Slitting was a laborious business in 1913. The problems of the as yet few manufacturers and fabricators at that time were a challenge that Karl Rudolf Dienes accepted, and he set about developing knives and systems to solve exactly those problems.

In the world of slitting, to successfully implement revolutionary inventions and trend-setting developments on the market, there is one thing that is absolutely prohibited: decisions that begin with the sentence: “We’ve always done it that way.”

The tradition of the Dienes Group has always been to do it differently, and this has become the standard for quality in the modern, industrial slitting technology.

On the basis and the experience of more than 10 million manufactured knives, the development of special knives - such as the Golden Slit - is only a question of time and the indefatigable search for perfect solutions for very specific customer problems.

Surely this is a contributing factor in that together with roughly 500 employees, the Dienes Group produces slitting systems today that are the worldwide leaders in precision, reliability, long operating times and short setup times.

Simply Dienes quality – which is the way it should stay.
World class slitting – **worldwide**
Paper production and processing needs professionals – as does slitting!
The suitable knife - for every type of paper

You can say what you like on paper - this proverb only applied to what was written or printed on the paper, as already the Ancient Egyptians had been aware of since they had been using papyrus since 3500 B.C.

In 102 A.D. the Chinese had already described how to make paper, but it was not until 1390 that the merchant and council Ulman Stromer built the first paper mill in Germany by Nuremberg.

Since then, the fine art of paper production and processing has led to a plethora of superior quality paper grades matched perfectly to each particular application.

Each grade has its own process, but slitting also requires more than simply knowing the material width and thickness.

Paper cutting knives must satisfy high demands with respect to the choice of material, which is guaranteed by the excellent material characteristic of our products.

Dienes circular and straight knives
Circular steel knives, refined, DPM, tungsten carbide up to ø 500 mm
Straight steel knives, refined, DPM, tungsten carbide up to ø 6,000 mm
• Maximum service life, optimal cutting edge, minimal dust formation
• Refined to increase service life and reduce slitting dust

Dienes Slitting Systems - Twin Cut
• Minimal breaks through inline format corrections
• Optimal automatic, high-precision zero point adjustment per knife
• Automatic overlap setting between top and bottom knives
• Automatic cutting force measurement and control
• Multi-layer cutting
• Doubled service life and capacity

Dienes Knife Holder
For roll cutters and sheeter knives, reel, narrow and large cutters
• Perfect handling
• Calibrated by sensors
• Integrated vibration damping
• Easy to retrofit
• As of 16 mm slit width
Label and Adhesive Tape Production needs professionals – as does slitting!
Special knife shapes - for every bonding material

Cutting adhesive-coated materials is part of everyday life in the processing industry and demands specifically coordinated solutions that stop adhesive build-up on tools as well as preventing the cut rolls from “bleeding”.

Here, Dienes provides particular knife geometries, specific coatings for tools and cleaning facilities.

Where previously adhesive residues often stuck to the knives during slitting, now Dienes’ innovative “CleanCut” can be employed. During the slitting process, the top knife receives process-oriented treatment so that it is practically no longer possible for adhesives to adhere to the knife.

It is often possible to use the crush cut as an alternative to the shear cut. In this process, the pneumatically operated knife holder presses the crush cut knife against a special surface-hardened cutter shaft. The material is separated by displacement at the point of contact. The advantages of this configuration are the variably adjustable slit width and the uncomplicated operation.

The Dienes Mini-Cut cutting block represents another step towards implementing narrower slit widths. The cassette is mounted by Dienes and finished as a complete unit.
Steel and Aluminium Processing needs professionals – as does slitting!
Professional knife operation - for all requirements

First discovered in 1825 by the Danish researcher H.C. Oersted while breaking down alumina and manufactured in 1827 by Friedrich Wöhler as pure aluminium through the reduction of aluminium chloride with calcium, production as an industrial standard began much later than other metals.

Production and processing is quality work and even the cutting of aluminium requires a high degree of know-how.

The numerous Dienes Werke patents and the worldwide use of Dienes products are not simply the result of the ambition to produce the best quality slitting systems. They are also the result of intensive research, as in the case of how different aluminium types behave during the slitting process.

In particular, cutting two-layer yet only a few µm thick aluminium foil places great demands on the cutting tools to be employed. Close coordination with the customer to consider and constructively implement all parameters relevant to slitting are particularly important here. This also may be the reason why Dienes slitting components and systems are the worldwide leaders in precision and reliability.

Simply Dienes quality.

Dienes Circular Knives
made of steel, refined, DPM, tungsten carbide and ceramics up to ø 500 mm
• Increased service life
• Minimum changeover times
• Reduced regrinding costs
• Highest manufacturing quality
• Optimal slitting edge quality

Dienes Roll Shear Knives
made of steel, refined, DPM, tungsten carbide up to a maximum outside diameter of ø 600 mm
• Absolute minimum thickness tolerances up to +/- 0.0005 mm
• Accuracy of parallelism and flatness within 0.002 mm
• Surface roughness values up to Ra < 0.1 µm

PSGs-DF Power
For doublers, separators, trimming stations, roll stands, roll cutters and sheeter knives
• Driven top knife
• Quick-change head for razor blades and shear cut
• Integrated cleaning felt
• Reproducible and the least possible cutting forces
Film and Foil Production
needs professionals – as does slitting!
The right solution - for every foil cut

Compared with paper and metals, the manufacture and processing of plastic foils is a relatively young industrial branch.

