

  
ZEITLAUF®

antriebstechnik

it's time for tomorrow

# Unheard of!



## NoiselessPlus

Unique smoothness. High radial loads.  
Unbeatable reductions.

**NoiselessPlus – the pioneering planetary gearhead with unique smoothness**

ZEITLAUF® stands for progressive and intelligent solutions in gearhead technology. Our versatile product series are the result of intensive research and development. State-of-the-art technologies that are convincing in practice thanks to maximum performance – we have made a name for ourselves in this sector.

NoiselessPlus is setting new standards for planetary gearheads – with outstanding properties which offer clear advantages in all areas of application:

- Maximum smoothness
- High radial loads
- Unbeatable reductions

NoiselessPlus is the perfect combination of strength, precision and reliability. And all of this despite unique smoothness.

NoiselessPlus – the quiet revolution.



**The optimum set-up**

NoiselessPlus shows its strengths best wherever the application requires maximum power output and lowest noise operation.

- High efficiency and unique energy efficiency
- Noise level independent of load, even under extreme operating conditions
- Maximum smoothness thanks to intelligent gear-tooth technology
- High radial load thanks to double-sided ball bearings on the drive shaft
- One and two-stage versions for high reductions from 4.33 to 231:1
- Numerous possible combinations with all standard EC and DC motors
- Customer connection geometry for flexible adaptation to individual requirements

**Groundbreaking in gearhead technology!**

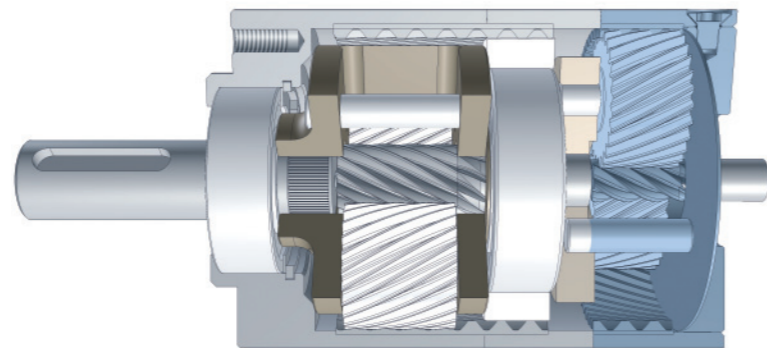


## Gearhead stages

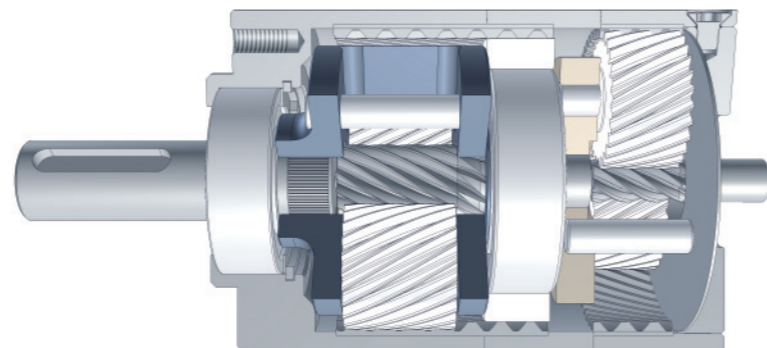
NoiselessPlus gearheads are excellently prepared to cope with the high speeds in the first stage and the large torques in the output stage. Planetary wheels made of high-grade plastic guarantee optimum noise reduction during operation. The helical teeth ensure even, flowing contact and thus enable especially high load transfer coupled with excellent smoothness.

The bores of the bearings in the plastic planetary wheels have cross-grinding which ensures optimum embedding of the lubricant over the whole gearhead service life.

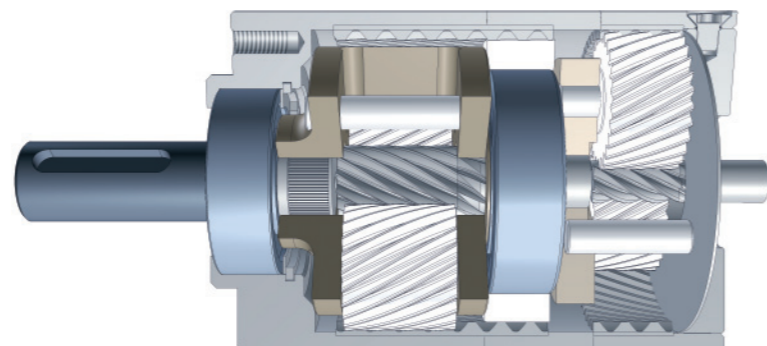
The complete gearhead is encased in a single-piece planetary housing made of turned, solid aluminium. The teeth are slotted rather than cast, for maximum precision. The result: unique smoothness and minimum wear.



