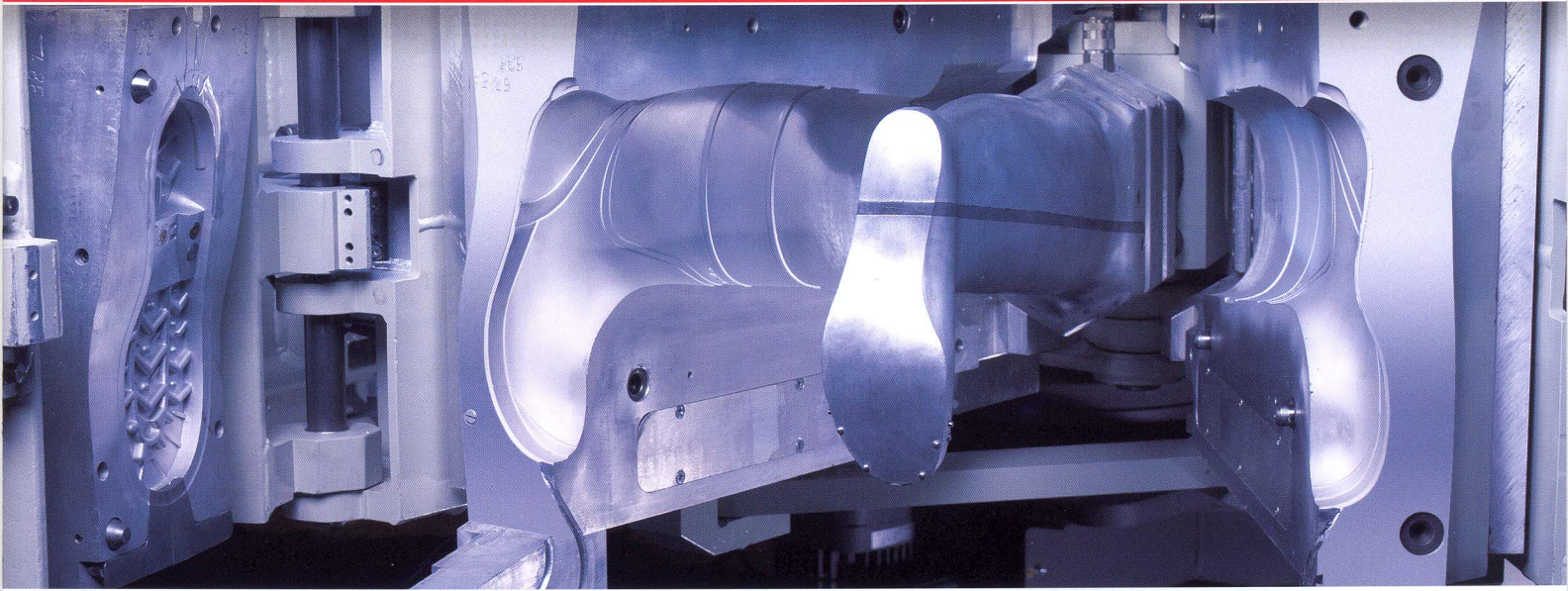
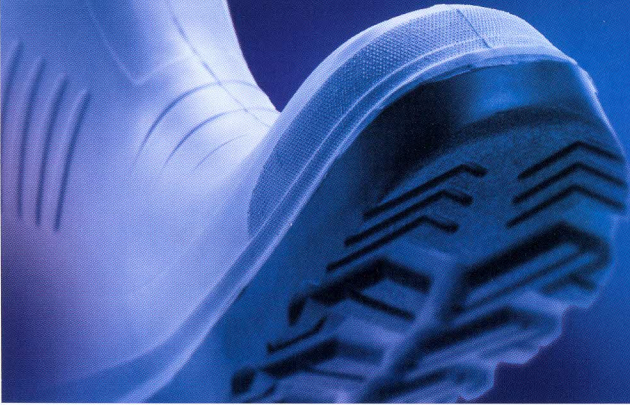


DESMA

Industrial PU Boot Manufacturing





Polyurethane (PU)

Lightweight with polyurethane

Polyurethane, with its excellent characteristics for the footwear industry, has been steadily growing in importance over the last 40 years. Boots from foamed PU are up to 40% lighter than comparable boots of rubber or PVC. Excellent insulating qualities are ensured by millions of tiny air bubbles within the polyurethane. PU also offers splendid comfort for the wearer, due to its flexibility.

