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WELCOME TO THE WORLD OF GKN

➢ A leading global engineering group, with over 250 year’s heritage of quality and innovation, operating in more than 30 countries.

Technology and engineering from GKN is at the heart of the vehicles and aircraft produced by the world’s leading automotive, off-highway, aerospace and defense manufacturers. More than 40,000 people work in GKN companies and joint ventures in more than 30 countries.

➢ “Every day we harness our considerable technology and manufacturing resources to supply the highest quality systems, structures, components and services.”

GKN Automotive
Supplying driveshafts, geared components, torque management devices to vehicle manufacturers in the global car and light vehicle markets.

GKN Land Systems
Design, manufacture and supply wheels, driveline products, tractor attachment systems, clutches and brakes, controls and sensors, couplings, gearboxes and vehicle structures for the construction, mining, automotive, defense, agricultural and industrial machinery markets.

GKN Aerospace
Activities are concentrated on the production of airframe and engine structures, components and assemblies for both military and civil aerospace markets.

GKN Powder Metallurgy
Producing powdered metal and sintered components for automotive and other industrial customers.
WHAT WE DO

We design, manufacture, market and service powertrain products and systems for leading global equipment manufacturers, helping our customers keep the world running efficiently, reliably and safely.

Our powertrain solutions deliver power from source to the point of application. We enable our customer’s machinery to propel, position and perform in agricultural, construction, mining and industrial markets.

To achieve this we engineer a wide range of products, systems and solutions:

INTEGRATED POWERTRAIN COMPONENTS, SYSTEMS AND SOLUTIONS

Couplings ➤ Our extensive experience with elastomers makes us certain: We will find the right material for your flexible coupling.

Brakes ➤ We develop and produce disc brakes for all movements of a wind turbine. In addition to brakes we manufacture rotolocks and customized solutions.

Clutches ➤ Clutches create a reliable connection between the input and output sides, and ensure transmission of the torque. Brakes for modern and energy efficient drives: hydraulically, pneumatically or electrically actuated.

Controls ➤ Compact designs with various housing constructions. Repeatable accuracy and precise, we can offer solutions for a range of applications.

Gearboxes ➤ With gearbox transmissions at the heart of the driveline of agricultural, commercial and other vehicles, we design, test and produce spur, helical and bevel gears to customer requirements.

eDrives ➤ The new AF Series axial-flux electric motor offers a 3-phase permanent-magnet motor with high torque and high power density.

Driveshafts ➤ The universal cardan shaft is one of the most efficient drive concepts for machinery, such as in agricultural and commercial vehicles.

Wheels ➤ Leading manufacturer of off-highway wheels offering standard and innovative custom solutions across all off-highway markets, drawing on over 100 years experience and extensive technical expertise.

CONSTRUCTION, MINING AND UTILITY

GKN are experts in designing and manufacturing drivetrain solutions for these demanding industries. The construction and mining industries encompass a diverse range of activities and a huge variety of machinery, projects, machinery demands and operating conditions.

This is backed up with our aftermarket network supplying genuine replacement parts, remanufacturing and repair services to the end-user.
GKN Wheels is a world leading manufacturer of off-highway wheels and an innovative engineering solutions provider. With manufacturing centres of excellence and global design and testing facilities we are well positioned through our heritage and engineering capability to provide the market with cost-effective, efficient products to meet your needs.

At GKN Wheels we use the best design methodologies including computer simulations and Finite Element Analysis, backed by extensive in-field testing. Continuous investment in research, development and testing – and commitment to engineering and design excellence – lie at the heart of GKN Wheels’ reputation for outstanding products and service.

**BENEFITS INCLUDE**

- 3 years warranty
- Supported by experience
- Field tested
- Highly durable
- Solutions engineering
- Supported by extensive tooling

**5 PIECE HEAVY CONSTRUCTION WHEEL**

By working with design engineers we continually review the critical characteristics of applications and the operating requirements to design and manufacture reliable and durable wheels to operate under extreme conditions. We have built a reputation for leading the industry in the supply of single, 3 and 5 multi-piece wheels to the light and heavy construction industries, as well as for a range of industrial machinery.