In the input stage, a sun wheel with bevelled teeth sets up the low-noise smooth connection between the motor and the high-speed first gearhead stage.



The planetary wheels are enclosed in a ball-bearing cage and remain in the correct position even under maximum load.



The double ball-bearing, hardened and ground output shaft of the output stage is made of sturdy case-hardened steel and fitted as standard with a feather key groove or face. The sealed grooved ball bearing guarantees maximum smoothness even at maximum radial and axial loads (up to 1,000 N).

Possible material combinations in the NoiselessPlus module

	Plastic (POM)	Brass	Non-hardened steel	Hardened steel	Stainless steel	Aluminium
Sun wheel			●	●		
Planetary gear	●	●	●	●		
Internal gear			●	●	●	●
Output shaft			●	●		
Planetary gear	●	●	●	●		
Hollow gear				●	●	●
Output shaft				●	●	
Housing					●	●

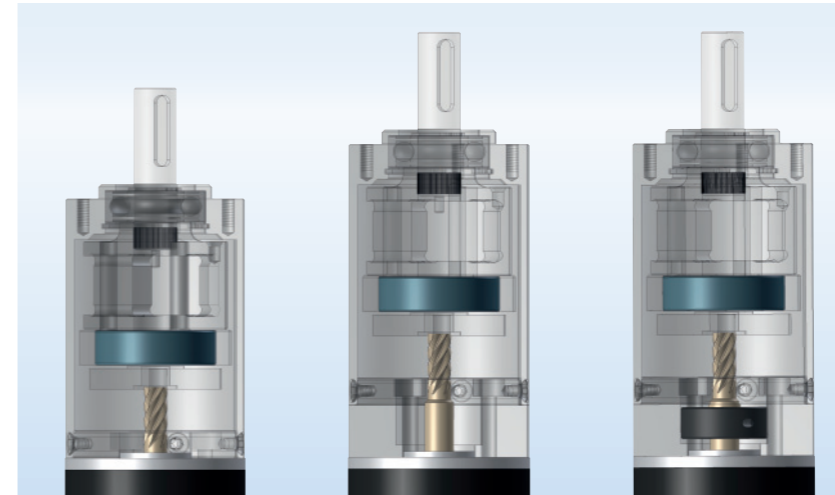
● possible materials  
● materials used in the standard modular system

## Material combinations

Flexible and versatile: We design your gearhead solution tailor-made to your requirements thanks to our modular principle. Adapt your NoiselessPlus system exactly to your smoothness, torque or power requirements by replacing individual components by modules made of other materials. We can realise customer-specific special solutions from 500 units per year.

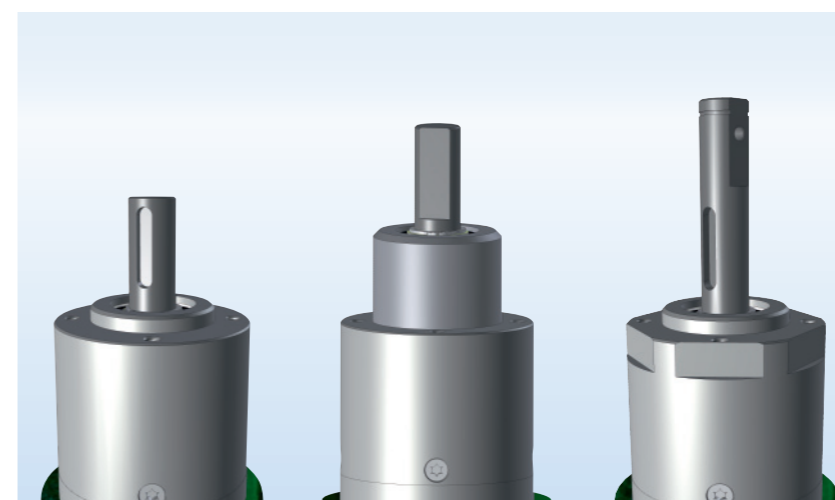
## Motor attachment possibilities

Usually, you will receive NoiselessPlus drives as complete units made up of motor and gearhead. The teeth of the sun wheel of the first stage (pinion) are milled directly into the motor shaft (pictured on the left). This makes a compact gearhead design possible, as well as particularly low-noise rotation. If you would like to use other motors, you can connect these to the gearhead using bonded or push-on pinions. In the case of bonded pinions, fitting takes place directly at ZEITLAUF® to ensure a permanent connection and optimum rotation properties (pictured centre). The push-on pinion is fixed on the motor shaft using a clamping ring and connected with the motor via a connecting flange (pictured on the right).