Different foil thicknesses made of materials with widely divergent physical properties demand slitting tools adapted to the individual application case.

This calls for the razor blade cut, crush cut and shear cut.

Dienes satisfies the demand for even smaller slit widths with the greatest possible stability - even at high slitting speeds - with ball bearing knife holder axles for all DF knife holder models. The zero clearance, vibration damped vertical and horizontal guidance systems guarantee a consistently held shear angle.

For especially narrow slit widths of less than 5 mm, we recommend the patented Dienes Golden Slit knife with ASO anti-dust surface. The slits in the knife achieve a spring-loaded effect that mostly compensates for tolerances and vibrations critical to slitting. A new type of refining also reduces the slitting dust and increases the service life, which also saves on costs.

Dienes Cutting tools and Knife Adjusting Systems
For roll slitters, re-reelers, extrusion and coating plants
• Manual, semi- or fully automatic knife adjustment
• Short-term “Return on Investment” (ROI)
• Customer-specific solutions
• Modular construction
• Conversion in existing or new plants

Dienes Shear Cut Knife Holder
Constant Side Load (CSL) technology
• Reproducible knife contact forces adapted to the material to be cut
• Increased knife service life
• Optimal slitting edge quality

Golden Slit narrow cut knife with ASO anti-dust surface
• Fewer parts = more precise tolerances
• Narrowest slit widths as of 0.5 mm
• Reduction of slitting dust
• High service life
• Complete replaceable slitting cassettes
Nonwoven and Textile Production needs professionals – as does slitting!
A clean cut - for every nonwoven material

Depending on the material to be cut, crush or shear cut procedures are applied, or, in the specific case for cutting textiles, the heat cut procedure.

From knives to knife holders, from complete cutting stations to professional regrinding, Dienes is your specialist for all questions concerning slitting technology.

The versatility of materials is matched by technical solutions to achieve the greatest knife service life with a minimum of dust accumulation. The focus in the textile sector is often on guaranteeing a clean, i.e. lint-free, slitting edge by using profile crush knives or heat cut holders. Of course our product range includes the glass hard shafts or cylinders necessary for the crush cut; these parts are produced according to your specifications. Unlike competitor’s products, they can be reground several times due to the optimized materials and the hardening process.

The nonwoven industry has been showing a high rate of growth in recent years. Producers usually operate complex, interlinked plants. Because of the material structure, cutting naturally accumulates slitting dust, which presents a challenge to slitting technology.

Due to the high investment costs, the production plants must be highly flexible so that different slit widths can be changed over quickly during operation. These and other specific requirements for this branch of the industry are covered by the Dienes cutting tools.

The very easy non-tool quick clamp system exchanges knife holders on straight cutting machines among one another quickly and easily. Quick Clamp will fit any cross member and guarantees an infinitely variable clamping force.

Quick-Clamp™
The Quick-Clamp™ system for very easy fixing of crush cut knife holders to the cross member.
- Right-angled setting of holders
- Minimal set-up times
- Repositioning requires no tools
- Can be used for modules

Dienes Module VIII
Electronic adjustable trimming unit with web end identification
- Integrated suction facility
- Slitting force optimization
- Capillary knife moistening
- Frequency-controlled knife drive

Dienes Heat Cut
The high temperatures separate the material to be cut and weld the cut edges at the same time.
- Infinitely variable temperature setting
- Electronic thermal control upon request
Rubber production needs professionals – as does slitting!
Forceful separation - for every rubber cut

When Charles Goodyear developed the vulcanization of natural rubber in 1839, he could not have known how this versatile material would be used in today's technology. A majority of the industrial rubber production goes into tyre production, but also into many other sectors that use different types of rubber and additives to obtain particular properties.

Cutting rubber is a particular challenge, as there are materials made of rubber or rubber with fabric inserts (e.g. steel cord and Kevlar) for the various fields of application, e.g. tyre manufacturing, diaphragms, conveyer / process belts, toothed belts, etc., just to name a few. The main criterion to be satisfied in crush cut and shear cut is the cutting force necessary to guarantee a trouble-free slitting operation.

Our crush cut knife holders PQAS/PQDS with multi-cylinder satisfy all requirements here.

In addition to our approved knife holder types, collars and grooved knives mounted to top and bottom knife shafts are particularly suited for shear cut. This enables the narrowest slit widths.

