

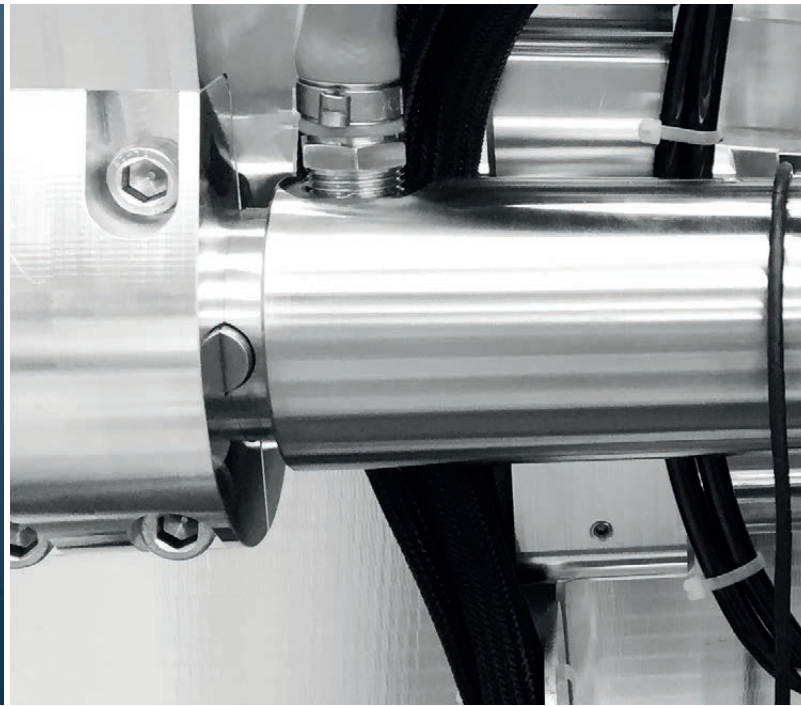


MAIN CATALOG

Hydraulics • Components • Systems



Contents



4 Family-run company

6 Locations

8 Our own production

9 Functional principles

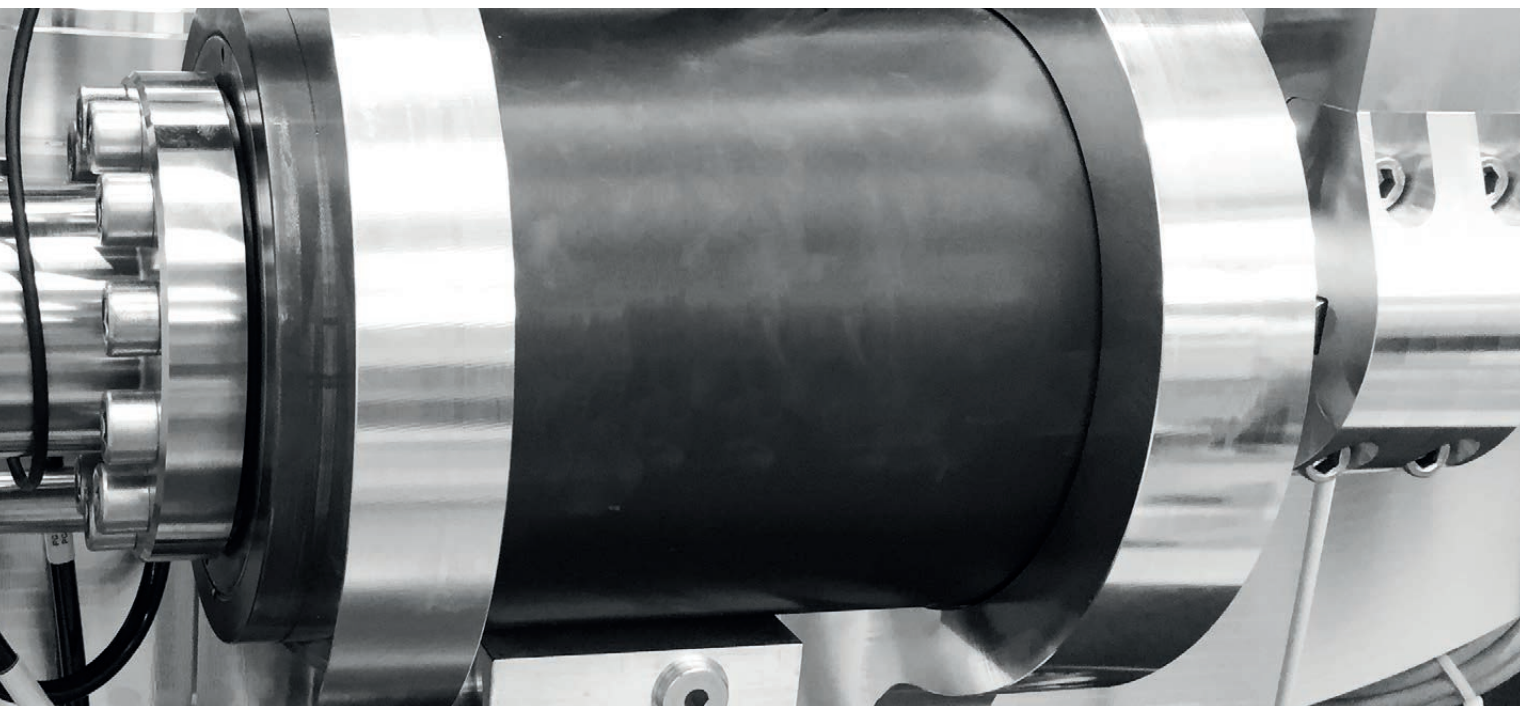
10 Milestones

12 Individuality

13 Moving solutions

14 Quick finder

16 Our products from A–Z



Product	Page
I-DA-H	18/24/28
DA-H	18
DKA	18/28
XtraTilt	19
RotoBox	19
TiltRotator	19
M-DA-H	22
F1	22
F2/F4	22
F3	23
F6	23
F7	23

Product	Page
F5	24
F10	24
F8	25
F9	25
SA-H 1121314	20
AFR	21
DHK-H-ZV	26
DHK-H-ZH	26
Zylinder	26
DEK	27
DEK1	27
DZK	27

You can also view this catalog online:
www.hks-partner.com



Family-run company

Pioneering spirit and new challenges

As the cornerstone for today's HKS Dreh-Antriebe GmbH is laid, we are breaking new ground on the mechanical engineering market. Since 1970, in the area of hydraulic, pneumatic, and mechanical components and systems, there has been just one name that you can trust without question: HKS is your specialist when it comes to unsurpassed quality, safety, and performance.