## Attachment possibilities for individual solutions

Usually, NoiselessPlus gearheads transfer torque through output shafts with feather key connection (DIN 6885, Form A, pictured on the left) or face (pictured in the centre). Thanks to the production of output shafts made of special case-hardened steel, both feather key groove and face are particularly wear-proof. The use of special output shafts is also possible (pictured on the right), e.g. with double faces, offsets, (thread) bore holes on the end and circumference, holes or serration. We can also react flexibly to segment, centring and housing form, too.



## Design

ZEITLAUF® wants to inspire you – with no-compromise products. We draft and construct individual drive solutions for you, or configure complete gearhead motors with all electrical components from our standard modular system.

ZEITLAUF® gearheads are matured right down to the tiniest detail. You benefit from strict quality management which kicks in right at the beginning of the design phase.



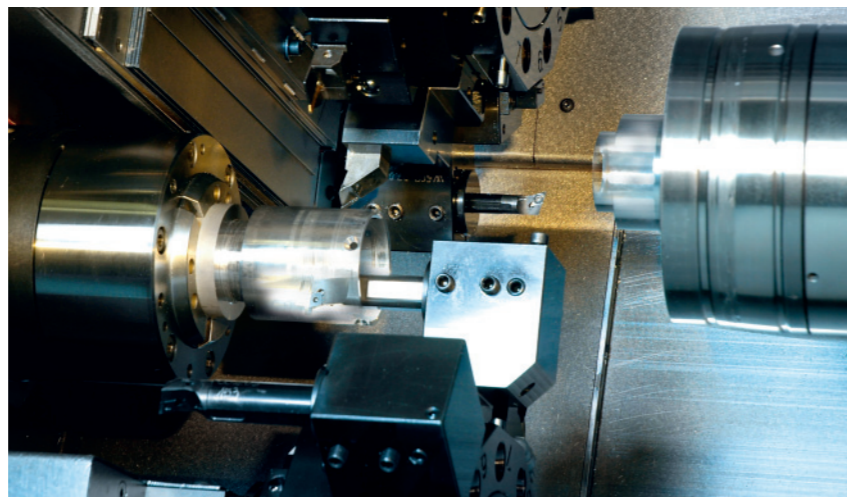
## Engineering

What we have achieved and the experience gained from this achievement always forms the basis for the continual further development of our products. Experienced and creative teams in research and development draw up solutions for you which provide the optimum answer both in terms of technology and economy.



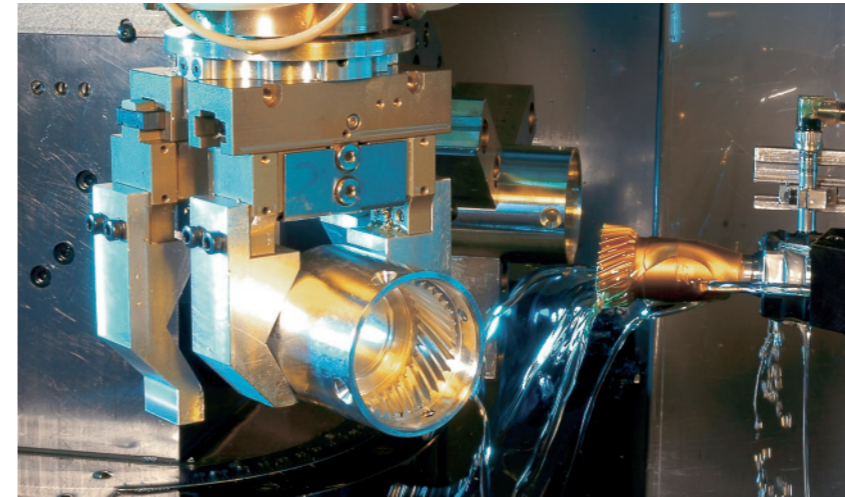
## Precision

Unique engineering competence is the basis for our success. We aim to achieve maximum perfection whatever we do for you. To realise this, we develop and construct our production machines ourselves in part, tailor-made to our own requirements.