Wheels are available in sizes up to 63” diameter to suit vehicle applications including backhoe loaders, skid steer loaders, wheeled excavators, wheel loaders, quarry haul trucks, large mining trucks, loaders, rigid dump trucks, articulated dump trucks and motor graders as well as fork lift trucks, container handlers, reach stackers and harbour cranes.

**BENEFITS INCLUDE**

- Meet customer requirements without adding unnecessary weight and material
- Cost effective
- Greater fuel efficiency
- Longer service life
- Safer application
- Lower maintenance costs
- Complete wheels solutions available
- Superb strength properties giving excellent performance at high loads and speeds for extreme on-site working conditions
- Enhanced performance
- Swift Change rims available for 51” and 57” diameter rims to allow for easier and quicker tire change
- All GKN wheels come with best in class paint finish as standard
GKN HUB SYSTEMS

GKN Wheels is a leading manufacturer of hubs and spindles, with multiple core domestic customers and export agreements worldwide. The company supplies every major manufacturer and supplier of OEM across North America and Europe.

GKN hub and spindle capacities range from 500lbs to 50,000lbs. Bent and straight spindles can be fully customized to specified dimensions. Cultivation, straddle and standard designs are available with a range of bolt configurations. The range includes the world’s largest hub and spindle – weighing 200lb and with a load-bearing capacity in excess of 50,000lbs.

**BENEFITS INCLUDE**

- 4 Bolt through to 20 Bolt + Bolt patterns (4, 5, 6, 8, 10 and 20 patterns)
- Traditional weight capacities from 500lbs to 50,000lbs
- High load capacity of 25,000lbs through 50,000lbs
- Sold in a variety of configurations including machined hub, hub with cups installed, and complete hub and spindle assemblies
- Wide range of wheel mounting systems are available
- Ideal for single-axle vehicles carrying out heavy duty applications
- Hub can be fully customized
- Disc brake components can be included if required

**GKN HUBS RANGE**

- 500lbs to 50,000lbs
- 4 bolts up to 20 bolts
- Material: grade 30 grey cast or ductile cast

Hubs are sold complete with bearings, seals hub caps and nuts. They can also be supplied machined and cupped only or in assembled and greased hub and spindle units. Separate components (e.g. cups, bearings, seals, hub caps, stud bolts, wheel bolts, nuts) are also available as replacement parts.

**GKN SPINDLES RANGE**

- 1 ¼” to 6” diameter
- Full line to compliment all hubs
- Spindle material: 1045 cold drawn steel

Straight or bent spindles are available in any length, in increments of 1/8”. They can be supplied complete with spindle, washer, castle nut and cotter pin, or as plain spindles only. Complete greased and assembled hub and spindle units are also available.
GKN Structures is a world leader in the design, development and manufacture of pressed steel structural assemblies and chassis systems to a number of key sectors. It has proven capability to support a model program from concept to production, assuring client confidentiality at all times. Quality assurance is one of the cornerstones of GKN Structures’ philosophy. The process begins in quality, planning simultaneously with engineering, further supported by full feasibility analysis and continues through process control where they implement a range of tests and checks.

With its broad based skills and expertise, GKN Structures offers customers in all sectors a highly developed and professional design, development and testing capability alongside its firm commitment to lean excellence. It has made significant investments to complement its existing extensive facilities, and ensure that it maintains its leading role and reputation for engineering excellence, innovation and high performance.

**BENEFITS INCLUDE**

- GKN Structures manufacture and supply a range of full chassis, sub frames, cross beam, non-driven axles, to leading OEM’s
- Extensive testing facilities for static and dynamic testing
- Design capability from concept to production
- Comprehensive, multi-skilled prototyping capability
- Full service supply status

**TESTING AND INSPECTION**

- Single axis cyclic
- Static stiffness/strength
- Multi axis cyclic
- Full vehicle/full axle
- Full corner testing on 150 t seismic mass
- Remote Parameter Control (RPC)
- Multi axis CMM machines up to 5 x 3.5
- Faro arm inspection
- Destructive testing, Macro Etch
- Non-destructive testing, ultrasonic weld test
- Safe launch procedure
- State of the art laser inspection for high volumes

**DESIGN**

- Design capability from concept to production, finite element analysis used to optimize components
- CAD systems include CATIA/SDRC/IDEAS/Pro Eng
- FSS status since 1997
Mechanics® universal joint driveshaft products for off-road mobile and industrial equipment are now available for more applications.