There are various PU materials and material combinations for different applications, e.g. PU/PU, TPU/PU or Rubber/PU. One constant is the soft,

elastic boot upper combined with a compact, abrasion-resistant sole providing high slip resistance on all surfaces.



Polyurethane boots for

- ➔ **AGRICULTURE AND CONSTRUCTION**
- ➔ **FOOD INDUSTRY**
- ➔ **SAFETY BOOTS WITH PROTECTIVE TOECAP AND STEEL SOLE**

Unique qualities of PU

- ➔ **UTMOST COMFORT**
- ➔ **LOW WEIGHT**
- ➔ **ANTI-SLIP**
- ➔ **FLEXIBLE AT LOW TEMPERATURES, HEAT-RESISTANT**
- ➔ **FULFILS ALL NORMS FOR SAFETY AND WORK BOOTS**



PU Mixing Technology

Lowest environmental impact

DESMA PU machinery needs no rinsing agent in the mixing head: a clear advantage. The self-cleaning head ensures cleanliness and robust production. DESMA PU reaction machines are characterized by an especially reliable process technology. DESMA mixing heads have synchronously-controlled mixing head valves and extremely precise temperature regulation. Mixing ratios are exactly adhered to.

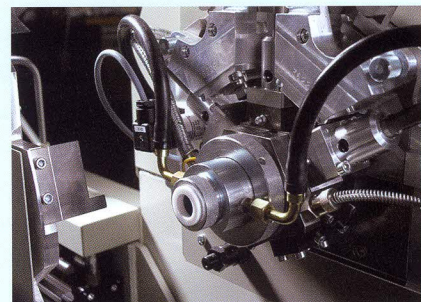
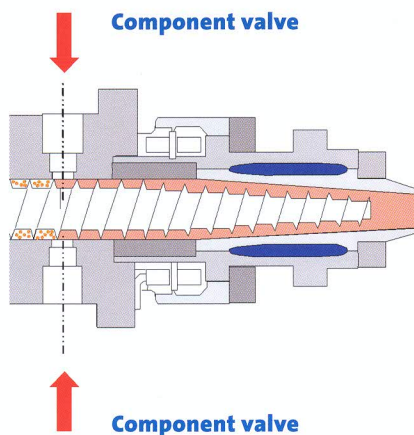
PU Colouring

Production processes may be simplified and rationalized with a variety of optional accessories: colour change from boot to boot during running production is possible. Also simple: the change to a different material.

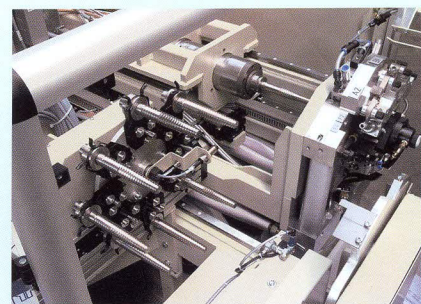
DESMA PU Machines: the facts

- ➔ **SELF-CLEANING**
- ➔ **FAST MIXING SCREW CHANGE**
- ➔ **COLOUR DOSING**

PU Mixing chamber



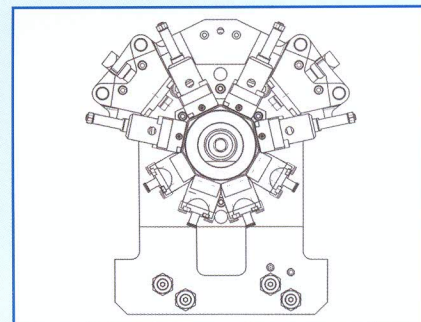
Polyurethane mixing head with mouth piece cleaner



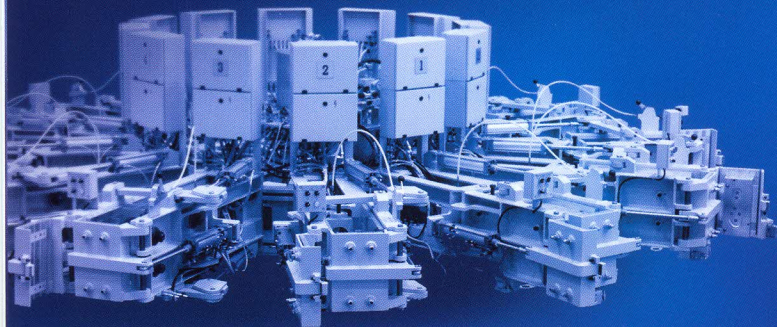
Automatic mixing screw change



Colour carts



8K polyurethane mixing head



DESMA B 512/12

Made in Germany

Over 60 years' experience is the foundation for every DESMA boot machine. The countless features are typical of DESMA's solid engineering. DESMA develops complete production concepts for industrial PU boot manufacturing together with the customer.