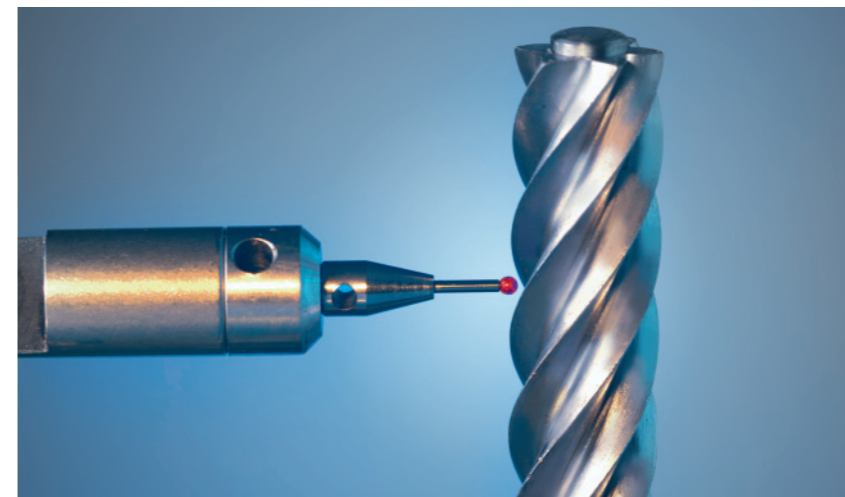
## Process

ZEITLAUF® is permanently optimising the efficiency of its own production processes. Thus, for example, state-of-the-art industrial robots carry out the extremely precise honing process and exact test measurement in one working step. We also provide the means for you to design your process workflows as economically and profitably as possible – with high-power and low-maintenance gearhead solutions that can be configured exactly for your specific applications.