Dienes higher slitting force capability
PQD MC3 knife holder with multi-cylinder for higher slitting force capability
• Narrowest slit widths
• Speed range up to 400 m/min.
• Optionally with 2- and 3-fold cylinders

Dienes Shear Cut Collar with grooved knife
• Considerably reduced costs
• Sturdy and approved technology
• High precision

Dienes Quick-Set
Fully automatic crush cut system
• Simultaneous positioning of all holders
• Computer-controlled holder adjustment
• Linear bearings and linear guidance
• Positioning approx. 20 seconds
Printing needs professionals – as does slitting!
**A good print is only a perfect print when finished with the Dienes cut!**

In the printing industry, knife systems are used in printing machines as well as in the downstream finishing machines. Because of the difficult ambient conditions, particularly high requirements are placed here on the reliability and maintainability of tools. Depending on the most diverse finishing machines, a broad range of cutting tools is employed, e.g. guillotine knives, knife folders, paper drills, circular knives, perforator knives, punch knives, three-knife trimmers, scraper knives, trimming knives, paper cutting knives and cutting bars.

For circular knives there are systems with top and bottom knife shafts and corresponding knife carriers as well as systems with knife holders with different slit widths and speed ranges. The bottom knife side puts to use expanding air shafts, multiple knife blocks and individually driven knives. Straight knives (sheeter knives) also are used here for formatting.

Electrodur paper cutting knives are available for all current machine types.

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**Cutting bars**
Cutting bars are gentle to the knife edges and optimize the service life of your knives.
- The different designs are co-ordinated exactly to the knife qualities
- Available in red, grey, white and yellow
- All of the utilised plastics are environmentally friendly

**Paper cutting knives**
With respect to the manufacturing material selected, paper cutting and shear knives must satisfy very high demands.
- ASO straight knives with anti-dust surface
- Long life straight knife
- For all current machine types

**Printing industry**
Use of Dienes cutting tools with all known printing machine manufacturers
- Original manufacturer quality
- Circular knife with ASO anti-dust surface
Mechanical Engineering
needs professionals – as does slitting!
**Dienes - competent mechanical engineering partner**

With a worldwide group of 500 motivated employees, the Dienes Group has been your competent contact for all slitting application fields since 1913. We supply cutting tools, components and complete systems.

As a partner in the field of mechanical engineering, Dienes offers its customers complete, tailored solutions for system technology and helps to distribute tasks between customers and suppliers in a cost-optimized manner.

We work hard each day to give you the cutting edge! Innovative solutions and their rapid implementation make the Dienes Group a strategically important partner - for your company as well. Numerous domestic and foreign patents corroborate our market leadership in the field of industrial slitting applications - worldwide!

**Specifically for our customers in the field of mechanical engineering we offer:**

- CAD consulting
- Construction planning and support
- Worldwide agencies
- Customer orientation and product quality as top goal of full-service provider of knives and systems including service

Worldwide activities with own production plants and independent agencies guarantee close customer relations and continual innovations to the advantage of discerning customers. Steel, tungsten carbide and ceramic circular knives also belong to the successful product range as do a number of specific knife holders as well as fully automatic cutting tool positioning systems.

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**Narrowest slit widths**

The Dienes systems are very compact and compatible with every Dienes shear cut, crush cut and razor blade holder.

- suitable for all slitting methods (also simultaneously)
- minimal setup times through simultaneous, computer-controlled positioning of all holders

**Edge cutting units**

Dienes trimming stations - from manual to fully automatic, also available with edge strip extraction upon request.

- optimal slitting edge quality
- quick format change
- simple and safe handling

**Twin-Cut**

The Dienes Twin-Cut system features inline format corrections with high reproducibility and slitting speeds of up to 2,500 m/min.

- automatic cutting force measurement
- multi-layer cutting
- automatic overlap setting from top to bottom knife
More efficient service and innovations that provide you with the decisive competitive edge!
Innovations - today for tomorrow

We didn’t become the market and technology leader for individual problem solutions for the industry – from paper to steel, from film to textiles – just by sitting at our desks. Using our close local contacts, we prepare system solutions and new developments co-ordinated specifically to the company.

The numerous Dienes Werke patents and the worldwide use of Dienes products were not simply the result of the ambition to produce the best quality slitting systems; they are also the result of intensive research about how different materials behave during the slitting process. We make every effort to ensure our customers are that much more successful.

**Patented Dienes know-how:**
- Golden Slit knives
- Driven shear cut knife holder
- Constant Side Load CSL
- Double axle guidance DF
- Quick-change head WKS
- 360° knife guard SH
- Automatic depth adjustment
- Modular construction
- Shear angle plate
- Replacement tools
- Vibration analysis
- Electronic service life control
- Spring energy memory FES
- Integrated knife size identification
- Telematic service
and much more ...
The efficient service of the Dienes Group is not just based on our warehouse, which consistently stockpiles more than 85,000 knives and several hundred knife holders, to offer our customers quick and flexible support.

Many other services are the cornerstone that has made the Dienes Group the standard for quality and innovation in the modern industrial slitting technology.

A small excerpt from our range of services:
- 48-hour regrinding service
- Pick up and delivery service
- Kaizen slitting analyses
- Slitting laboratory
- Slitting seminars and training courses
- Automation technology
- B2B knife management
- Roll slitter knives
- Straight knives
- Roll shear knives
- Knife holders
- Slitting systems
- Regrinding and polishing machines

We'd be pleased to advise you. **Phone +49 2206 605-0**
World class slitting – worldwide