

A SOLUTION THAT  
TAKES YOU FURTHER.

THAT IS THE DRIVE FROM SPN

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SCHWABEN  
PRAEZISION



NO COMPROMISES  
ON PRECISION. YOU  
ENJOY COMPLETE FREEDOM.

WELCOME TO SPN

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Customer-specific drive solutions from SPN ensure that mechanical energy gets to where it is needed precisely and reliably all over the world. Whether in mechanical engineering, for automation solutions, in aircraft, in the energy sector or in the medical devices industry.

With great personal commitment, we strive day in, day out to make our customers' products safer, more durable and more efficient with bespoke gearboxes.

[And that is true even for a one-off order.](#)

## YESTERDAY'S VISIONARIES TOMORROW'S PIONEERS

Determination and commitment were essential tools with which Fritz Hopf established SPN's good reputation in professional circles over the decades. He realised early on that the need for high-quality customer-specific drive solutions is increasing. At SPN we face the challenges of the future with great curiosity.

But also with traditional values such as reliability, industriousness or precision, which here in Nördlingen are simply in our genes. Whether new tools or increasing automation: With maximum flexibility, passion for detail and a healthy dose of curiosity, working together with our customers, we develop products and systems that perfectly meet your individual requirements. Also in terms of cost-effectiveness.



**1919**  
Establishment and start of toll manufacturing of gear components

**1935**  
Fritz Hopf joined Pilz & Hayard

**1954**  
1st double worm gear unit

**1945**  
Reconstruction of the company in Nördlingen as a clock manufacturer

**1969**  
Production expansion to include drive system technology

**1986**  
Development of the first planetary gear unit

**1996**  
Change of company name to SPN Schwaben Präzision Fritz Hopf GmbH

**2000**  
Delivery of the first aviation components

**2002**  
Development of the first mechatronic systems

**2013**  
Introduction of Lean Management

**2015**  
EMAS certification





**2016**  
Building extension to combine the production sites in the Fritz-Hopf-Straße

**2017**  
DIN EN 9100 Aviation certification





ON THE DRIVE SIDE

-  Motor-mounting flange
-  Servomotor
-  Three-phase AC motor
-  Tangential clamping
-  Input shaft
-  Splines

OUTPUT SHAFT BEARINGS

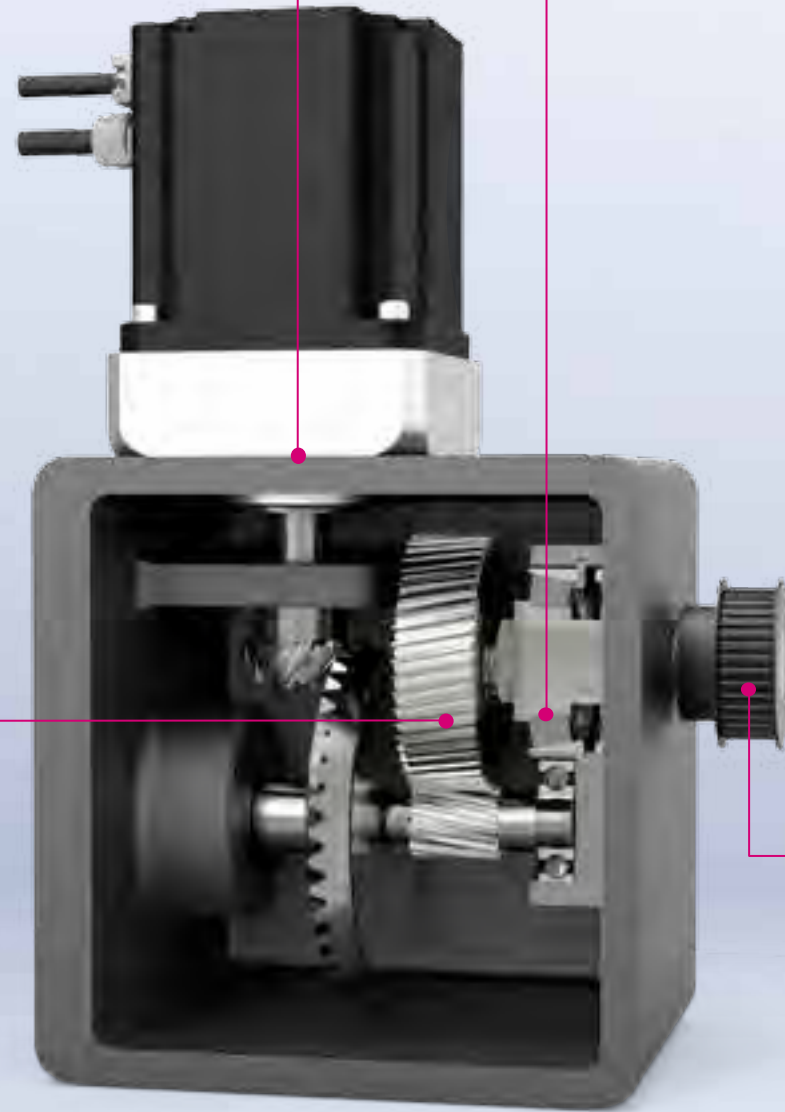
-  Deep-groove radial bearing
-  Angular-contact ball bearing
-  Tapered roller bearing
-  Needle roller bearing
-  Plain bearing