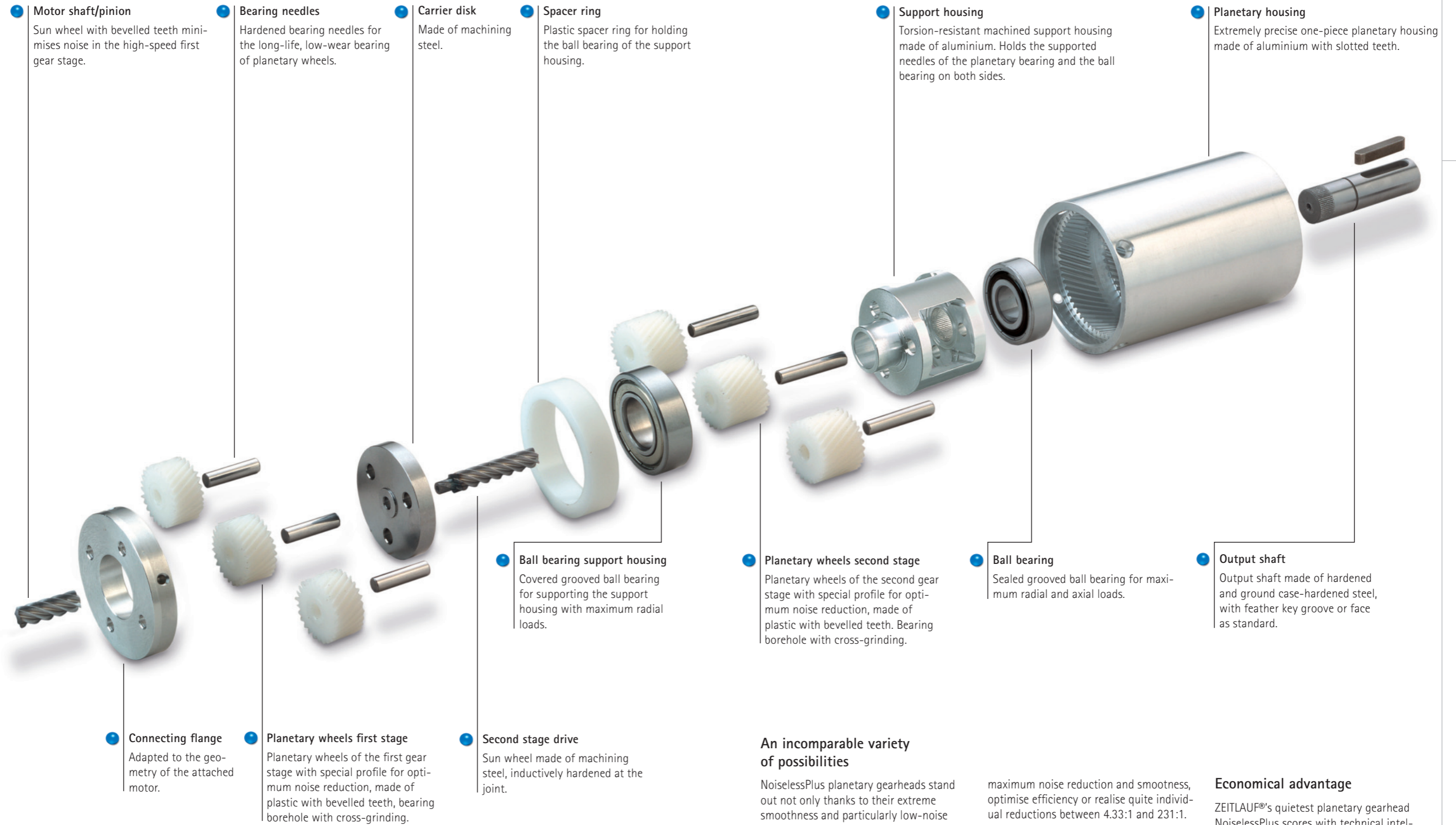
## Production

Our production processes are continually stretching the limits of what is possible and meet the most stringent quality data. We actively push the development of gearhead technology in order to provide you with solutions that are convincing in the long term with unbeatable added values. In-house developed production machines such as the ZEITLAUF® high-speed slotting machine for the fully automated production of our planetary housings ensure the efficiency of our production.



## Quality

ZEITLAUF® uses top technologies in order to realise the drive solutions of the next generation today. Every step in the process chain is accompanied by intensive quality checks. With fully developed measuring methods and exhaustive material and function tests, we ensure that every product to leave our premises also meets all the stringent specifications.



## An incomparable variety of possibilities

NoiselessPlus planetary gearheads stand out not only thanks to their extreme smoothness and particularly low-noise operation, but also thanks to their great flexibility. NoiselessPlus has a modular design – depending on your requirements you can exchange one or more individual components in order to achieve the best possible performance for your task.

With the standard modular system we put the individual components of your NoiselessPlus gearhead together to achieve

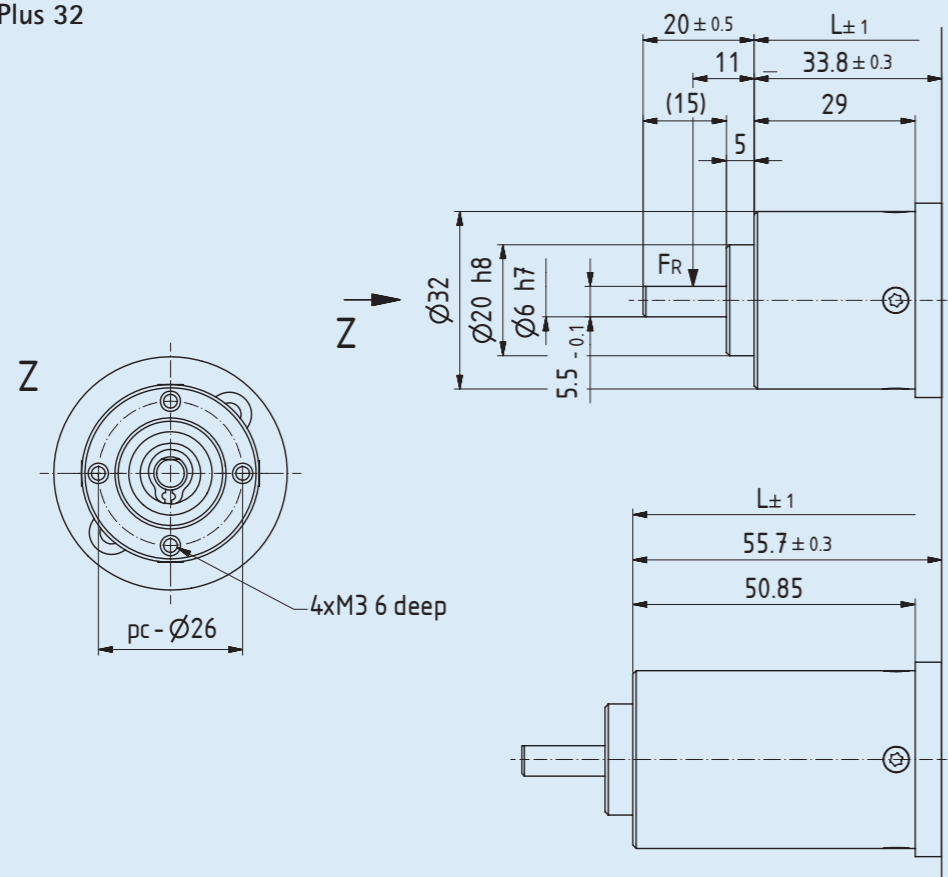
maximum noise reduction and smoothness, optimise efficiency or realise quite individual reductions between 4.33:1 and 231:1.

NoiselessPlus gearheads are fitted with high-quality brushless EC motors in the factory. They can also be combined with all other common motors as variants of the NoiselessPlus standard version. In addition, ZEITLAUF® will also be happy to prepare modified tailor-made solutions for you on the basis of the NoiselessPlus standard gearhead.