The founders' focus has remained unchanged: finding a customer-specific solution for rotating and tilting masses. For 50 years, HKS Dreh-Antriebe GmbH has been developing, designing, producing, and selling hydraulic and compact pneumatic drives for rotating and tilting masses that are accelerated, braked, precisely positioned and held for customers in a wide variety of industrial sectors.

We supply application-oriented concepts and products worldwide and with them, our customers are always a step ahead. With our great development expertise and flexibility, we can implement ideas according to individual customer specifications, no matter if it's a one-off product or serial production. Our customers and partners trust in the especially high and durable quality of our products.

We continually demonstrate healthy, stable growth. Due to our customer-oriented and sustainable company development, we have become one of the leading and most innovative manufacturers worldwide. With our partners, we are

present on every continent, so we are close to our customers and offer optimum service.

With our robust, high performance rotary actuators, we implement compact solutions for all industry sectors, onshore and offshore, mobile applications for mining, vehicle construction, shipbuilding, automation, robotics, and in power plants.

We develop robust drives especially for contractors and manufacturers of construction equipment and attachments that are suitable for use in harshest application conditions.

As a family-run company, HKS Dreh-Antriebe GmbH particularly values acting in ways that are responsible and sustainable over the long term. Sustainability, social commitment, and promoting the health of our employees are important core items in our company principles.



Günter Höhn



Günter Höhn
Managing Partner

Daniel Hecker
Managing Director

Markus Löhr
Managing Director

Structure and the future

Today we are creating the foundation for continuing success and a promising future.

The structures that meet the demands of the market and thus ensure our customers, business partners, and employees a continuing partnership were established by the managing family.

Management was strengthened with the addition of Daniel Hecker and Markus Löhr, which created structures that ensure company success over the long term as well as ongoing healthy growth.

In addition to Günter Höhn as Managing Partner, management now includes Daniel Hecker and Markus Löhr who are also responsible for business operations.

Management and the managing family value close cooperation in order to adapt company strategy and operations to meet the challenges of the markets.

With investments in employees, machines, and buildings, we always align our actions so that we can achieve the greatest customer satisfaction and engage our customers with reliability and trust.

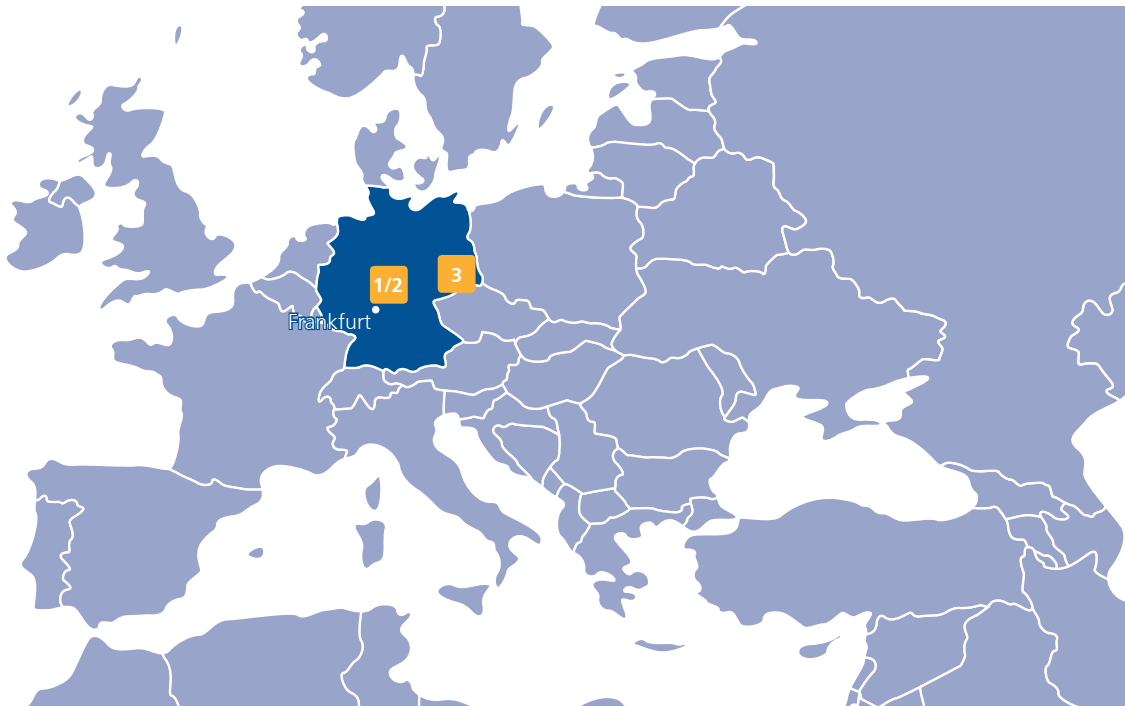
The recent 2017 expansion at our Neukirch/Lausitz location provided us with another production hall that is equipped with highly advanced machines.

A new production hall is being built in 2019 for the Wächtersbach-Aufenau location as well.

In this way, we are always creating new jobs and ensuring the high quality and durability of our products while reacting to ongoing growth in worldwide demand.

Locations

Over 240 employees work at the three locations of HKS Dreh-Antriebe GmbH in Wächtersbach and Neukirch.



Our location near the center of Germany and the EU, is ideal for our customers and our service.





Location – “Leipziger Straße”

Headquarters with administration, trainee workshop, and modern machinery and equipment

3,000 m² office space and production area

- › Expansion in 2019 to 5,000 m² office space and production area



Location – “In den Pflanzenländern”

Technology, sales, and assembly

1,700 m² office space and production area



Location – “Neukirch/Lausitz”