GEARS

-  Planetary drive
-  Bevel drive
-  Helical drive
-  Worm drive
-  Rack-and-pinion drive

OUTPUT SIDE

-  Drive shaft
-  Hirth toothing
-  Pinion shaft
-  Hollow shaft
-  Belt pulley

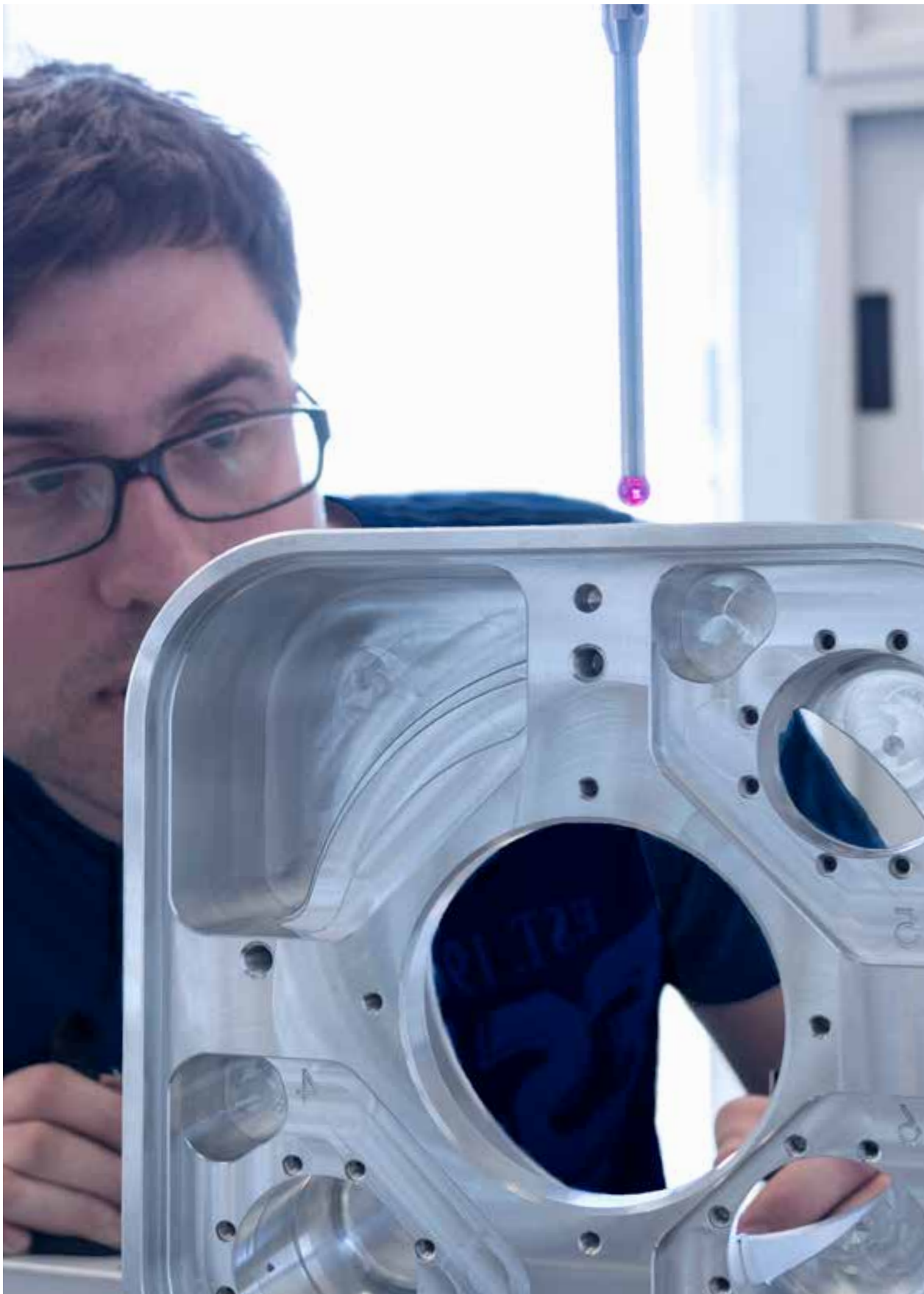


**THE SPN PRINCIPLE:  
INDIVIDUAL SOLUTIONS BASED  
ON TRIED-AND-TESTED STANDARDS.**

Varying demands require individual solutions. Whether you need robust gear components, high-performance gear units or complex mechatronic drive system technology: We manufacture components and systems that perfectly suit the customer's requirements.

These are based on the high-quality system components manufactured to the SPN standard, which we select and precisely modify for our customers. This is not only expedient from a technical point of view but also makes sense for economic reasons - and offers a wide scope to produce custom solutions.

Applying this principle, we have already been able to convince many well-known companies all around the world.



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## WE DON'T CONSIDER QUALITY TO BE A RESULT. IT IS A PROCESS.

Around 500 solutions a year speak for the versatility and the engineering expertise at SPN. To ensure maximum quality over this spectrum, we keep a close eye on all process phases - from the selection of suitable materials and manufacturing technologies to the creation of an exact work schedule to the daily monitoring. Everything with the one objective in mind: to provide our customers with the best quality at a good price on the agreed delivery date.

The development and production of high-quality drive solutions shapes our everyday life. In the process, we often enter unknown territory. Our comprehensive material and functional tests ensure process safety. With experienced specialist personnel and a machine shop designed for highly individual parts, we can also respond to complex tasks with a high degree of flexibility. To guarantee this high level of commitment in the long term, we train tomorrow's specialists in our own training workshop - and thus enjoy an excellent reputation at home and abroad. Close partnerships with technical universities and research facilities ensure that we always keep pace with the times.







## EVERY INDUSTRY HAS ITS OWN REQUIREMENTS. SPN POSSESSES THE FLEXIBILITY TO DO THEM JUSTICE.

Whether you want an all-in-one-solution or a custom-made component: As a partner to a wide range of industries, we must constantly adapt to meet new challenges and continue developing our capabilities together with our customers.

To produce solutions that really help our customers, we set great store by intensive dialogue during all process phases – with all project managers, our suppliers from the tool manufacturing and the material industries as well as with our production engineering and heat treatment partners and partners in other fields of materials research. Thus, we are able to set the correct course early on and can also still react to requests for changes during later project phases. A strategy of short distances, from which we profit across all industries. As do our customers.