We have expanded our portfolio to offer more configurations and the quality of genuine Mechanics® driveshafts and components can add real value and integrity to your products.

Mechanics® application-matched drivelines are rugged assemblies that withstand the demands of today’s more powerful powertrain requirements.

Precision balancing assures smooth, vibration-free operation. All components are specifically designed to meet the optimum requirements for a given u-joint size. Driveshafts are available in a wide range of sizes and a broad RPM operating range.

**BENEFITS INCLUDE**

- Permanently lubricated or relubecable
- Sealed slip mechanism
- Larger spline O.D.
- Coated spline
- Shaft quality DOM tubing
- Advanced plastic snap dust cap
- Fewer sealing components
- Reduces coefficient of friction
- Eliminates contamination
- Reduces compressive stresses
- Increased spline life
- Directly interchangeable with Dana/Spicer® Style Round Bearing

The range of Double Universal Joints for the off-highway sector includes DUJ shafts for vehicles with driven steering axles, DUJ shafts for sterndrives for boats and Universal-joint shafts for special applications.

**B-SERIES**

**FUNCTION AND APPLICATION**

The B-SERIES 300 was designed for machines with driven steering axles for the agricultural and industrial sector, as well as for earth-moving machines (Compact). They are available with functional limit torques of between 1,550 Nm and 7,500 Nm, and with a working angle of up to 60°.

The joints of the B-SERIES 300 are available in five sizes, and each size can be supplied in three different versions: standard (male), hub yoke design (female) or with integrated pinion (sun gear).
The latest example of the engineering achievements of GKN Land Systems is the development and production of an innovative shift and reversing gearbox for shredders for use in the forestry and municipal sectors.

With this new gearbox, we have developed an innovative drive solution for shredding drums, the great majority of which have so far been equipped with hydrostatic drives. The GKN Land Systems automatic shift and reversing gearbox consists of a three-speed automatic gearbox and a torque-operated, electro-hydraulically controlled overload clutch.

**INNOVATIVE CUSTOMIZED DRIVE CONCEPT**

**BENEFITS INCLUDE**

- No manual intervention of the operator required in case of congestion and overload
- Simultaneously more than 10% higher flow by automatic function and higher efficiency factor
- 35% higher efficiency factor compared with the usual hydrostatic drive systems
- Automatic and quick reversing in case of congestion for operator-free function and maximum flow
- Automatic adaptation of the working speed by self-acting gear shifting
- Reduction of the fuel consumption by approx. 30% and consequently reduction of the CO₂-emission
- Automatic function and higher efficiency factor
- Automatic adaptation of the working speed by self-acting gear shifting

**ICVD® INTEGRATED VARIABLE HYDROSTATIC DRIVE WITH 45° LARGE-ANGLE TECHNOLOGY**

**FUNCTION AND APPLICATION**

At the heart of the ICVD® concept is the use of a hydraulic motor featuring „large-angle technology“. This permits pivoting of the motor up to an angle of 45°, instead of the usual maximum of 32°.

Both the hydrostatic conversion range and the efficiency are substantially improved, making this technology a real alternative.

The ICVD® can be used to realise very quiet drive concepts in practice and the optimized efficiency also cuts the vehicle's fuel consumption.

**BENEFITS INCLUDE**

- Large, continuously variable conversion range
- Automatic adaptation of the power requirement
- Tractive power generation independently of the RPM speed
- Simple reversal of direction of travel and torque
- Flexible arrangement of the drive elements

![Innovative drive concept for disposal and municipal machines](image-url)
### CLUTCHES AND BRAKES FOR OFF-HIGHWAY APPLICATIONS

**GKN Stromag**

Off-highway drives demand high reliability and perfection in design, particularly from clutches and brakes. Adverse environmental conditions and system vibrations need robust designs and long service lives. Clutches and brakes are used in construction and agriculture machines for decades in addition to municipal vehicles, forklifts, forest and other special machines that demand quality and reliability.