Production of rotary actuators up to 2 tons

2,500 m² office space and production area

Our own production



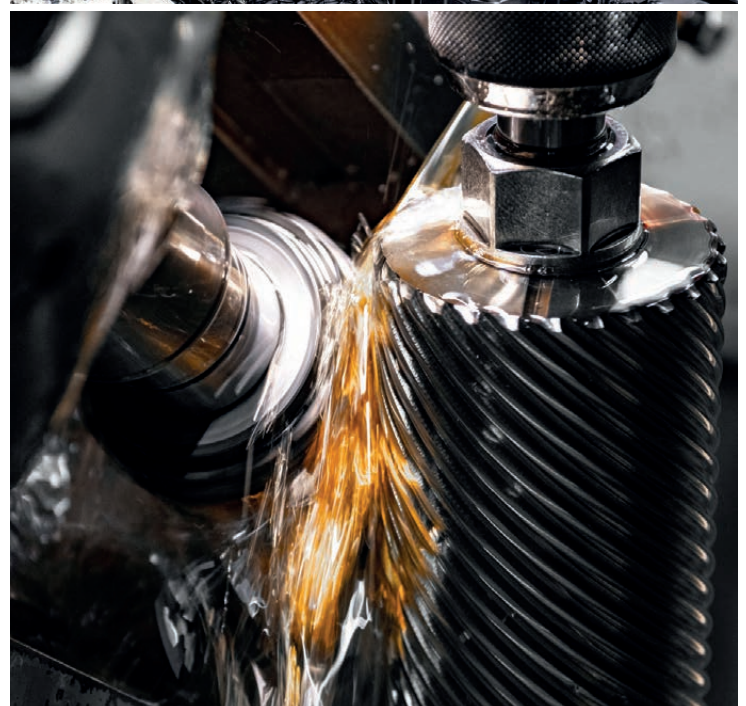
From a blank to a finished rotary actuator

Every rotary actuator is developed, produced, and assembled in our facility. With our highly advanced CNC machines as well as conventional machines, a blank is made into a high quality, durable rotary actuator. Our manufacturing is done entirely in-house. We purchase only a few individual components such as sealing rings from external partners.

We are convinced that the quality of our rotary actuators, which is acknowledged worldwide, can only be produced if we manufacture and assemble in-house.

In a visit to our production facilities, you can see for yourself that Made in Germany quality is what we actually produce every day. We would be happy to explain our development process, all the way from design to after-sales service.

For 50 years we have offered young people opportunities for education in business or the trades. Highly qualified employees in all areas of the company that are trained in-house ensure that the high quality of our products remains consistent and, at the same time, provide a basis for long-term and sustainable growth.



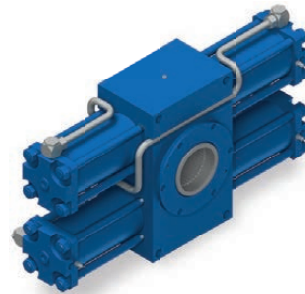


Functional principles



Multiple helical gear principle

Multiple helical gear actuators make it possible to produce and hold any intermediate angle of rotation. The outer dimensions can be flexibly designed to take limited construction space requirements into account. Numerous options, such as angular adjustment, cushioning and the use of sensor technology, make it possible to meet a broad range of requirements in terms of rotational movements with high torque. The basis for this design is a system of multiple helical gears. The helical gears enable the linear movement of the piston to be converted into a total rotational movement. The longer the linear path of the piston, the greater the rotational movement. Although this principle is simple, in order to give the rotary actuator its functional efficiency and reliability, a level of manufacturing precision is required that sometimes borders on the impossible. The mechanical tolerance in the angle of rotation can be reduced to below ten angular minutes. These rotary actuators are used, for example, in machine tools, elevated working platforms, automotive engineering, waste collection vehicles, side and rear loaders, tunneling machinery and construction machinery.



Rack and pinion principle

The rack and pinion actuator is ideal for use when there are high torque demands. It allows for extensive swiveling where the space is restricted in the axial direction. There are just as many additional options as for the multiple helical gear principle. In comparison with the rotary vane motor, the dimensions of the rack and pinion actuator must be considerably larger in order to transfer two torques of equal magnitude. The torque is generated and transferred via a rack and pinion piston arranged horizontally with respect to the drive cog formed with a pinion. Depending on the design, the lateral forces resulting from the gearing that affect the rear side of the piston located opposite are compensated for hydraulically or supported by rolling bearings. This rotary actuator is particularly suitable for use with high torques. Actuators based on this functional principle are used in cement plants, for example, or in the tire industry, power plants, the steel industry, and the adjustment of ship rudders.

Milestones



COMPANY FOUNDATION

Walter Höhn purchases the Ossmer and Manns company in Frankfurt am Main

ROTARY ACTUATORS

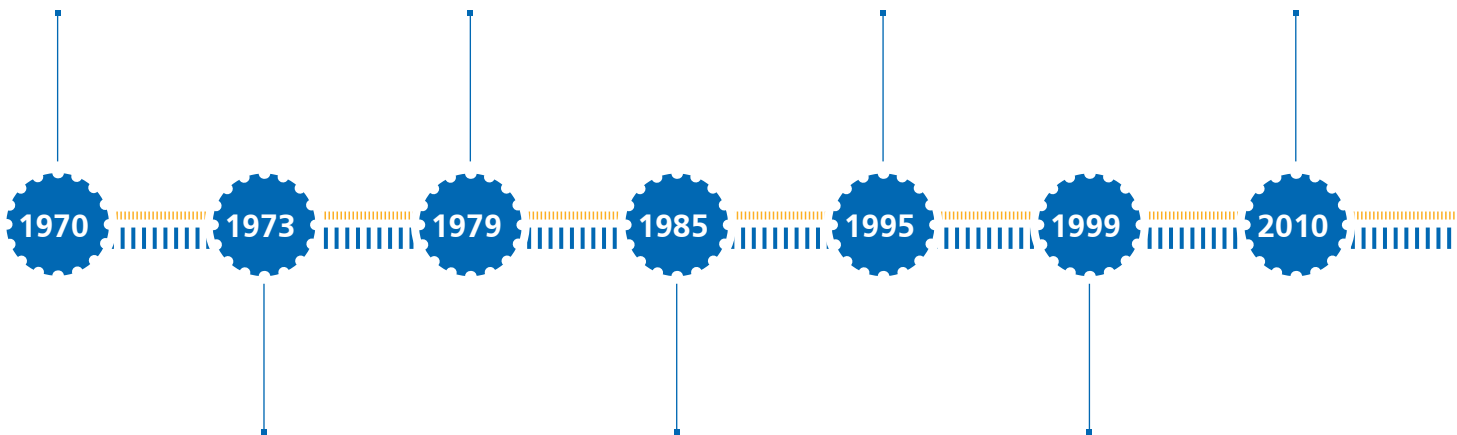
Production of the first rotary actuator and first site expansion in Wächtersbach-Aufenau

ESTABLISHMENT NEUKIRCH

HKS Dreh-Antriebe GmbH & Co KG in Neukirch/Lausitz is established

CONSTRUCTION TECHNOLOGY

Product segment "Construction Technology" launched successfully



COMPANY FOUNDATION

The company is renamed Walter Höhn GmbH and moved to Aufenau where the family resides

