



ZEITLAUF®

antriebstechnik

Operating Instructions  
Standard Modular System



## Operating Instructions for the Standard Modular System

ZEITLAUF® GmbH antriebstechnik & Co KG reserve the right to modify products for the purposes of technological development. These changes are not necessarily documented in the operating instructions in every individual case.

These operating instructions and the information contained therein have been compiled with all due care. However, ZEITLAUF® GmbH antriebstechnik & Co KG provides no guarantees against any printing errors or other errors or resulting damages.

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## Importance of the Operating Instructions

The present operating instructions demonstrate the safe application and fault-free use of our gear motors and components. They constitute an integral part of the gear motor you have purchased and must be:

- Retained until disposal of the assembly.
- Passed on to the new users in the event of the sale, transfer or loan of the assembly.

Gear motors may present unavoidable outstanding risks to persons or property. Any person working with or on our drive motors must be instructed in this work and aware of the possible risks. To this end, the operating instructions and particularly the safety instructions must be carefully read, understood and observed. If external electronics are supplied with the equipment, observance of the operating instructions for these assemblies is also imperative.

Please contact us directly if anything from these operating instructions is not completely clear to you.

**In case of queries please contact our telephone hotline**

**+49 (0) 9123 / 945-0**

**or send an e-mail to [info@zeitlauf.com](mailto:info@zeitlauf.com)**

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## 1. Safety Instructions

Our gear motors are compliant with the latest technology and are reliably designed, built and tested in observance of the applicable standards (machinery directive 2006/42/EC, low voltage directive 73/23/EC and EMC directive 2004/108/EC) and leave the workshop in a fault-free condition with respect to safety.

The following are also applicable for the user:

- EC directives and other country-specific regulations
- Generally recognised safety regulations
- Relevant accident prevention regulations

All work on the gear motors, including connection and installation, is to be carried out only by qualified professionals or by persons who have received technical instruction in observance of the current safety standards. Incorrect use, defective assembly and defective installation and operation may result in serious damage to persons and property.

### Explanation of Symbols Used



Indication of a possible imminent danger, which may result in serious physical injury or death. **(Warning!)**



Indication of a possible imminent danger, which may result in some physical injury or damage to property. **(Caution!)**



Information on optimum product usage. **(Information)**

### Proper Use

The gear motors are intended as rotary-movement drives for industrial systems for installation in machines in the context of machinery directive 2006/42/EC or for installation in equipment by expert operations and facilities, in observance of the guidelines and standards applicable to such. The following basic guidelines and the laws and standards from these must be observed in particular:

- 2006/42/EC machinery directive
- 73/23/EC low voltage directive
- 2004/108/EC EMC directive

In accordance with the intended use of the machine/equipment in which the drive motor is installed, other product-specific and product-unrelated guidelines and standards are also applicable, the observance of which is the responsibility of the machine/equipment manufacturer.

Initial operation is prohibited until compliance of the end product with these guidelines and/or other guidelines and standards applicable for the end product is established. ZEITLAUF® GmbH antriebstechnik & Co KG is responsible for establishing the compliance of the end products with the respective guidelines or standards.

Observance of the proper operating data is imperative. In case of doubt, do not commence operation of the gear motor. In case of queries, please contact ZEITLAUF® GmbH antriebstechnik & Co KG.

### Improper Use

Do not use the gear motor in technical systems for which special reliability requirements are specified, e.g. such as in aircraft or cable railways.

If the gear motor is used under operating conditions other than those described in sections 3 and 4, prior consultation with the manufacturer is required.

Operation is prohibited in the case of improper use.

### Conversions and Modifications

Only operate the gear motor when it is in original and fault-free condition.

Upgrades, modifications or conversions of the gear motors are prohibited. Always agree any desired modifications with ZEITLAUF® GmbH antriebstechnik & Co KG.

Any conversions or modifications not expressly approved by us will invalidate any liability held by us. This also applies to damage caused by the use of non-original components or by operation outside of the agreed parameters.

## Outstanding Risks

### Danger from high operating voltage!



If the gear motor is not connected properly and not disconnected from the power supply while work is being carried out on it, an electric shock may result.