### Back-up high-lift system for commercial aircraft

- + Use of anodised aircraft aluminium and special stainless steel
- + Surface treatment with dry lubricant
- + Chromate conversion coating of the grounding contacts
- + Sealing rings made of Teflon
- + Temperature-resistant lubricating grease



Example from the aviation industry

### PRECISION LANDING FOR AVIATION SAFETY.

On an aircraft the high-lift system controls the leading-edge slats and the landing flaps to reduce the distance required to take off and land. If the main hydraulic system malfunctions, the electromechanical back-up system cuts in.

SPN supplies custom-designed planetary gear units and gear components for this system that meet the highest demands: Besides low wall thickness,

important factors for a weight-optimised design are positive-fitting joints with high safety factors and 100% corrosion resistance.

Stringent test methods and seamless documentation of all steps – from materials procurement to manufacturing to transport – guarantee maximum safety in this highly sensitive field.





Robot component for packaging machines from Schubert

- + Ground gear teeth for exact positioning
- + Deep-toothed gears and worm gears made of special plastic for silent running
- + Weight-optimised design for high dynamics
- + Integrated mechanical end stop



Example from the packaging industry  
**PACKAGING IN THE "FAST LANE".**

Whether for attractive presentation or reliable protection: For today's products, packaging plays an important role. And to ensure that the packaging process is as efficient and hence as cost-effective as possible, intelligent solutions are the order of the day – flexible, precise and as fast as possible. For example, the fully automatic machines from Gerhard Schubert GmbH.

To drive the robotic units F2, F3 and F4, worm gear units, helical and worm gears as well as racks and pinions from SPN are used in the main process steps:

1. Retrieval and set-up of the packaging material
2. Filling with products such as biscuits and chocolates per pick & place
3. Closing the packaging

Besides extreme hygiene, precision and smooth running, the solutions and their components convince, above all, through their power and dynamics. This is because they cope with weights up to 40 kg and achieve an acceleration up to 15 g. Or put in simple terms: 5 meters per second.



Modular drive concept for textile machinery from the Saurer Group

- + Long service life of the bearings and the gear components of 40,000 hours in three-shift-operation
- + Shaft seal can be replaced several times
- + No ingress of lint and residual fibres due to closed design



Example from the textile industry  
**HIGH QUALITY NEVER GOES OUT OF FASHION.**

Fine threads are produced by twisting and stretching fibres. Whereas in the past a spinning wheel produced a single thread by means of a rotating spindle, a modern ring spinning machine with more than 1920 spindles can produce concurrently. At the Saurer Group the drive of the complete drafting arrangement and for lifting the ring frame is performed by helical-worm and helical gear units from SPN.

Different rotational speeds and axle spacings are achieved through a modular design. The drive concept for the drafting arrangement guarantees a thread quality that is the prerequisite for optimum suit fabrics and high-quality functional clothing.

The integrated safety functions as well as the ease of maintenance guarantee smooth operation. The SPN gear units are delivered with three-phase AC motors assembled – worldwide.





Racks and pinions for pneumatic solutions from Festo

- + Stainless steel
- + Special anodised aluminium
- + Wear-free surface
- + Compact design through shaped outer teeth