With GKN Stromag as your engineering partner for clutches and brakes, you will get the optimal, customized solution for your drivetrain. This can be used for a single project as well as for serial production, for both clutches and brakes with a few 100 Nm up to 2.2 Mio Nm.

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<th>BENEFITS INCLUDE</th>
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<tr>
<td><strong>Powerful</strong></td>
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<tr>
<td><strong>Compact</strong></td>
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<tr>
<td><strong>Low wear and noise levels</strong></td>
</tr>
<tr>
<td><strong>Robust</strong></td>
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<tr>
<td><strong>Energy efficient</strong></td>
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<tr>
<td><strong>Extremely easy to install</strong></td>
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**Dry running diaphragm clutches KHM**

**Rockford Clutch**

Today, our line of high-performance fan clutches continue to set the standard for reduction of fuel consumption and fan-generated noise, prolonged engine life, increased belt life and improved productivity.

GKN Rockford’s unique variable speed technology enables our fan clutches to respond to changes in the engine cooling demands by varying the fan speed. This is accomplished by using a stand-alone control system or through today’s high-tech engines’ ECMs which allows the fan to slow down or speed up as necessary, utilizing less working horsepower from the engine and lowering fuel consumption.

Our patented fan clutch is offered in various sizes. Each fan clutch series number relates to its relative size within the product family. We currently offer fan clutches for engines from 400 to 4,000 hp which use cooling fans from 10 – 300 hp.

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<tr>
<td>Increases fuel economy and usable horsepower</td>
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<tr>
<td>Reduces decibel rating for noise regulation</td>
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<tr>
<td>Reduces radiator sandblasting</td>
</tr>
<tr>
<td>Increases productivity</td>
</tr>
<tr>
<td>Permits programmed fan speed clipping at high engine speeds</td>
</tr>
<tr>
<td>Reduces fan blade erosion</td>
</tr>
<tr>
<td>Eliminates shock load on engine components</td>
</tr>
<tr>
<td>Reduces noise for enhanced operator comfort</td>
</tr>
<tr>
<td>Increases fan belt life</td>
</tr>
<tr>
<td>Speeds up engine warm-up in cold temperatures</td>
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**GKN Rockford Fan Clutches®**
CLUTCHES AND BRAKES
FOR OFF-HIGHWAY APPLICATIONS

<table>
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<th>SERIES</th>
<th>DESCRIPTION / APPLICATION</th>
<th>COOLING FAN HP</th>
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<tr>
<td>5.25</td>
<td>The 5.25 Series is the original variable speed, air release GKN Rockford fan clutch. This spring applied design continues to be an effective design suitable for on-highway and military applications.</td>
<td>10 – 50</td>
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<tr>
<td>125</td>
<td>The Series 125 is the newest generation for the lighter duty off-highway and industrial engine applications. This fan clutch is designed for significant efficiency gains and noise reduction where space limitations are critical. It is offered with or without speed sensing capability.</td>
<td>10 – 45</td>
</tr>
<tr>
<td>170</td>
<td>The Series 170 GKN Rockford fan clutch is designed for medium to lighter duty off-highway and industrial applications. This oil-actuated fan clutch enables vehicle efficiency gains and aids in noise reduction applications.</td>
<td>20 – 60</td>
</tr>
<tr>
<td>200</td>
<td>The Series 200 GKN Rockford fan clutch is designed for medium duty off-highway applications and industrial applications. This fan clutch enables vehicle efficiency by minimizing parasitic load on the engine and reduced warm up time.</td>
<td>40 – 90</td>
</tr>
<tr>
<td>270</td>
<td>The Series 270 GKN Rockford fan clutch is designed for heavy-duty off-highway applications. This fan clutch provides efficiency through on demand cooling in large applications. The effects of over cooling are reduced in cold weather applications.</td>
<td>80 – 150</td>
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<tr>
<td>370</td>
<td>The Series 370 GKN Rockford fan clutch is designed for the largest applications. This is the newest addition to the Rockford product line. This fan clutch was developed to meet the cooling demands of the largest off-highway applications.</td>
<td>150 – 300</td>
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SPRING-APPLIED MULTI-DISC BRAKE KMB/KLB

FUNCTION AND APPLICATION

Hydraulically released spring-applied multi-disc brakes can be used in a diverse range of stationary or mobile applications and in conjunction with hydraulic motors.