Each installation – finely tuned to the customer's individual needs – is characterized by economy, efficiency, flexibility and highest quality demands combined with a reliable

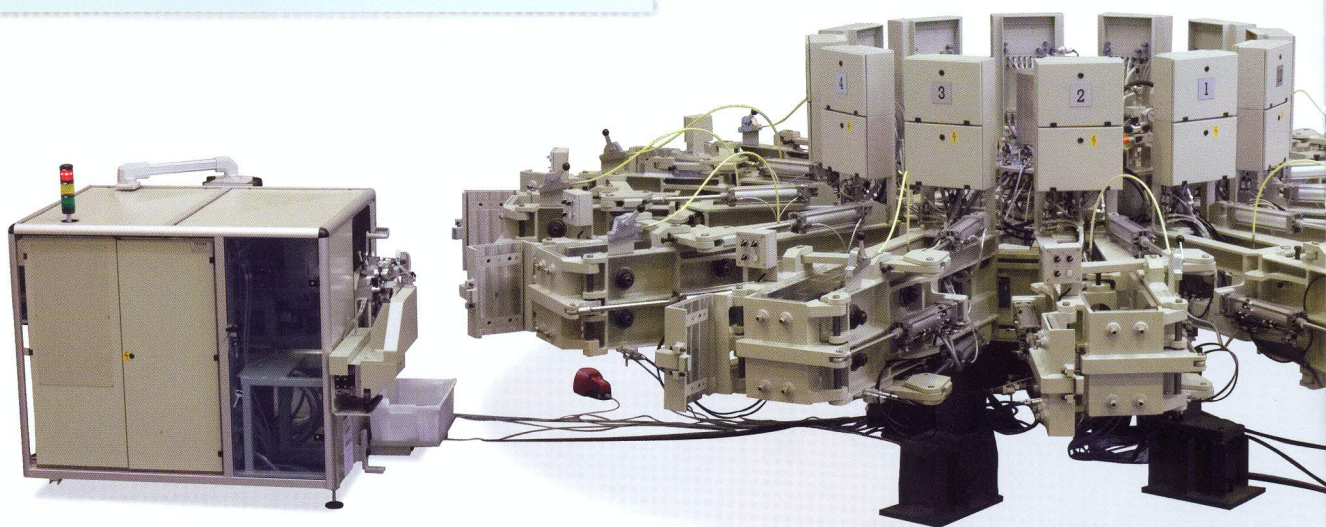
and robust construction. DESMA's high safety standard is always ensured. Rotary tables with 10 or 12 clamping units are based on a modular principle. The proven Maltese cross drive turns the table in cycle time. The central energy distributor provides temperature medium, compressed air and electricity to each clamping unit.

Many optional extras are available, providing an optimum mix of high automation and manual possibilities.

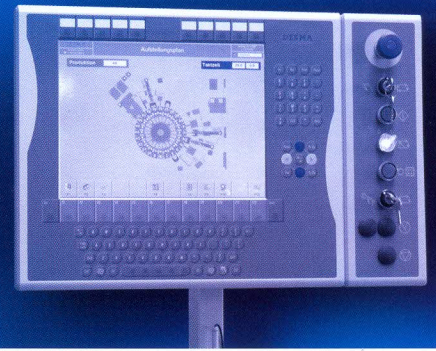
Ergonomically favourable working conditions are an important aspect considered in the design and construction of DESMA boot machinery. All operations are carried out at normal working height, platforms or gullies are not necessary. Optimal working conditions guarantee ideal production conditions for industrial PU boot manufacturing.

DESMA B 512/12 facts

- ➔ **ROBUST CONSTRUCTION**
- ➔ **HIGH CLAMPING FORCE**
- ➔ **EASY ACCESS**
- ➔ **MODULAR CONSTRUCTION CONCEPT**



DEScan[®]



Intelligent technology

DESMA machines are equipped with the most modern control concepts. Control systems are designed especially for PU boot manufacturing, enabling almost all demands in manufacturing to be met. DEScan control systems offer highest transparency and flexibility.