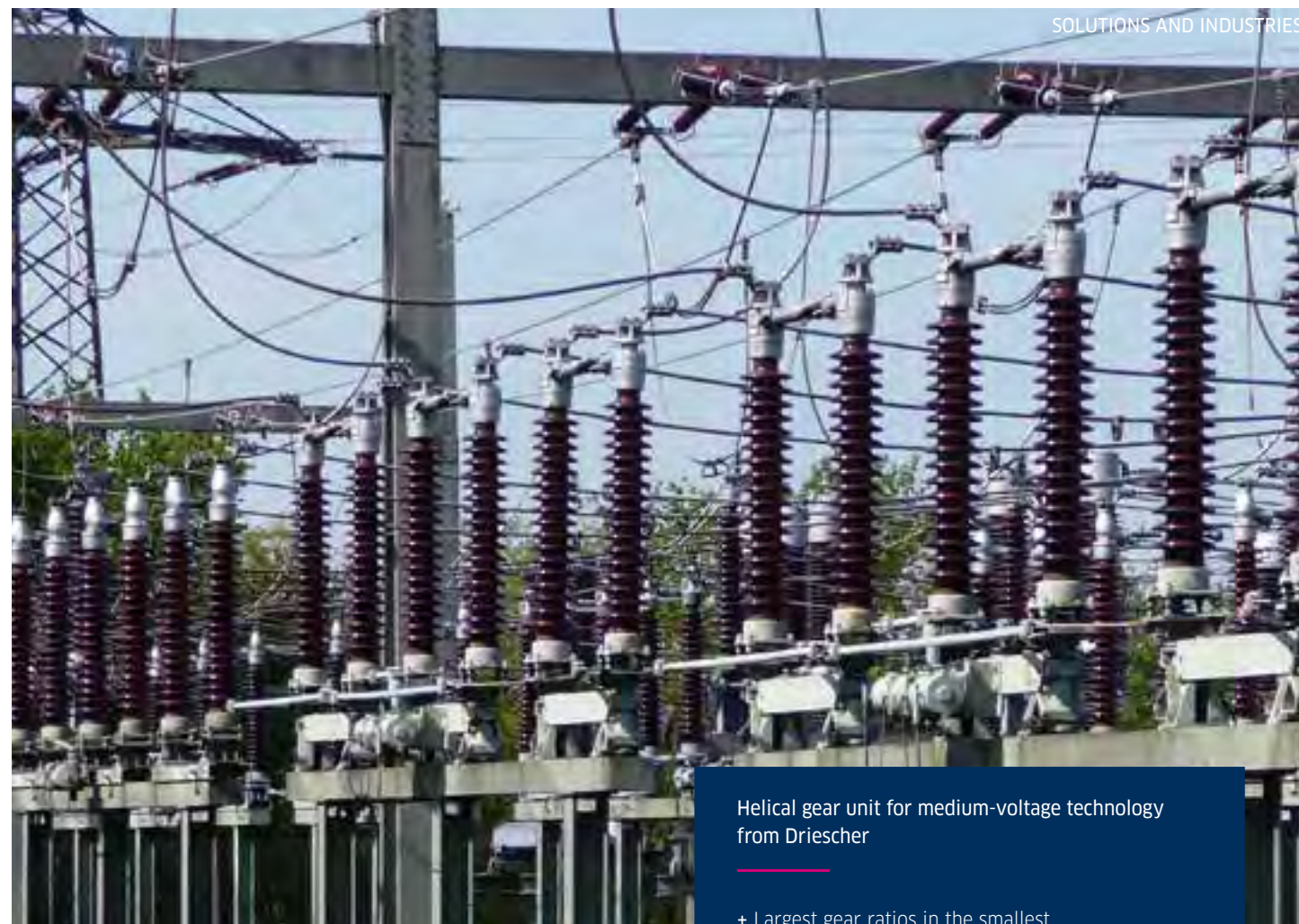


Example from the automation industry  
**WITH A PASSION FOR DETAIL.**

Automation has been one of the subjects discussed in the industry with regard to future developments for quite some time – at Festo AG already for several decades. With its innovative solutions for factory and process automation, it supports more than 300,000 customers in 40 industries worldwide.

For pneumatic applications – swivel movements driven by compressed air – SPN supplies racks and

pinions that have to withstand special load conditions. The process: Compressed air is applied to a round toothed rack as if it were a piston. This causes the pinion to rotate, resulting in a rotational movement. The mechanical step-down gear ratio allows high drive torques, which can be maintained reliably, to be achieved in the smallest installation space.