- Do not touch the connecting terminals and other conductive components during operation of the gear motor.
- Ensure that the electrical connections are correct according to the gear motor connection diagram, including the earth connection (if specified).
- Disconnect from the power supply and safeguard against switching on again before carrying out work on the gear motor.

### Danger from moving parts!



Risk of injury from moving parts of the gear motor. Risk of suction from the drive and pinion shafts and fan wheel and risk from foreign bodies being flung around.

- Do not carry out work on the gear motor whilst it is in operation.
- Use suitable eye and hand protection and protect hair and clothes from suction into the motor.

### Danger from hot surfaces!



Risk of combustion. Surfaces of gear motors and electronic assembly heat sinks may be hot during operation and afterwards until the end of the cooling period.

- Do not touch the surfaces of the motor and electronic assembly heat sinks during operation and during the cooling period.

### Danger from overheating!



Gear motors may become extremely hot unless sufficient air circulation is guaranteed during operation.

- During assembly and maintenance work, ensure that there is sufficient air circulation in the area of the fan wheel and the air intake and outlet vents.

## 2. Identification and Labelling

### 2.1 Terminology

#### Gear Motor

- The term "gear motor" includes the drive motor, the gearing and all components included in the scope of delivery.

#### Components

- Components for gear motors include transmitters and brakes as well as electronic assemblies.

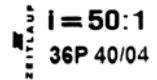
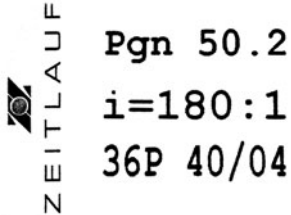
### 2.2 Scope of Delivery

- The gear motors are assembled individually, in accordance with the construction kit system. Please refer to the scope of delivery for the relevant accompanying documents (e.g. delivery note).
- Check the content of the delivery immediately for conformity of the scope of delivery with the documents accompanying the goods. ZEITLAUF® GmbH antriebstechnik & Co KG provides no guarantee in the event of fault notification at a later date.
- In the case of
  - Identifiable damage from transportation
  - Identifiable defects
  - Incompleteness

Submit a complaint immediately to ZEITLAUF® GmbH antriebstechnik & Co KG.

## 2.3 Labelling

In addition to the external visibly identifiable features (e.g. drive shaft geometry, extension components), ZEITLAUF® GmbH antriebstechnik & Co KG gear motors are labelled by the content of the rating plates on the gearing.

Spur Gearhead (Example)	Planetary Gearhead (Example)
	
	Pgn 50.2 Gearing type.Number of stages
i=50:1 Gear reduction	i=180:1 Gear reduction
36P Auditor number	36P Auditor number
40/04 Week/year of production	40/04 Week/year of production

The exact product design is clearly described by the order number. This is specified in the delivery papers.

## 3. Conditions of Use

### 3.1 Storage

The gear motors can be stored for max. 24 months at -25 °C to +70 °C, in dry conditions and in the original packaging.

Please note, in accordance with our general terms and conditions of sale and delivery, we provide a guarantee for 12 months after delivery. Therefore, we recommend that storage time be kept to a minimum.

## 3.2 Assembly

Before assembly, carry out an identity check on the gear motor.

The attachment of additional components is to be carried out only by ZEITLAUF® GmbH antriebstechnik & Co KG and is usually taken into consideration at the time of ordering. Attachment at a later date may be carried out only by ZEITLAUF® GmbH antriebstechnik & Co KG or after prior consultation with ZEITLAUF® GmbH antriebstechnik & Co KG.

### 3.2.1 Mechanical

The gear motors can be assembled in any installation location desired.

#### Danger from moving parts!

Risk of injury from moving parts of the gear motor. Risk of suction from the drive and pinion shafts and fan wheel and a risk from foreign bodies being flung around.

- Do not carry out work on the gear motor whilst it is in operation.
- Use suitable eye and hand protection and protect hair and clothes from suction into the motor.

#### Danger from overheating!

Gear motors may become extremely hot if sufficient air circulation is not guaranteed during operation.

- During assembly and maintenance work, ensure that there is sufficient air circulation in the area of the fan wheel and the air intake and outlet vents.

The gear motor must be fixed inside the gearbox using the front fixing thread. On motor designs with a motor foot, fixing must be carried out using the fixing thread in the gearboxes and/or the fixing holes in the motor foot. Observe the fitting dimensions specified in the product data sheet.