Most modern controls

All data sets may be stored in DEScan and quickly called up at mould change. Reaction injection unit data is also thus stored. Using a scanner, stored machine data can be retrieved and automatically applied to the appropriate tool.

DEScan machine controls

- ➔ GRAPHICAL OPERATOR INTERFACE
- ➔ LONG-DISTANCE MAINTENANCE AND DIAGNOSIS
- ➔ TELESERVICE VIA INTERNET

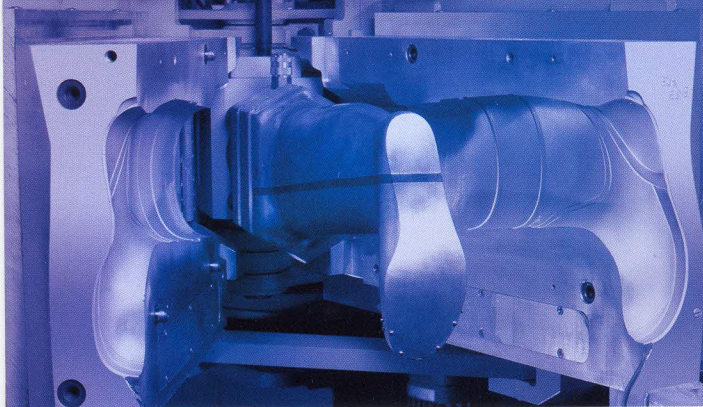


Operator area



DEScan machine control





Clamping Unit

A strong connection

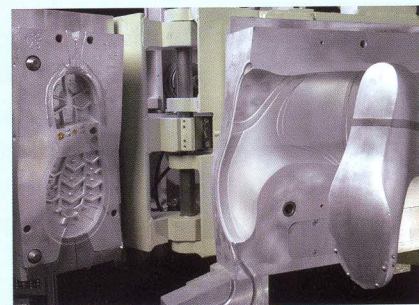
Clamping units are held by hinges and assembled horizontally on the rotary table. The ergonomical, operator-friendly clamping unit has a large opening distance, linings may be easily lasted. The finished boot can be de-lasting easily using compressed air or the divided last option. All closing and opening movements are controlled pneumatically, except the hydraulic lock for the PU injection channel. In the first step, the foamed upper material is injected into the closed clamping unit. The powerful hydraulic lock hinders backflow of material. Before the PU sole is injected onto the boot upper, the lid plate is exchanged for the engraving plate. All opening and closing movements are automated. TPU soles and rubber soles are manually placed.

Fast mould change

Both mould parts and the last are installed and removed together as a package through the slightly opened clamping unit. The side mould fixations are anchored by two exterior screws. Last fixation is provided by a bolt. Speed is ensured by the pre-mounting of sole moulds on fixation plates.

Advantages of horizontal lasting

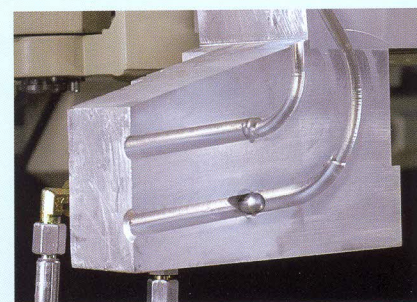
- ➔ **BOOT HEIGHT UP TO 500 MM**
- ➔ **LOWEST RISK OF AIR ENTRAPMENT**
- ➔ **LOW FLASH INJECTING**
- ➔ **EASY SOCK LASTING**
- ➔ **REGULAR AND THIN BOOT UPPER THICKNESS**
- ➔ **EASY DE-LASTING**