Helical gear unit for medium-voltage technology from Driescher

- + Largest gear ratios in the smallest installation space due to Roth toothing on the pinion
- + Splined motor shaft for direct mounting
- + DC motors with different voltage ratings
- + Static torque up to 250 Nm



Example from the energy technology sector  
**WORK AT EASE – EVEN AT 38,500 VOLTS.**

A medium-voltage grid with up to 38,500 volts and 12,000 amperes distributes electric power for several towns, individual districts or railways. If the power supply has to be interrupted, for repairs for example, special switching equipment is required in order to protect people in the vicinity of the electric field.

Fritz Driescher KG from Wegberg, Germany produces this type of switching equipment – driven by SPN helical gear units. Important criteria here are a high degree of reliability and robustness to ensure that the switching equipment functions correctly even when it is very hot or extremely cold as well as after long

downtimes. In the event of a power cut, this procedure can also be performed manually – using a detachable crank. In this case, the electric drive is mechanically decoupled beforehand. Better safe than sorry.



## SYSTEM COMPONENTS TO SPN STANDARD. SO THAT EVERYTHING MESHERS.

We design and manufacture high-quality gear components, gear units and drive systems. Top quality through standardised processes, and yet still flexible and adaptable: That's the distinguishing feature of the SPN product portfolio – as the basis for individual drive solutions.

Besides design and manufacture – whether for small quantities, prototypes or series production – we can also provide warehousing and logistics. This ensures that drive solutions from SPN always reach the customer in perfect time for assembly.



### GEAR COMPONENTS

To the SPN standard and individually adaptable. Materials, gear types and qualities selected to exactly suit your application

- + Helical gears
- + Bevel gears
- + Toothed racks
- + Worm drives
- + Splined connecting shafts
- + Special toothing

#### RANGE OF SERVICES:

- + Complete gear components to the customer's specification
- + Different versions such as helically toothed, hobbed or flank-ground
- + Modern materials such as high-alloy steels, aluminium and titanium alloys as well as plastics and aerospace-grade materials
- + A wide range of heat and surface treatments



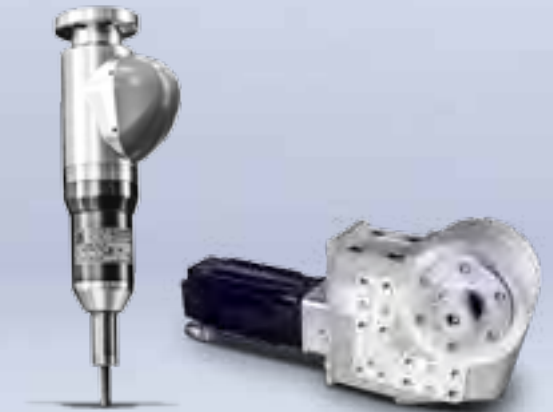
### GEAR UNITS

To the SPN standard and individually adaptable. Developed taking energetic and mechanical constraints into consideration, SPN gear units stand out due to their high efficiency and long service life

- + Planetary gear unit
- + Bevel-helical gear unit
- + Helical gear unit
- + Worm gear unit
- + Feed gear unit

#### RANGE OF SERVICES:

- + Optimum exploitation of the installation space
- + Different sizes
- + Multistage units in base- or flange-mounted versions
- + Independent advice due to the extensive product portfolio



### DRIVE SYSTEMS

To the SPN standard and individually adaptable. Based on individual requirements, SPN designs and assembles bespoke mechatronic drive solutions

- + Motor-gearbox combinations
- + Interface technology
- + Measuring technology
- + Sensors

#### RANGE OF SERVICES:

- + Holistic view and design of the system
- + Optimum combination of the mechanical system, electronics and software
- + Use of the state-of-the-art measuring technology and simulations to design optimum sequences of movements



THE FIRST STEP  
TOWARDS A SOLUTION THAT  
TAKES YOU FURTHER:

+49 9081 214-0



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No one understands the special drive solution requirements in your field of application better than you. So let's talk about it. Together we will find a solution to suit your plans precisely. And within your budget.

Feel free to visit us in Nördlingen. Then you can gain a precise insight for yourself: of our excellent prerequisites - and the countless possibilities that these will open up for you.

We are looking forward to seeing you!