### Damage to property from defective assembly!

Observe the following instructions in order to avoid damage. Non-observance may result in invalidation of the guarantee.

- The installation bases and contact surfaces must be clean and undamaged and aligned exactly with the shafts to be connected in order to prevent damaging loads by offsetting for bearings, shafts and casing in the entire system.
- Fix connecting elements to the gear drive shaft using suitable clamp sets. Pressure, impact, adhesive or similar connections may cause damage to the bearings.
- Do not exceed the maximum tightening torques of the fixing screws according to VDI 2230.

### 3.2.2 Electrical

Electrical connection of the gear motor must be completed in accordance with the connection diagram given in section 5 / in the product data sheet.

### Danger from high operating voltage!



If the gear motor is not connected properly and not disconnected from the power supply while work is being carried out on it, an electric shock may result.

- Do not touch the connecting terminals or other conductive components during operation of the gear motor.
- Ensure that the electrical connections are correct according to the gear motor connection diagram, including the earth connection (if specified).
- Disconnect from the power supply and safeguard against switching on again before carrying out work on the gear motor.

### Damage to property due to connection error!

Observe the following instructions in order to avoid damage. Non-observance may result in invalidation of the guarantee.

- Ensure that the specified operating voltage of the gear motor is the same as the supply voltage.
- Do not subject connecting lines to unauthorised tension loads.
- Ensure that the electrical connections are made correctly, in accordance with the connection diagram of the gear motor including capacitor on AC capacitor motors.
- Deviations for the specified capacitor value on AC capacitor motors may cause unallowable heating of the motor. Only use the capacitors authorised by the responsible licensing authorities.

### 3.3 Operation

Unless otherwise specified in the product data sheet, our gear motors are suitable for an ambient temperature range of  $-20^{\circ}\text{C}$  to  $+80^{\circ}\text{C}$ . They are suitable for S1 operation, i.e. continual operation. In short time operation, higher loads than those specified in the product data sheet are permissible. In this case, please contact ZEITLAUF® GmbH antriebstechnik & Co KG for further information.

### 3.4 Protective Equipment

### Danger from missing protective equipment!

Operation without functioning protective equipment for the motor may result in overheating and fire.

- Use a motor guard in accordance with the purpose, which is compliant with the specifications for the end product.



- Provide a suitable switch-off / disconnect device according to the specifications for the end product.

When installing motors with no integrated motor – protective equipment or design-specific protection against improper use (e.g. blocking) – suitable equipment to protect the motor is necessary, in accordance with the respective current standards for the end product.

Our products have no protective equipment for single-pole / all-pole switching and must therefore be connected with external protective equipment.

### 3.5 Safety Provision

The safety provision for the gear motor is dependent on the respective design and is specified in the product data sheet.

#### Danger from high operating voltage!



Depending on the safety provision for the gear motor, it may be possible to touch live components of the gear motor.

- Contact protection in the end product must be guaranteed in accordance with the current requirements for the final product.

Where components are combined with different safety provisions, the safety provision for the entire system is based on the lowest safety provision of the individual components.

The safety provision is determined according to EN 60529.

1st code number	protection against contact and foreign substances
0	no protection
1	protection against large foreign bodies ( $\varnothing > 50$ mm)
2	protection against medium sized bodies ( $\varnothing > 12$ mm)
3	protection against small bodies ( $\varnothing > 2,5$ mm)
4	protection against grain-formed bodies ( $\varnothing > 1$ mm)
5	protection against noxious dust deposits
6	protection against dust

2nd code number	protection against water
0	no protection
1	protection against vertical water drops drip proof
2	protection against diagonal water drops ( $90^\circ \pm 15$ )
3	protection against spray water (from $30^\circ$ to $150^\circ$ )
4	protection against water jets from all directions (splash proof)
5	protection against stream water from all directions (hose proof)
6	protection against flooding
7	protection against dipping
8	protection against immersing (water tight)

### 3.6 Explosion Protection

Our gear motors and components are not ex. protected.

### 3.7 Electromagnetic Compatibility

Our products are supply components, exclusively for use and further processing in industry, trade and other businesses specialising in the area of electromagnetic compatibility.

