constrain the spindle gear.
- Be sure not to over-load spindle and nut.
- Do not load the gear with higher torque or forces than allowed according to catalogue or documentation. (see the spindle gears catalog)

During mounting, service and re-lubrication be sure to do it in a safe way and with the loads properly secured. For lubrication of trapezoidal spindle we recommend Mobil Mobiltemp SHC 460 Special, Castrol Longtime Grease PD2 or similar. For lubrication of ball screw spindles use regular ball bearing grease.

A) Ideal way of mounting:



B) Mounting subject to reservations.  
Contact our specialists:



# Operating instructions

## Starting up:

### Before starting up the gear be sure that:

- The motor is properly secured to the spindle gear.
- The spindle gear is properly secured to the application.
- Test the functionality of electric brakes, couplings or safety devices, if such are installed.
- Brakes and couplings are released.
- Tools, wiring, clothes etc. are removed from moving part.
- When starting up, do it as gently as possible.
- Observe closely that the intended function occur, and if not, shut down the system and search for errors in a safe way.
- When the gear has reached its operation temperature, examine for leakages.

## Running-in:

The lifetime of the spindle gear will improve if it's run in properly. The permitted duty cyclus (ED) must be observed. See the spindle gears catalog on page 17 for values. A proper run in is as follows:

- Run the spindle gear for about 15 minutes in each direction with no load.
- Let the gear cool down.
- Start it up and load it with app. half the torque. Gradually increase to full torque. Do this in both directions.
- It is not always possible to do it this way but some running in is better than none.

## Choice of oil and oil quantities

### Oil change

The gears are lubricated for life. However, gears being exposed to heavy load should be subjected to oil change approx. every 5 years. Gears running in very hot environments may require oil change every year. **Do not mix** synthetic oils and mineral oils. All indicated outputs are based on synthetic oils.

### Oil quantities

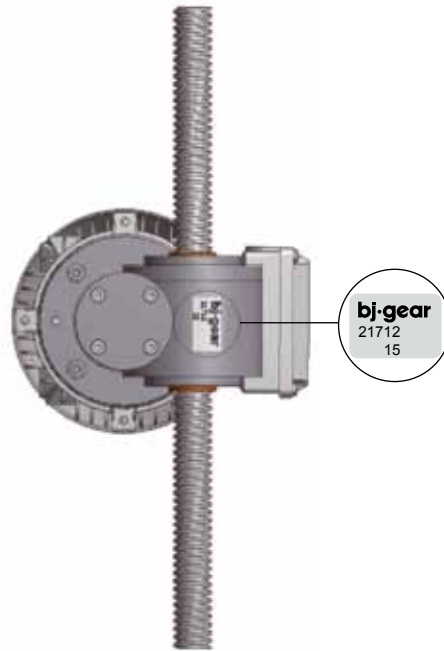
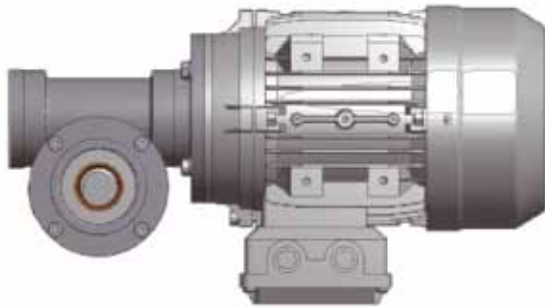
Series 42	Series 52	Series 61	Series 79
0.06 liter	0.18 liter	0.21 liter	0.5 liter

Description	Application	Viscosity	Oil
Fully synthetic gear oil, Standard	Normal load and ambient temp. -25° to +40°C	<b>220</b>	Klübersynth GH 6-220
Fully synthetic gear oil	Heavy load and ambient temp. -20° to > +40°C	<b>460</b>	Klübersynth GH 6-460
Fully synthetic gear oil	Heavy load and ambient temp. -20° to > +40°C	<b>680</b>	Klübersynth GH 6-680
Liquid grease	Normal load and ambient temp. -40° to > +40°C	<b>1200</b>	Klübersynth GE 46-1200
Special lubricating oil for food and pharmaceutical industries	Normal load and ambient temp. -20°C to +40°C	<b>460</b>	Klüberoil 4 UH1-460 N

Ambient temperatures are guide values which depend on the lubricant's composition, the intended use and the application method.

Read more on [www.klubersolutions.com](http://www.klubersolutions.com)

**Unique gear number**



**Unique gear number**

The unique serial numbering of the product means that we can always identify the spindle gear and supply the correct spare parts. If there is a need for a replacement product, we can always reproduce a spindle gear by using the unique serial number, no matter what degree of specialization and whenever it was originally delivered.