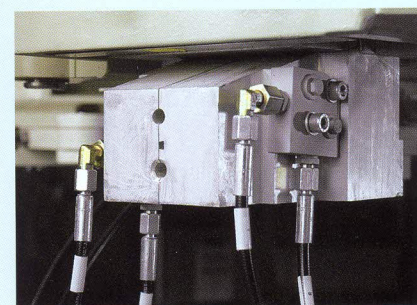
Mould carriers



Boot de-lasting



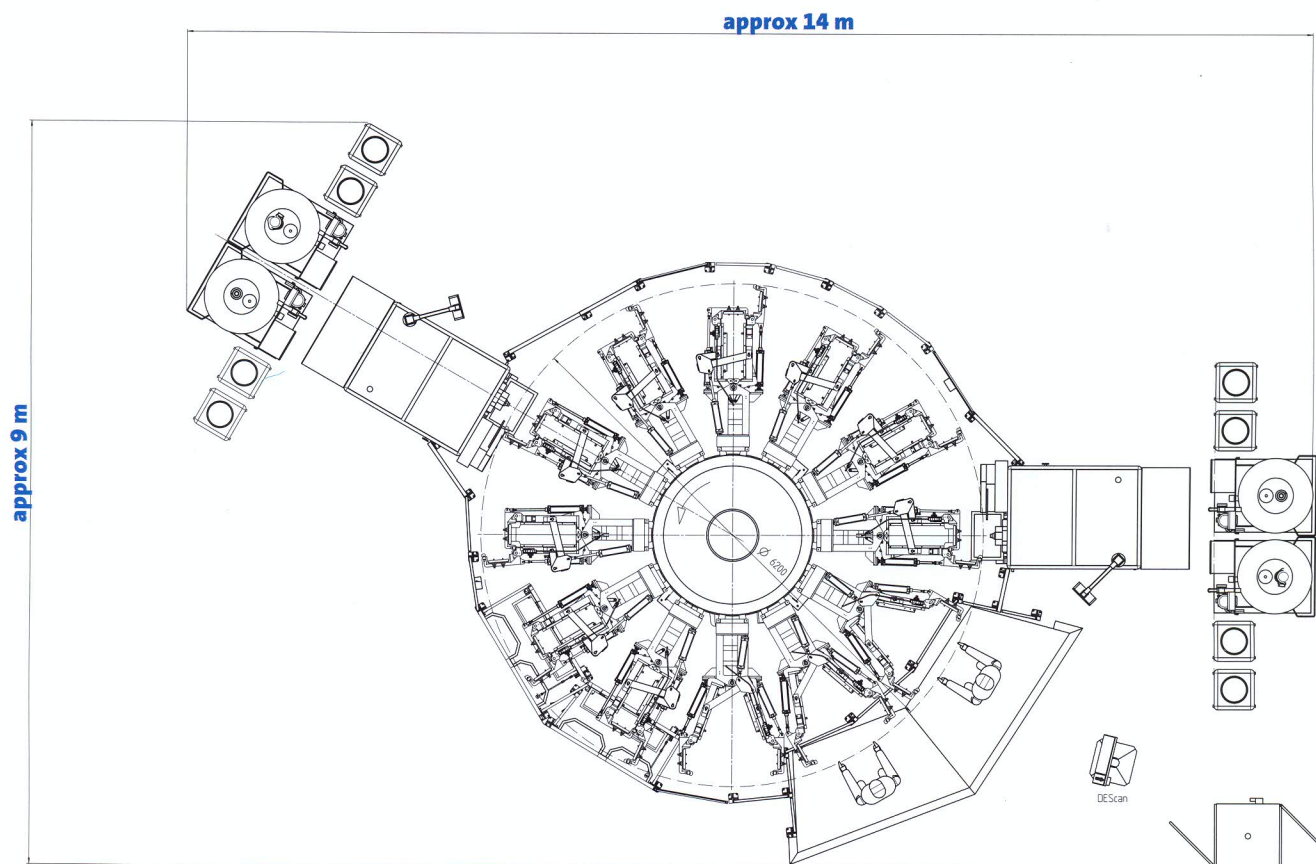
Injection system



Injection lock

Layout Plan

DESMA B 512/12



➔ **ROTARY TABLE WITH 10 STATIONS – STANDARD**

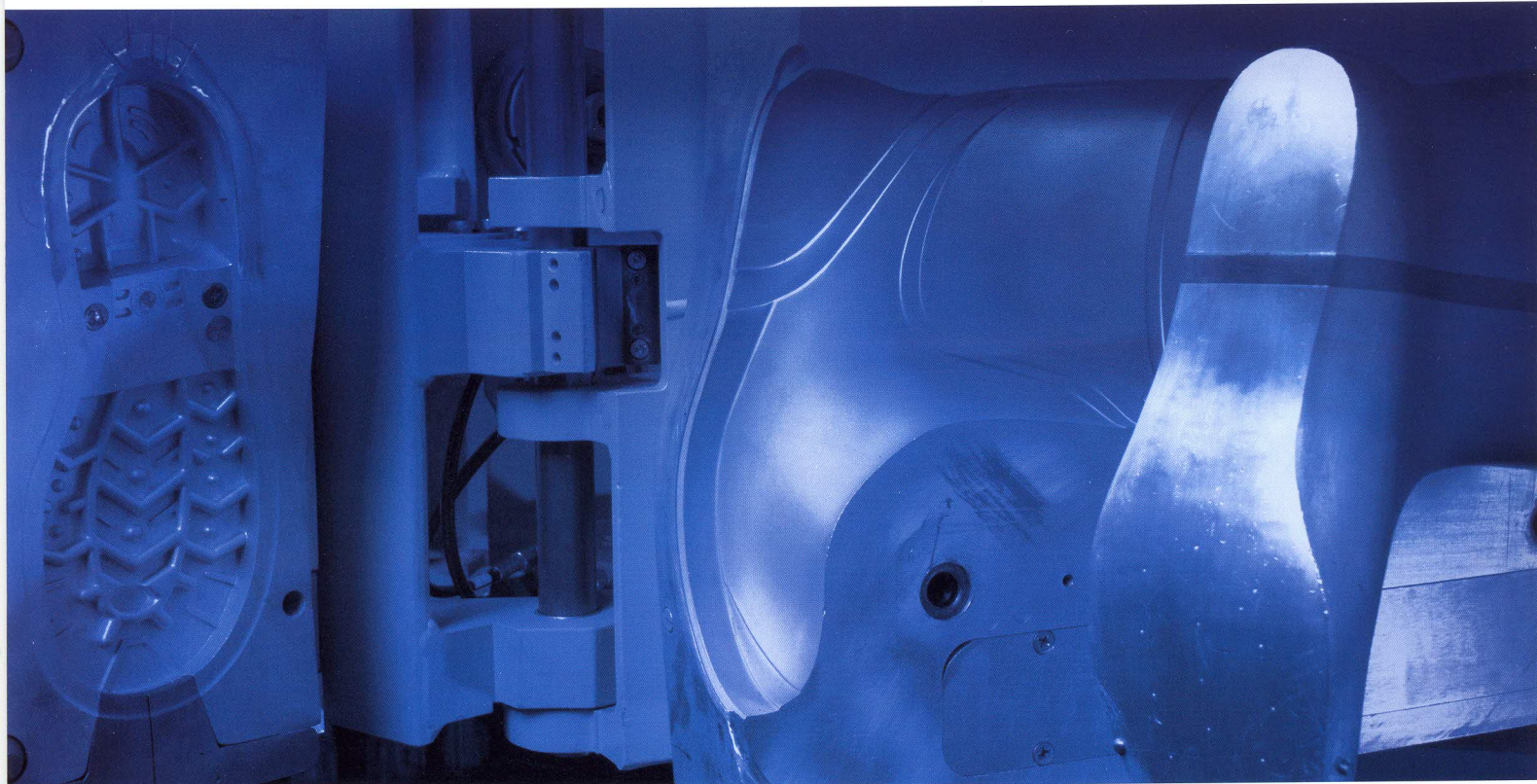
➔ **ROTARY TABLE WITH 12 STATIONS – OPTIONAL**

Unique DESMA low pressure technology

DESMA offers footwear manufacturers a comprehensive technical consultancy and helps with layout projections. Highly qualified DESMA staff are happy to help with expert

advice on polyurethane processing and process technology. We trim the technology, the PU material, the moulds and the process to the type of boot required and production re-

strictions. Customer trials may be undertaken in the DESMA Technikum with its own laboratory. Our service team is available for our customers, worldwide.



DESMA

KLÖCKNER DESMA Schuhmaschinen GmbH

Desmastr. 3/5 | 28832 Achim | Germany

Our current terms and conditions apply to all business fields. The contract entered into between DESMA and the customer is legally binding in regards to product. Details shown in this brochure do not guarantee certain characteristics or operational possibilities. They are to be taken as general information and may also differ. The products shown are to be seen as possible production alternatives. The illustrations may show products which have been developed to customer's individual wishes and are maybe only available as individual customer solutions. Products shown in this brochure may show special extra features which are only available at extra charge. Details as to delivery contents, appearance and service as well as measurements and weights are correct at time of printing. Changes may be made at any time. With publication of this issue, all previous issues lose their validity. No legal obligations can be derived from this information.

info@desma.de | www.desma.de