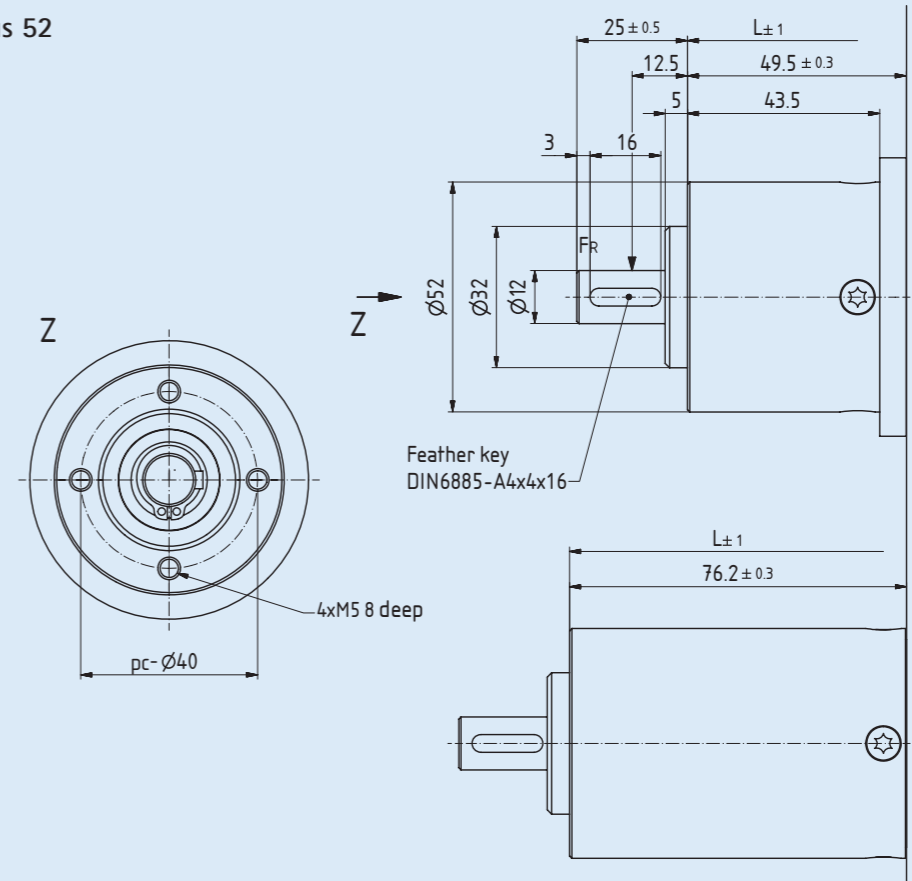
## Economical advantage

ZEITLAUF®'s quietest planetary gearhead NoiselessPlus scores with technical intelligence, durability and excellent value for money. The individual configuration possibilities, extremely sturdy and low-maintenance components with a service life of more than 10,000 hours in nominal operation as well as ease of integration into existing systems provide you with clear cost advantages and long-term investment security.