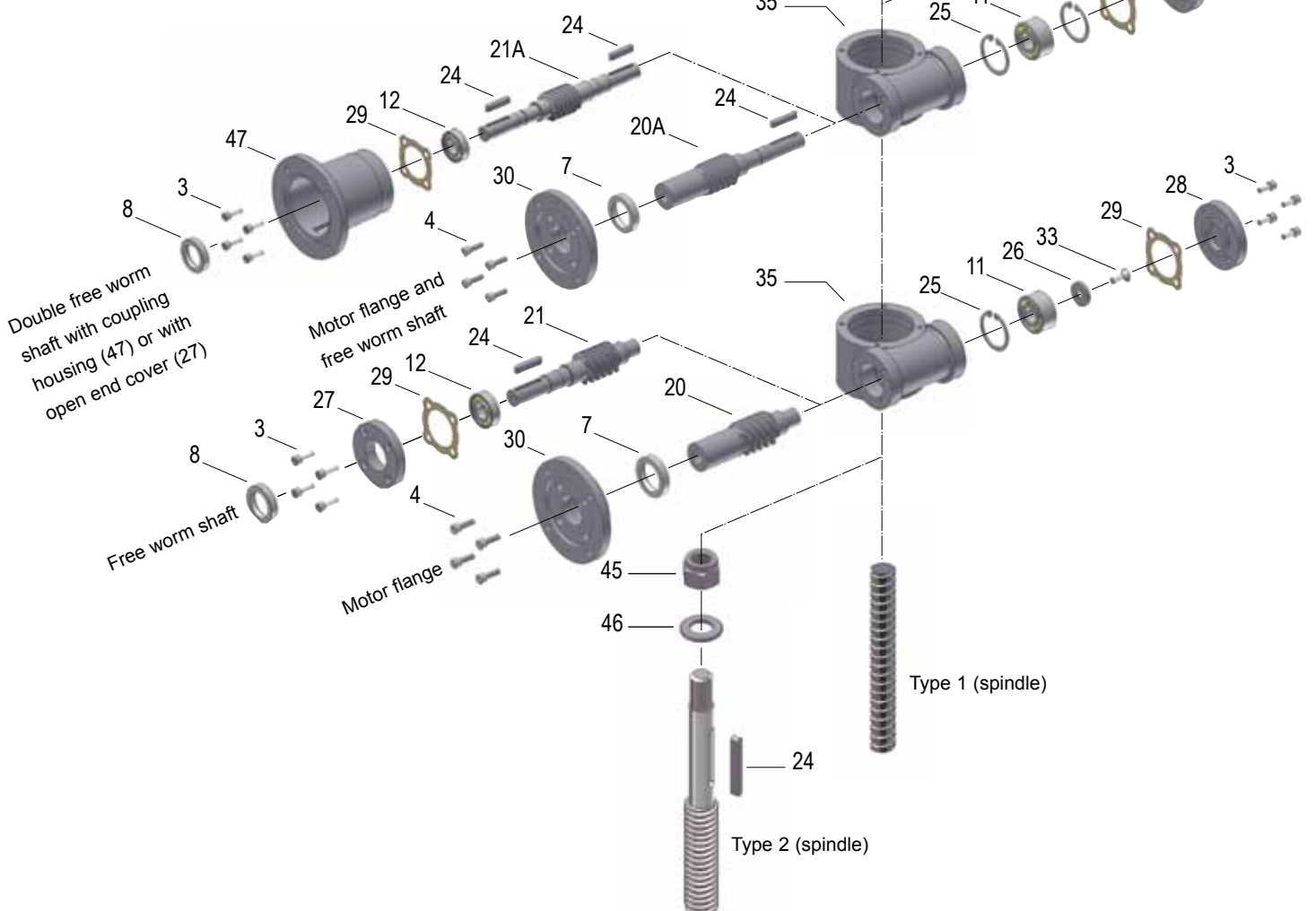
## Spare Parts Drawing



17A: Hollow output shaft with trapezoidal screw thread for use in type 1 spindle (through-going spindle)



17: Hollow output shaft for use in type 2 spindle (rotating spindle)





## Spare parts list

2	Gasket	31	Bearing Cover
3	Screw	31A	Side Flange
3B	Screw	33	Screw
4	Screw	35	Gear Housing
5	Oil Seal	45	Lock Nut
7	Oil Seal	46	Washer B
8	Oil Seal	47	Copling Housing
8A	Oil Seal		
9	Tapered Roller Bearing		
11	Tapered Roller Bearing		
12	Tapered Roller Bearing		
13	Worm Wheel		
15	Spacer Ring		
17	Hollow Output Shaft		
17A	Hollow Output Shaft		
20	Hollow Worm Shaft		
20A	Hollow Worm with Free Shaft		
21	Free Worm Shaft		
21A	Double Free Worm Shaft		
22	Parallel Key B		
24	Parallel Key A		
25	Locking Ring		
26	Washer A		
27	End Cover, open		
28	End Cover, closed		
29	Gasket		
30	Motor Flange		





## Declaration of incorporation

The below mentioned manufacturer and authorized to produce technical documentation for the partly finished machine, and in response to a reasoned request, transmit relevant information regarding the partly finished machine:

**BJ-Gear A/S**

Niels Bohrs Vej 47  
DK-8660 Skanderborg  
Tlf: +45 87 40 80 80  
Fax: + 45 87 40 80 81  
bj@bj-gear.com

hereby declare that the partly finished machine:

**Gears and gear motors: Worm gears both BJ and LJ series, Strong helical gears, Strong spiral bevel gears, actuators og spindle gears, configured and ordered according to our standard catalogues**

are produced in accordance to machinery directive 2006/42/EC annex II B og annex VII B.

Relevant standards used:

EN ISO 12100-1:2005  
EN ISO 12100-2:2005

The partly completed machine must not be put into service until the final machinery in which it is to be incorporated has been declared in conformity with the provisions of machinery directive 2006/42/EC.

Stilling, 19.01.2010

Jesper Olesen  
R & D Manager