COMPANY FOUNDATION

HKS Dreh-Antriebe GmbH for sales and design activities is founded

EXPANSION

Construction of another production hall with additional office space. Expansion to a total of 3,000 m²



MEDICAL TRAINING DEVICES

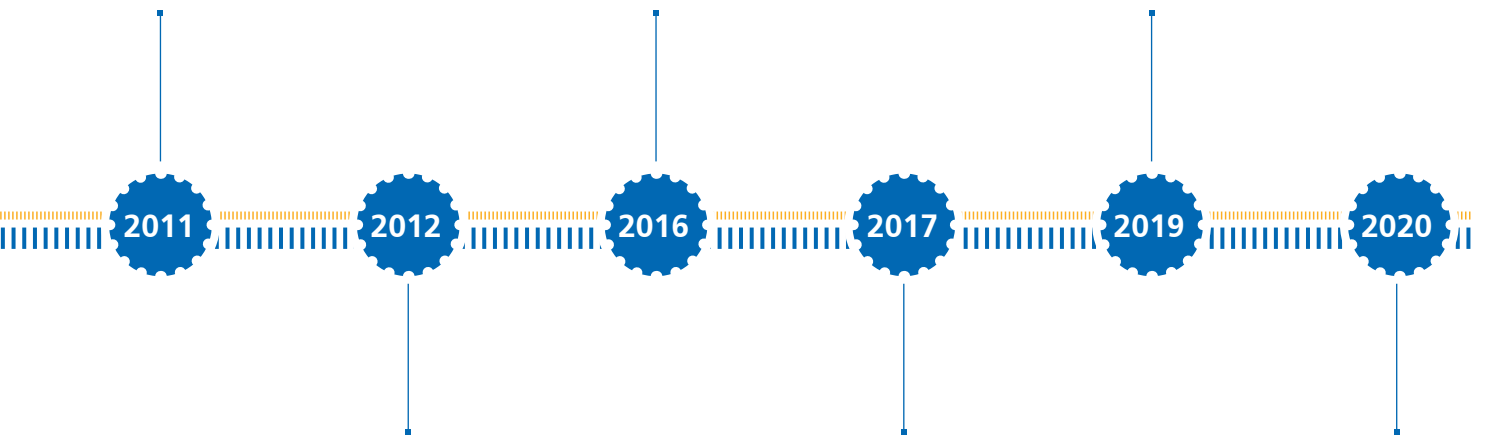
Establishment of the twoCON business unit for manufacturing medical training devices

MERGER

The operational areas of the corporate group (Walter Höhn GmbH, HKS Dreh-Antriebe GmbH und Co. KG and HKS GmbH) are now combined under HKS Dreh-Antriebe GmbH

EXPANSION AT THE "LEIPZIGER STRASSE" LOCATION

Construction of another production hall with additional office space. Expansion to a total of 9,200 m²



NEW LOCATION: "IN DEN PFLANZENLÄNDERN"

Construction of another production hall with additional office space. Expansion to a total of 4,700 m²

EXPANSION AT NEUKIRCH

New construction of a production hall at the Neukirch location. Expansion to a total of 2,500 m²

50 YEARS OF HKS

In 2020, we will celebrate our 50th anniversary

Individuality



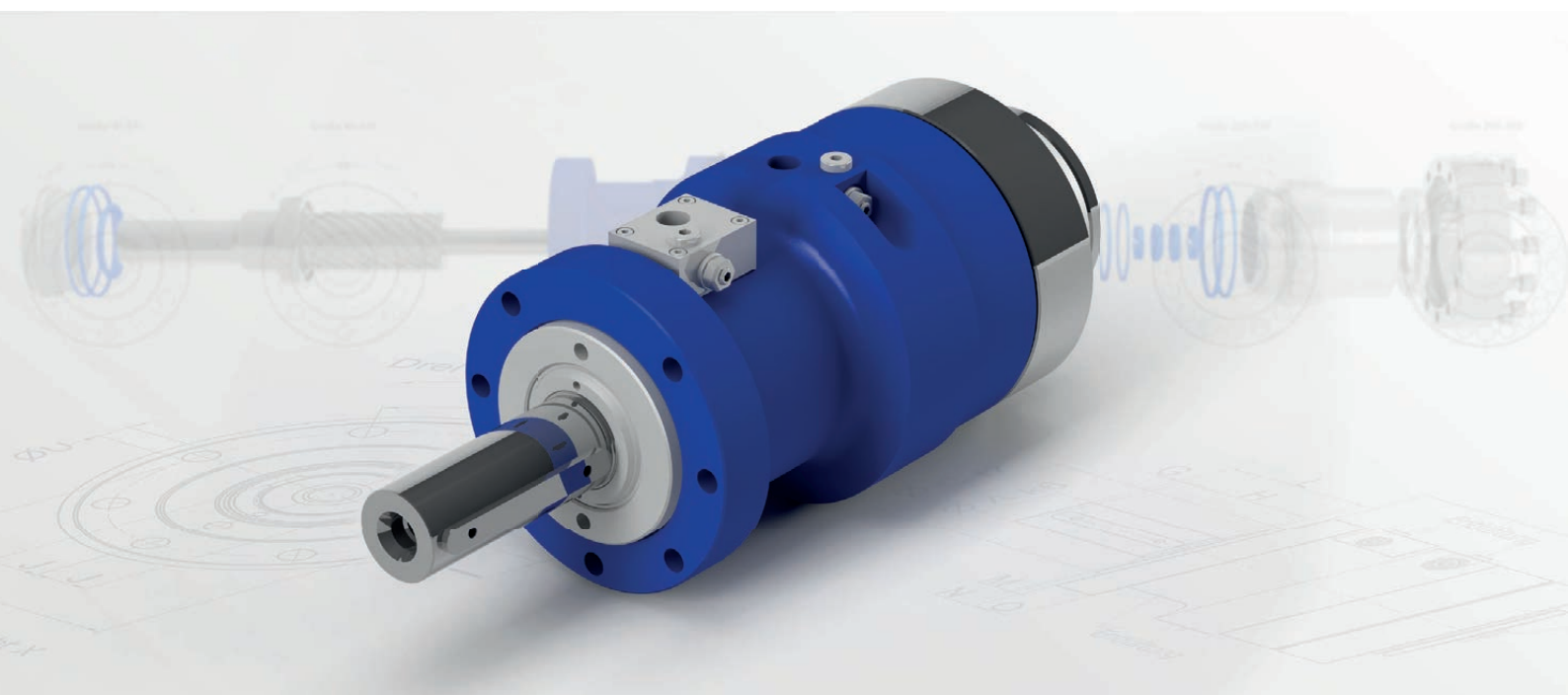
For 50 years, we've been turning the world

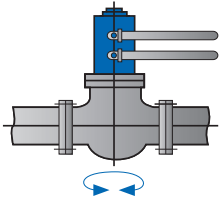
At HKS Dreh-Antriebe GmbH, everything is from a single source. That applies equally to all rotary actuators, rotary-lift combinations, and rack-and-pinion actuators. These actuators are used in sectors such as machine construction, vehicle construction, and shipbuilding, in mobile hydraulics, construction equipment technology, mining, power plants, onshore and offshore applications, automation, and robotics, for medical training devices, and many other areas.