The manufacturer of the end product must take and check the required measures to observe the EMC conditions, taking account of installation conditions, wiring, switching, and control of the gear motor.

ZEITLAUF® GmbH antriebstechnik & Co. KG is not responsible for providing proof of observance of the EMC law.

On request, we can let you know whether corresponding tests have already been carried out for this product.

### 3.8 Maintenance and Lubrication

Our gear motors are maintenance free. In observance of the operating conditions specified by ZEITLAUF® GmbH antriebstechnik & Co KG, lubrication of the bearings and gearing components will last for the lifetime of the equipment. The specified operating conditions can be found in the product data sheet, in the standard range construction kit catalogue, or online at [www.zeitlauf.com](http://www.zeitlauf.com).

## 4. Technical Specifications

The technical specifications and usage parameters agreed by the contract of sale apply as standard for the product you have purchased.

Details of the technical specifications and the electrical connection of the gear motor (wiring diagram) are available in our current standard range construction kit catalogue or online at [www.zeitlauf.com](http://www.zeitlauf.com).

Should you be unable to access either of these sources, please contact ZEITLAUF® GmbH antriebstechnik & Co KG. We will immediately provide you with the relevant technical specifications.

## 5. Wiring Diagrams, Terminal Assignment

### 5.1 AC/DC/EC Motors

Terminal assignments and wiring diagrams can be looked up under [www.zeitlauf.com](http://www.zeitlauf.com) respectively in the current catalogue.

Ensure that the polarity of the connections is correct, in accordance with the desired rotation direction.



### 5.2 Components

- Added components
  - Spring action brake
  - Magnetic pulse transducer
  - Optoelectronic angle step counter

For connector see [www.zeitlauf.com](http://www.zeitlauf.com) respectively the current catalogue.

- Additional components
  - Operating electronics
  - Speed controller/rotation speed regulators
  - Switching power supplies

For connector see product-specific operating instructions of respective components.

## 6. Malfunctions

Should malfunctions occur, e.g. such as unusual running noises or temperature developments, please contact ZEITLAUF® GmbH antriebstechnik & Co KG. You will need to provide the following specifications:

- Rating plate specifications
- Type and extent of the malfunction
- Circumstances of the malfunction
- Application data (torque cycle, rotation speed, loads, local conditions, etc.)

Do not operate the gear motor / application until final clarification is available.

## 7. Disposal

Our gear motors and components are installed as components in machines and equipment. As individual components in the industrial field, they do not come under the purview of the law on electrical and electronic equipment.

If our gear motors are installed in end products that come under the purview of this law, the manufacturer of the end product is responsible for observance of the legal regulations.

Irrespective of this, our products contain none of the substances banned according to the RoHS directive 2002/95/EC and §5 of the law on electrical and electronic equipment.

## 8. Liability, Warranty and Goodwill

### 8.1 Liability

- The information and instructions in the operating instructions were up to date at the time of going to print and they relate to the associated product. From the specifications and descriptions, no claims can be made on gear motors already supplied.

- We accept no liability for damage and malfunctions resulting from:
  - Incorrect usage
  - Unauthorised modifications to the gear motor
  - Improper work on and with the gear motor
  - Assembly and operating errors
  - Non-observance of the operating instructions

### 8.2 Warranty

- Terms and conditions of warranty:  
see ZEITLAUF® GmbH antriebstechnik & Co KG terms and conditions of sale and delivery, the current version of which can be ordered from ZEITLAUF® GmbH antriebstechnik & Co KG or viewed online at [www.zeitlauf.com](http://www.zeitlauf.com).
- Report complaints to ZEITLAUF® GmbH antriebstechnik & Co KG immediately after detection of the defect or fault.
- The warranty will become invalid if the gear motor is opened for servicing other than by ZEITLAUF® GmbH antriebstechnik & Co KG and/or if gearing components are not replaced by ZEITLAUF® GmbH antriebstechnik & Co KG.

### 8.3 Keep-Word-Warranty

We push back the limits with a singular warranty promise and go to exceptional lengths:

- replacement or repair of a defective gear motor, twice within a year – without question of blame.
- an error log for the cause of failure with each return consignment .
- in the case of overloading of the gear motor, exchange and full cash settlement for the original drive.



ZEITLAUF®

antriebstechnik

it's time for tomorrow

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