Application fields are highway, agricultural, mining, potentially flammable environments, conveyors, traversing trolleys and handling installations.

BENEFITS INCLUDE

- Braking torque range 50 – 500,000 Nm (higher braking torques on request)
- Release excess pressure 320 bar
- Minimum dimensions with high braking torques
- Variable braking torque graduations per model size
- Available for dry and wet running
- Design: add-on brake or integrated in customer's application
- Robust, insensitive, and low maintenance braking unit
- Application based design for high operating reliability
GKN Stromag Designed for all types of industrial installations; drive systems, power generators, diesel drives, steel mills, pump sets and marine applications.

Torsional vibration analysis calculations carried out by our experienced team of engineers, offer the optimal coupling selection for your application. Our innovative product development from the in-house elastomer production facility through to material test rigs. We provide practical advice and finite element analysis in-house.

**BENEFITS INCLUDE**

- Torsional vibration reduction
- Robust and compact design
- Maximum power transmission under extreme conditions and shock load compensation
- Reaction force control
- Simple installation
- Temperature and media resistant elastomers with outstanding mechanical characteristics
- Customized solutions

**GKN STROMAG PERIFLEX® VN DISC COUPLING**

GKN Stromag Periflex® VN torsional high flexible elastomer coupling with a linear characteristic damping curve. Optimized for combustion engine driven hydrostatic systems in varying industrial applications.

**BENEFITS INCLUDE**

- Highly flexible rubber disc coupling
- Rated torque range 160 – 63,000 Nm
- Torsional flexible coupling with linear characteristics curve
- Simple plug assembly with the possibility to mount the rubber material either axially and radially
- For temperature critical applications “ECO” up to +120 °C
- Advantages for bell-type arrangements due to compact design
- ATEX certification available
Manufacturing Locations and Engineering Centres

**GKN Land Systems**

**Manufacturing Locations**
- Armstrong, Wichita: Wheels
- Dayton: Clutches, Brakes
- Rockford: Driveshafts
- Woodridge: Driveshafts, Wheels
- Porto Alegre: Driveshafts
- São Paulo: Clutches, Brakes, Couplings
- La Guerche: Disc brakes, Brakes
- Ribemont: Reman driveshafts
- Bruneck: Driveshafts
- Carpenedolo: Wheels
- Nagbøl: Wheels
- Telford: Wheels, Structures
- Carcastillo: Reman driveshafts
- Dessau: Brakes
- Lohmar: Driveshafts, TAS
- Sohland: Gearboxes
- Unna: Clutches, Brakes, Couplings, Controls, Sensors, Discs
- Telford: Wheels, Structures
- Nagbøl: Wheels

**Engineering Centres**
- Auburn Hills
- Offenbach
- Bruneck
- Carpenedolo
- Dessau
- La Guerche
- Lohmar
- Rockford
- Unna
- Woodridge

**GKN Land Systems**

**Manufacturing Locations**
- Couplings
- Clutches
- Driveshafts
- Gearboxes
- Brakes
- Controls
- eDrive
- Wheels
- Tractor Attachment Systems (TAS)
Armstrong, Wichita: Wheels
Dayton: Clutches, Brakes
Rockford: Driveshafts
Woodridge: Driveshafts, Wheels
Carcastillo: Reman driveshafts
Porto Alegre: Driveshafts
São Paulo: Clutches, Brakes, Couplings
La Guerche: Disc brakes, Brakes
Ribemont: Reman driveshafts
Dessau: Brakes
Lohmar: Driveshafts, TAS
Sohland: Gearboxes
Unna: Clutches, Brakes, Couplings, Controls, Sensors, Discs
Telford: Wheels, Structures
Bruneck: Driveshafts
Carpenedolo: Wheels
Nagbøl: Wheels
Huading: Wheels
Liuzhou: Wheels

GKN Land Systems
Manufacturing Locations

Tokyo: Driveshafts

Pune: Clutches, Brakes

Liuzhou: Wheels

Controls, Sensors, Discs

ENGINEERING > THAT MOVES THE WORLD