For HKS, in a production area of more than 7,200 m², where work is performed with both the most advanced machines and traditional craftsmanship, the quality associated with "Made in Germany" reflects the highest requirement for its wide variety

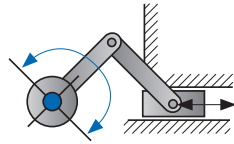
of innovative products and the tremendous quality of the rotary actuators.

In addition to our standard products, we can develop the right HKS rotary actuator for you, our customer, based on a precise analysis of your requirements – or even together with you in cooperative project work: exactly according to your needs in a capacity range up to 350,000 Nm and with swivel angles up to 1,500°, both as one-off products or in serial production, along with the prototype manufacture that we associate with the process. Our entire focus is on you, our customer, as we create efficient solutions to meet your challenges.

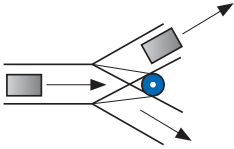




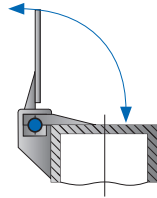
Ballcocks, armatures



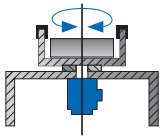
Crank drive



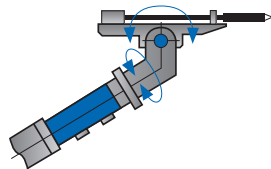
Transportation systems



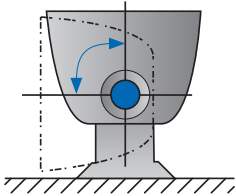
Cover activation



Tilting table



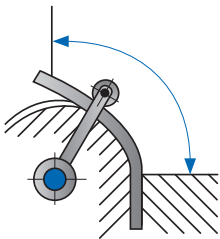
Drills



Container-tilting appliances



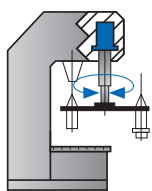
Doors, gates



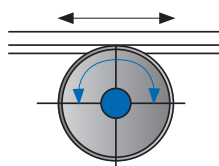
Pipe and sheet metal bending machines



Mixers



Tool changers



Linear transport

Moving solutions

Optimum customer solutions

In order to collect all of the ideas and inspiration and to implement them in a design that is a perfect fit for your requirements, we employ an experienced team of designers, technicians, and development engineers. This team works closely with you as our client. The result of this cooperation is the finished HKS rotary actuator for applications that precisely meets your needs. We enjoy dealing with your challenges – it's our passion. Equipped with the newest hardware and software, our designers develop efficient HKS products for you. Important factors here are a readiness to work as partners, exchanging information at an expert level, and teamwork. In cooperation with you as our customer and, of course, with our experienced technical customer support team, we develop high-quality HKS products tailored to suit your needs.

A product by HKS Dreh-Antriebe GmbH is characterized by:

- › A wealth of ideas that represent the wide variety of applications
- › A clear design language and compact structure
- › Functionality that perfectly addresses the needs of the engineers
- › The highest quality of materials and processing
- › A consistent price to performance ratio
- › Service that guarantees repair, even over the long term, if necessary

Quick finder

We can do even more!

If you don't see your application here, no problem. Just ask us. Our technical customer consultants can provide you with expert support and work together with our design department to implement your ideas successfully.

Phone: +49-6053-61630

E-mail: info@hks-partner.com

For other applications, see www.hks-partner.com

		Xtra Tilt	RotoBox	TiltRotator
Application area	Page	19	19	19
Demolition and scrap technology		•		
Flaps				
Work platforms			•	•
Fittings				
Automotive industry				
Excavator buckets and other attachments		•	•	•
Construction equipment		•	•	•
Mining equipment		•	•	•
Concrete spray machines				
Bending machines				
Container cranes				
Printing machines				
Vehicle assemblies				
Vehicle construction				
Automotive technology				
Forestry operations		•	•	•
Foundry			•	
Grinding technology				
Manipulators				
Municipal vehicles		•	•	•
Crane construction (marine and mobile)				
Agricultural machines		•	•	•
Food/meat industry				
Ventilation technology				
Mechanical engineering		•	•	•
Mining/drilling machines		•	•	•
Mixing technology				
Assembly lines				
Waste disposal vehicles				
Onshore and offshore				
Pharmaceutical industry				
Test benches				
Refineries				
Tire industry				
Robotics/manipulators				
Shipbuilding				
Ship cranes				
Ship rudder adjustment				
Spreaders				
Steel industry				
Textile machinery				
Transfer lines			•	
Tunnel boring machines				
Entertainment industry		•	•	•
Packing machines				
Pile driving/extraction				

Individuality can be found in every area

Industry / Machinery

Onshore and offshore fittings

Mining / Heavy duty applications

Power plants / Energy

Robotics / manipulators

I-DA-H

DA-H*

DKA

SA-H1

SA-H2

SA-H3

SA-H4

AFR

F5

F10

DEK

DEK1

DZK

DKA

I-DA-H

For a detailed overview, see
www.hks-partner.com



*) Also available in a lightweight design

XtraTilt



RotoBox



TiltRotator



Attachments for construction equipment



M-DA-H*



F1



F2/F4



F3*



F6



F7



F8



F9

Rotary actuator for mobile working machines



Vehicle construction



Shipbuilding / logistics



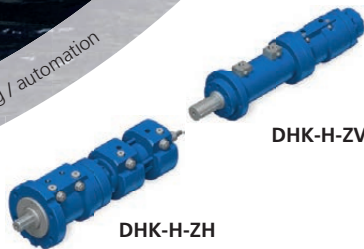
Handling / automation



twoCON



DHK-H-ZV



DHK-H-ZH



ZH

twoCON



We are happy to help you select the right actuator and the right actuator design for your project.
Phone: +49-6053-61630
info@hks-partner.com

Industry/plant engineering

A wide variety of options

Rotary actuators for industry are designed for an extremely high amount of load changes. The ability to handle quick slewing times, internal seal tightness, and thus, robust holding positions are a must. In addition, the high torque and the ability to modify length, diameter, and torque of the HKS rotary actuator are beneficial with regard to the requirements of these industries.