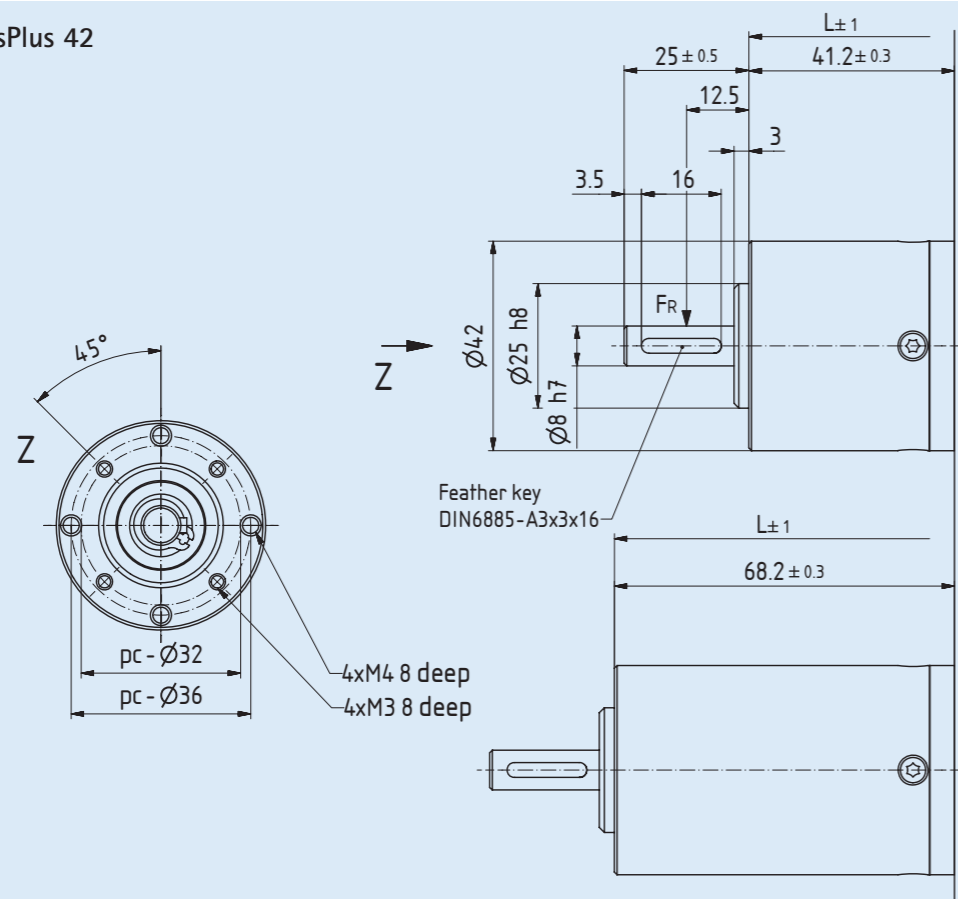
NoiselessPlus 32



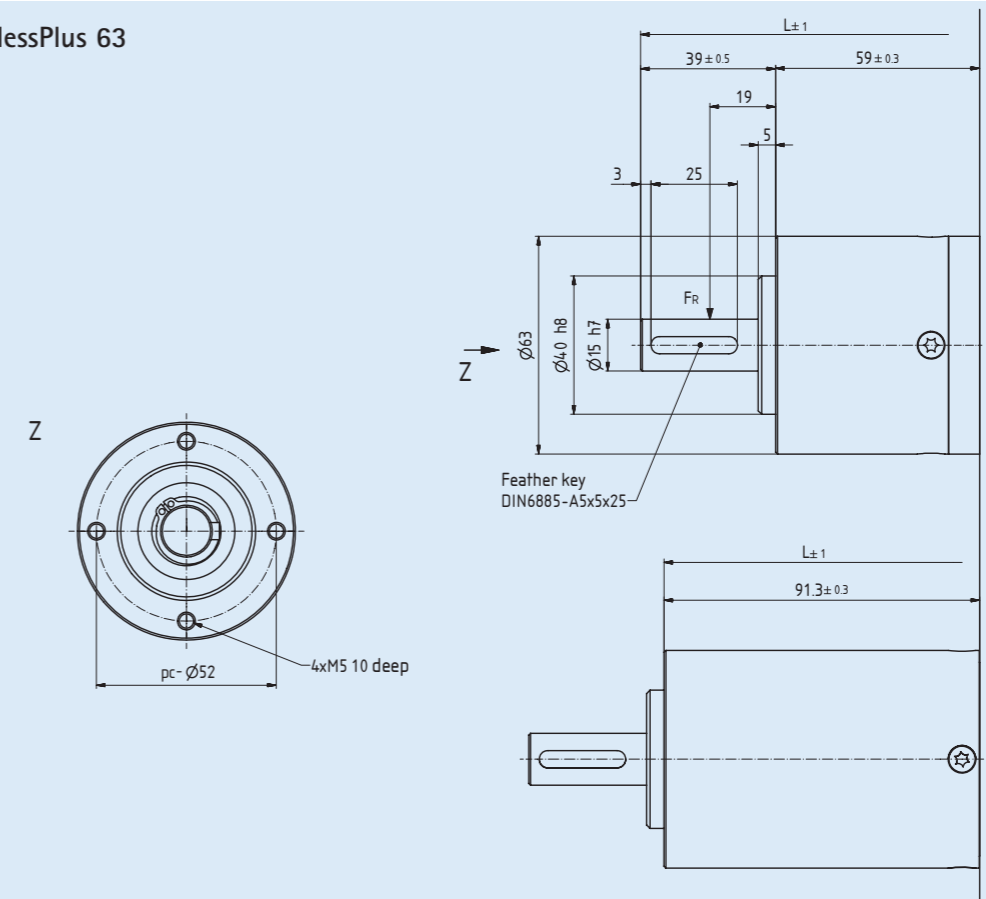
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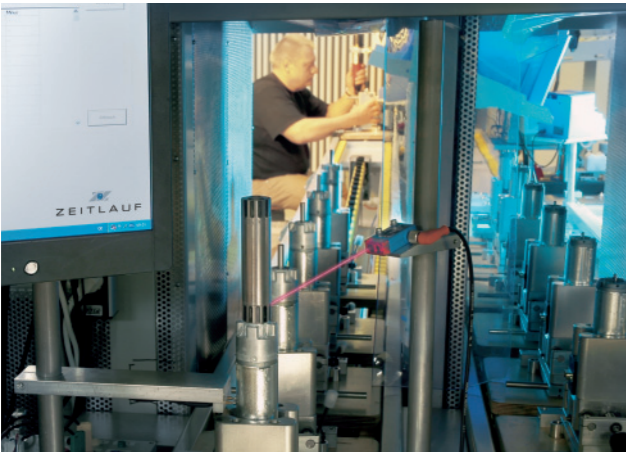