A continuous drive shaft, wear resistant sliding surfaces, customized rotation angle, end position cushioning, control pins, position querying, various shaft designs, angle adjustment, and angle of rotation and shaft position settings are the additional advantages of these actuators.



I-DA-H



Operating pressure of up to 250 bar

Torque of up to 250,000 Nm

Angle of rotation up to 1,080°

Special angle of rotation up to 1,500°

DA-H



DA-H-AL

Operating pressure of up to 210 bar

Torque of up to 250,000 Nm

Angle of rotation up to 360°

Special angle of rotation up to 1,500°

High strength aluminum housing

Reduced weight compared with a steel housing

DKA



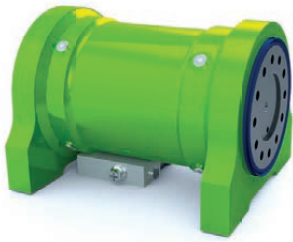
Operating pressure of up to 100 bar

Torque of up to 5,380 Nm

Angle of rotation up to 360°

Quick load changes

XtraTilt



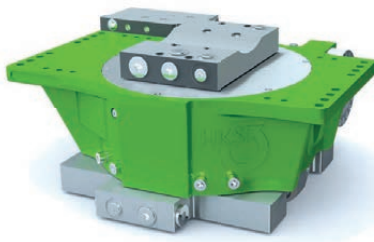
Standard rotating angles: 100°/140°/180°

Holding torque of up to 165,000 Nm

Operating pressure of up to 250 bar

49 models for 18 sizes for a carrier device weight of up to 100 t

RotoBox



Torque of up to 12,000 Nm

Up to 8 rotations per minute

Operating pressure of up to 175 bar

In 7 sizes for a carrier device weight of up to 55 t

TiltRotator



Standard tilt angles: 2 x 55° without cylinder

In 10 models for a carrier device weight of up to 55 t

Up to 8 rotations per minute

Compatible with any quick coupler (mechanical, hydraulic, fully hydraulic)

Attachments for construc- tion equipment

Individuality knows no limits

Each application is different, so it requires different tools. To meet this need, HKS offers the broadest product spectrum for rotating and tilting tools to cover any application perfectly. No matter if it's just simple tilting with the XtraTilt or rotating with the RotoBox or both together, for example with the TiltRotator by HKS.

We consult with you and we design and manufacture according to your ideas, so we can achieve the best result for you and your excavator.



Onshore and offshore fittings

Quality down to the smallest detail

We developed this rotary actuators especially for fittings, flaps, and ball valves. Their reliability has been tried and tested for years in applications. Typical characteristics of HKS rotary actuators are meeting the highest requirements for safety and quality as well as durability and precision. Our strengths also include meeting ATEX and DIN standards and special, customer-specific solutions.

SA-H1



Working pressure up to 210 bar

Torque up to 250,000 Nm

Angle of rotation up to $90^\circ \pm 1$ (special angles available)

Emergency operation

SA-H2



Operating pressure of up to 210 bar

Torque of up to 250,000 Nm

Angle of rotation up to 360°

Special angles available



SA-H3



- Working pressure up to 210 bar
- Torque up to 250,000 Nm
- Angle of rotation up to $90^\circ \pm 1$ (special angles available)
- Emergency operation

AFR



- Operating pressure of up to 210 bar
- Opening torque of up to 38,000 Nm
- Closing torque of up to 11,000 Nm
- Spring return

SA-H4



- Working pressure up to 210 bar
- Torque up to 250,000 Nm
- Angle of rotation up to $90^\circ \pm 1$ (special angles available)
- Zero position adjustment $\pm 5^\circ$



Mobile hydraulics for vehicles

Mobile rotary actuators can do it all

There are rotary actuators, part-turn actuators or swivel motors, as the actuators are also called, available for a variety of application areas. Just the automotive technology together with mobile hydraulics creates so many variables that classification here is extremely multi-faceted. In any case, you have a wide range of options from which to select the right product from the broad HKS spectrum.



M-DA-H



M-DA-H-AL

Operating pressure of up to 210 bar

Torque of up to 4,800 Nm

Angle of rotation up to 360°

Through holes for wire or cables

High strength aluminum housing

Reduced weight compared with a steel housing

F1



Operating pressure of up to 210 bar

Torque of up to 8,000 Nm

Angle of rotation up to 360°

Simple foot mounting

F2/F4



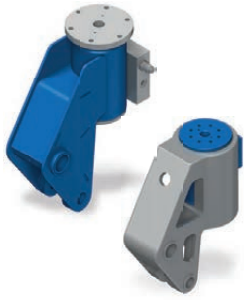
Operating pressure of up to 210 bar

Torque of up to 30,000 Nm

Angle of rotation up to 360°

Double-sided shaft

F3



F3-AL

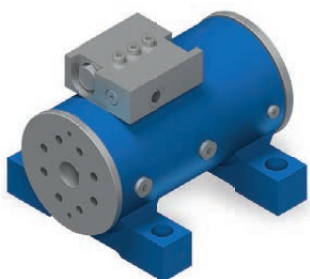
- Operating pressure of up to 210 bar
- Torque of up to 5,000 Nm
- Angle of rotation up to 360°
- Direct bolt connection to the arm
- High strength aluminum housing
- Reduced weight compared with a steel housing

F6



- Operating pressure of up to 210 bar
- Torque of up to 4,800 Nm
- Angle of rotation up to 360°
- With load holding valve
- Through holes for wire or cables

F7



- Operating pressure of up to 210 bar
- Torque of up to 8,000 Nm
- Angle of rotation up to 360°
- With load holding valve
- High load handling capacity

Work platforms/ Vehicle construction

Can also be customized as a lightweight design

The greatest safety criteria are met by using the appropriate material and special load holding valve technology.

An optional, high strength aluminum housing also ensures that weight is kept low and increases stability, especially for elevated working platforms.



Mining/ Heavy duty applications

Made for use in nearly
any environment

The M-DA-H series of rotary actuators with the F5/F10 have been primarily designed for mobile use. Based on coarse thread technology, we have designed a compact solution with a maximum working pressure of 210 bar and up to 83,000 Nm of torque. These types of drive system are ideally suitable for applications that require high holding torque. The coherent design and compact construction complete the positive overall picture. The use of high-quality materials guarantees maximum longevity.



F5



Operating pressure of up to 210 bar

Torque of up to 83,600 Nm

Angle of rotation up to 360°

High holding torque

The greatest axial and radial force absorption

The greatest bending torque

F10



Operating pressure of up to 210 bar

Torque of up to 83,600 Nm

Angle of rotation up to 360°

Mounting flange

Output flange

I-DA-H



Operating pressure of up to 250 bar

Torque of up to 250,000 Nm

Angle of rotation up to 1,080°

Special angle of rotation up to 1,500°

F8



Operating pressure of up to 210 bar

Torque of up to 8,000 Nm

Angle of rotation up to 180°

Low space requirement

F9



Operating pressure of up to 210 bar

Torque of up to 20,000 Nm

Angle of rotation up to 360°

Bending moment of up to 100,000 Nm

Shipbuilding/ logistics

Efficient in every area

Extremely durable, low maintenance, and few service intervals. The robust, compact, and modular design offers the perfect solution options for special requirements in application areas related to shipbuilding or harbor logistics. For example, rotary actuators are used here as retaining devices in container handling. A mobile rotary actuator is also a popular solution for cranes that can absorb great forces.

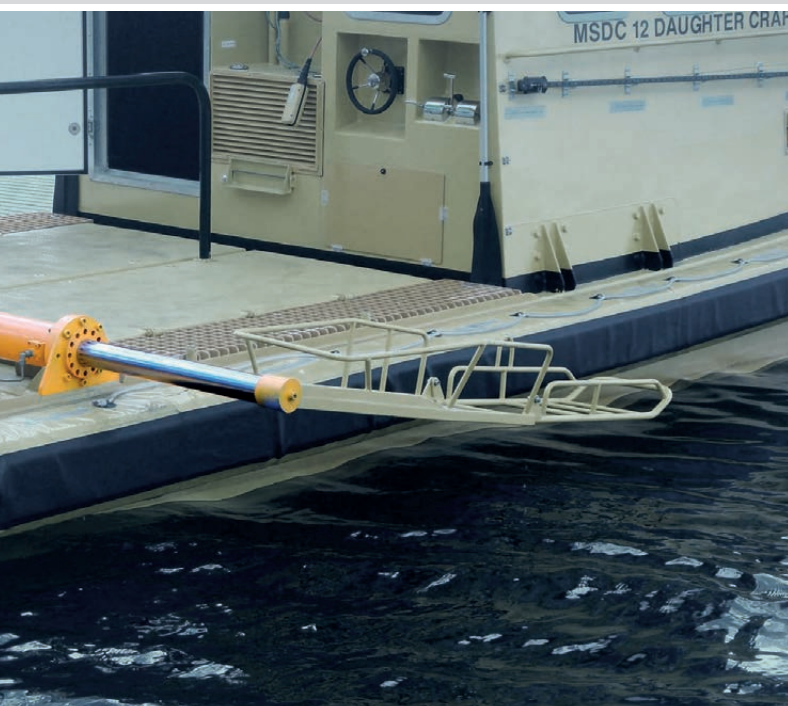


Handling/ automation

Compact rotary-lift unit

The rotary-lift combination or lift-tilt unit combines a hydraulic or pneumatic rotary actuator with a lifting cylinder. The components can be controlled synchronously or asynchronously. In this way, the rotary-lift combination actuators can react with flexibility to the respective requirements.

A wide variety of ancillary equipment, queries, or valves can be integrated to adapt the rotary-lift combination actuators for your specific requirements.



DHK-H-ZH



Operating pressure of up to 210 bar

Torque of up to 14,700 Nm

Standard angle of rotation up to 360°

Stroke of up to 700 mm

Lifting capacity of up to 150,000 Nm

Pulling force of up to 110,000 Nm

DHK-H-ZV



Operating pressure of up to 160 bar

Torque of up to 16,000 Nm

Standard angle of rotation up to 360°

Stroke of up to 1,200 mm

Lifting capacity of up to 360,000 Nm

Pulling force of up to 180,000 Nm

Cylinder



Operating pressure of up to 350 bar

Piston diameter of up to 500 mm

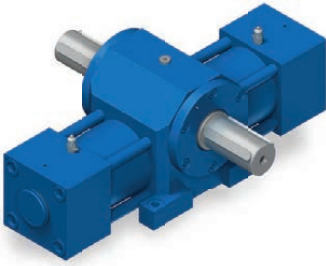
Stroke length of up to 4,000 mm

Oil can be supplied through the piston rod

Durability

Extremely robust

DEK



Operating pressure of up to 210 bar

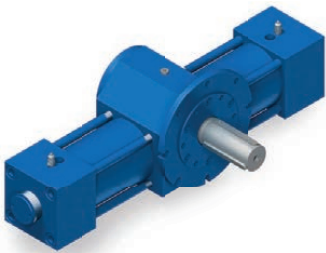
Torque of up to 40,000 Nm

Angle of rotation up to 720°

Very low backlash

Extremely robust

DEK1



Operating pressure of up to 250 bar

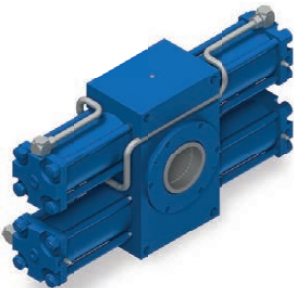
Torque of up to 60,000 Nm

Angle of rotation up to 360°

Foot mounting

Face mounting

DZK



Operating pressure of up to 250 bar

Torque of up to 350,000 Nm

Angle of rotation up to 360°

Foot mounting

Face mounting

Power plants/ Energy

Rack and pinion actuators for the greatest forces

The rack and pinion actuator is ideal for use when there are high torque demands. It allows for extensive swiveling where the space is restricted in the axial direction. There are just as many additional options as for the multiple helical gear principle. The torque is generated and transferred via a rack and pinion piston arranged horizontally with respect to the drive cog formed with a pinion.