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**High-quality drive solutions demand perfection**

Our competent engineering solutions are moving the market and setting benchmarks in industry. These facts have established us as a recognised technological leader.

Increasing our customers' success even further – motivates us particularly. To this end, we achieve top performance in every project and settle for nothing less than the best in terms of quality. For us, nothing is more important than using our top technologies to turn your visions into reality.

**ZEITLAUF® – assuring you the decisive lead in your markets.**



**The focus is on your requirements**

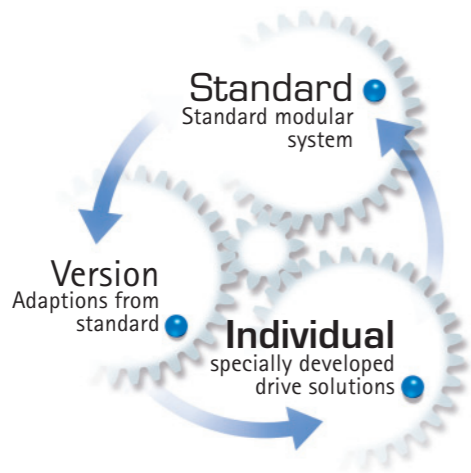
You will get a comprehensive performance package from us: from individual products from our standard modular system through tailor-made modified gearhead motors through to special developments as complete performances.

The ongoing intensive sounding out of new possibilities coupled with first-class engineering and maximum production quality guarantee us our leading role on the driving technologies market.

In-house software developments for the calculation and simulation of tooth-gear designs, basic research on the manufacturing of gear teeth, production of own rolling slotting machines as well as research projects with renowned colleges of higher education and technology companies underline our high level of competence.

With strict quality management in all internal processes and continual endurance tests we create an enormous added value for you and secure you worthwhile value creation advantages.

**ZEITLAUF® is your competent partner for successful drive solutions.**



We also prove the top-quality performance and diversity of our development work when implementing special requirements. We adapt NoiselessPlus standard gearhead solutions to your requirements and integrate them into quite new, completely functional units, for example:

**Medicine**

Saving people's lives and keeping them alive with reliable drive solutions – there is no room for compromises in medicine. Reliable technology and an extremely long service life coupled with minimum noise development are the requirements that medical equipment has to meet day after day.



**Door technology**

Safety in daily operation is absolutely imperative in public transport. Opening and closing of the doors or extension of the footboard are made possible by specially developed ZEITLAUF® gearhead motors. These ensure reliability and smooth running under maximum radial loads and heavy impact.



**Sport and leisure equipment**

Demanding golfers require greatest comfort, maximum smooth running and superior reliability from their electrically driven golf caddies. The long battery run-time guarantee high efficiency and power density and thus golfing pleasure from the first drive to the last putt. The comfortable golf caddy drive should neither be seen nor heard, despite changes in load and ground profile.



## NoiselessPlus – unheard of power!

With NoiselessPlus, a gearhead from our standard range, you are deciding in favour of one of the smoothest running planetary gearheads currently available on the market. In addition, you will benefit from the whole comprehensive range of ZEITLAUF® products and services:

### 3,573 Drive Solutions

For each demand, we have the correct drive. A high standard of engineering competency and logistical finesse, for optimal achievement and maximum efficiency, in an unbeatable modular system:

- 3,573 different drive solutions with unique power densities and application ranges
- „Assembling on demand“ – fast and customised combination of the components you need to the highest standard of perfection.



### 48 Hours Service

We react flexibly to the demands of a market with short-lived tendencies. After receipt of the order, we are able to dispatch to you your specifically configured drive – up to 20 pieces – within 48 hours\*. Even a larger number of items and small-batch items can be ordered from our standard modular system.



### 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 against a more powerful solution and full setting off of the price for the original drive



\* Subject to goods being sold.