Robotics/ manipulators

Robust design and high-quality materials

The requirements vary depending on the application area and the respective ambient conditions. Our employees are happy to put together the right solution for you from our wide ranging product portfolio. This way, it doesn't matter which environment or under which conditions the rotary actuator is used – it is adapted especially to your requirements. The rotary actuators offer the following advantages in use:

- › Extremely long maintenance intervals and service life
- › High precision with regard to positioning, equivalent to an electric servomotor

I-DA-H



Operating pressure of up to 250 bar

Torque of up to 250,000 Nm

Angle of rotation up to 1,080°

Special angle of rotation up to 1,500°

DKA



Operating pressure of up to 100 bar

Torque of up to 5,380 Nm

Angle of rotation up to 360°

Quick load changes



HKS develops, produces, and sells medical training devices using the brand name twoCON. At the devices' core is a resistive sensor with a setting that is infinitely variable, which makes a gentle workout possible for people of any age, in rehabilitation facilities or at the gym, **or as part of occupational health care**. The name twoCON refers to the idea of "two concentric", or training two muscle groups with one movement, which the device supports, providing healthy training for the entire body. Thanks to an isodynamic resistance system, which simulates perfectly the resistance behavior of water, the muscle groups are trained in such a way that no muscle soreness results.



Stomach and back training



Chest and back stabilization



Upper body rotation



Biceps-triceps training



Rowing/chest press



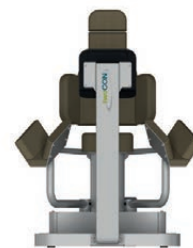
Lat pulldown/shoulder press



Leg curls/leg extensions

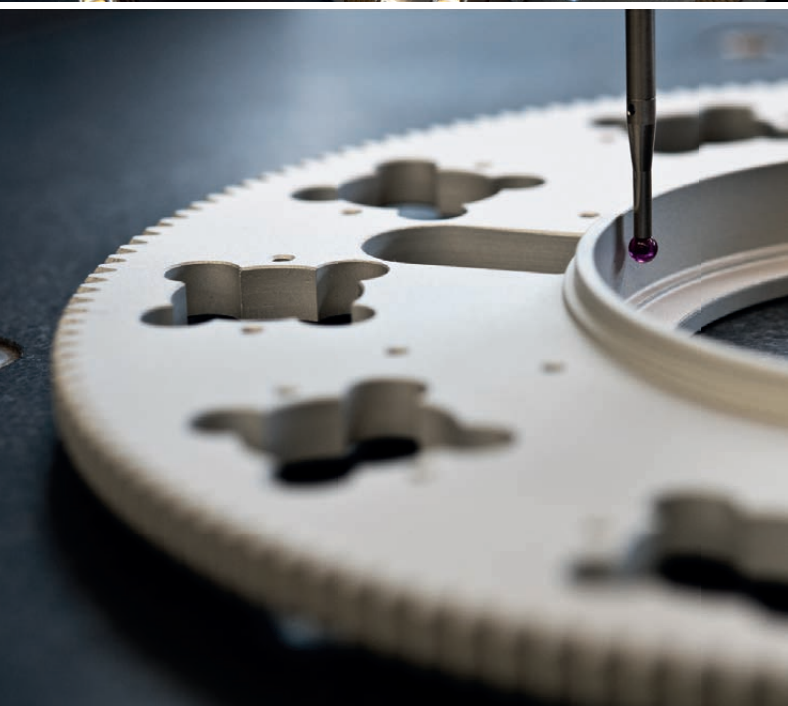


Squat training

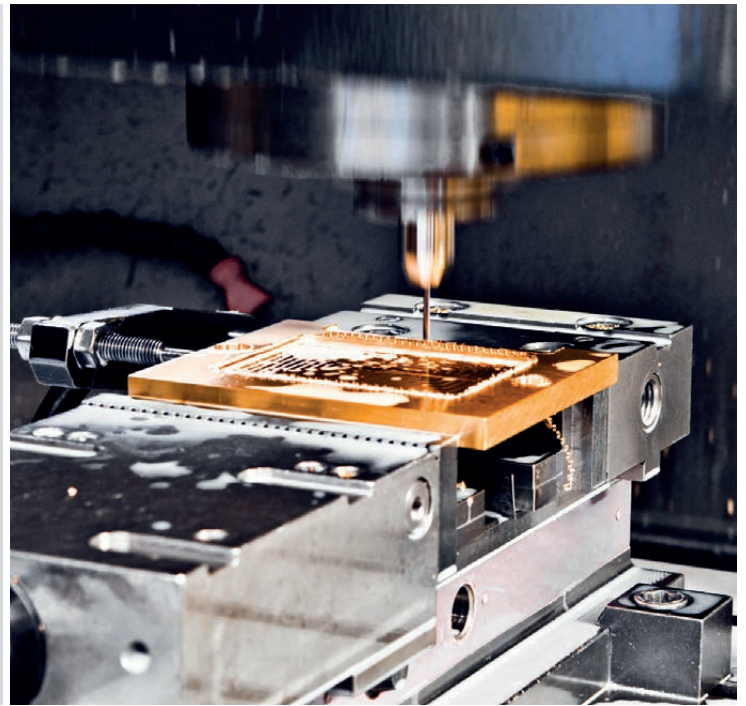


Adduction/abduction

Order and component production



We produce everything from single parts to assemblies and on to end products according to your specifications and drawings – with precision and reliability!



Our production processes:

- › Turning
- › Milling
- › Gear tooth forming
- › Grinding
- › Honing
- › Broaching
- › Splicing
- › Grooving
- › Surface finishing

Our products

- › Drive wheels
- › Drive shafts
- › Bevel gears
- › V-belt pulleys
- › Spline shafts
- › Chain wheels
- › Running wheels
- › Pinion shafts
- › Worm wheels
- › Worm shafts
- › Helical gears
- › Gear wheels
- › Timing belt pulleys
- › Toothed racks


Other services





- › One-off products and serial production.
- › Complete or semi-finished production
- › Sample production
- › Prototype manufacturing
- › Component assembly
- › Design and consultation



www.hks-partner.com



Scan me! 

-  facebook.com/HKSDrehAntriebe
-  twitter.com/HKSDrehAntriebe
-  youtube.com/HKSDrehAntriebe
-  issuu.com/hks_

© 2019 HKS Dreh-Antriebe GmbH® • Leipziger Straße 53-55 • 63607 Wächtersbach-Aufenau • Germany
Phone: +49-6053-6163-0 • Fax: +49-6053-6163-639

DIN EN ISO 9001:2015 BSI-certified

Illustrations are approximations • No guarantee for the information provided • Subject to change
Version dated: 04/2019

For reasons of readability we have, in part, not used both masculine and feminine pronouns or other, similar language features.
Of course, the text refers to both genders.

