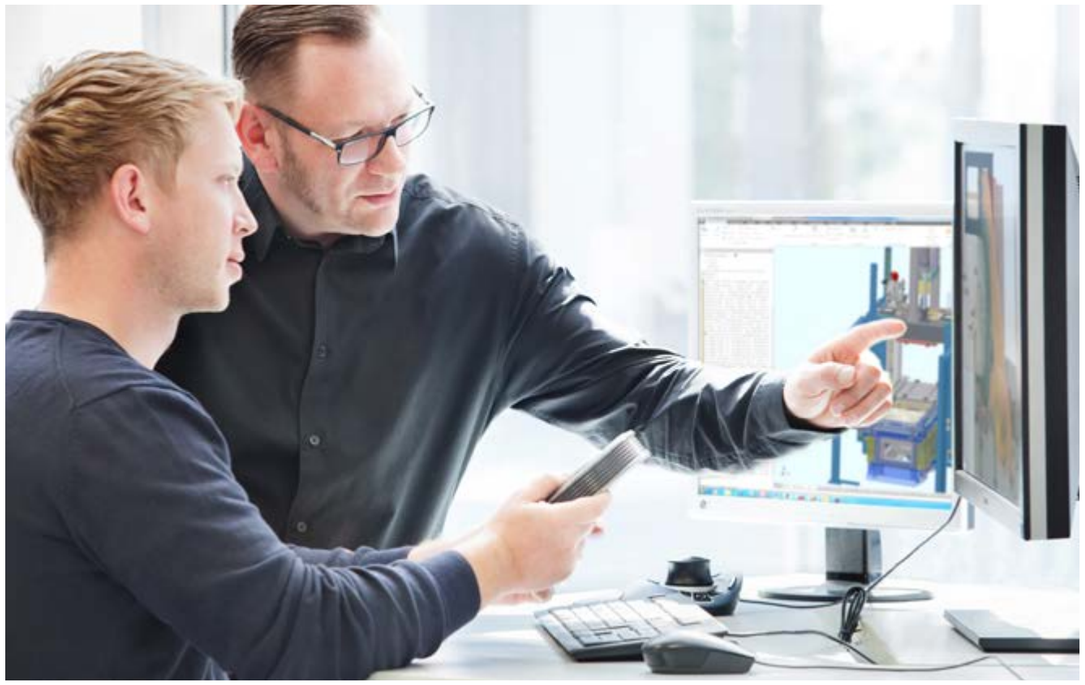
LWB
STEINL MACHINERY

MACHINE CATALOGUE

MACHINES.

FOR THE PROCESSING OF ELASTOMERS AND THERMOPLASTICS



Over 50 years of competence in machine development.

LWB has been manufacturing vertical and horizontal injection moulding machines and systems for processing elastomers and thermoplastics for decades now. Our many years of experience in machine manufacturing form the basis for the high performance of LWB injection moulding machines. With our highly qualified staff and valued customers we are constantly further developing technologies in all areas.

We offer profitable solutions for every application. Be it a standard or custom machine - with well-conceived designs and innovative developments, we ensure high process efficiency in the production of rubber and thermoplastic moulded parts. Every machine can be optimally tailored to the customer's request and application, due to the modular design and numerous machine options.

Thanks to our in-house manufacturing we are highly flexible and able to react quickly to changing market requirements and specifications. With our concepts, we show new ways to our customers to produce competitively and profitably on the global market.

Peter Steinl
Managing Director

CONTENTS

KNOW-HOW IS OUR FOUNDATION.

Leading technologies in the field of elastomer and thermoplastic processing.

With over 50 years of competence and experience in the rubber processing industry, we develop systems and machines that are optimally tailored to the production needs of our customers. The focus here always lies on application-related added value and high efficiency for the production processes.

Our strengths are our process know-how and flexibility in the design and construction of customized solutions. At the same time, we offer our customers innovative methods and processes for enhancing quality and efficiency.

LWB CONVINCES.

LWB machines are in successful operation in a wide range of industries around the world.

Renowned companies in the rubber and thermoplastic processing industry have been placing their trust in the reliability and precision of our injection moulding machines for years now.

The application areas of our machines and systems are diverse. They are found in the automotive sector, as well as medical engineering, the electrical, aerospace and construction industries, to name but a few.

Be it moulded parts in the smallest of dimensions or products a number of metres long - we offer solutions for producing seals, spring elements, rubber-to-metal parts, moulded articles, membranes, mats, couplings, 2K components and other composite parts on our injection moulding machines and presses.

LWB's know-how builds the bridge between elastomer and plastic applications, and our customer determines the degree of automation, in order to achieve the most efficient production on LWB injection moulding machines - we have the perfect solution for your application.

MACHINES.

Our focus:
The best concept for your application.

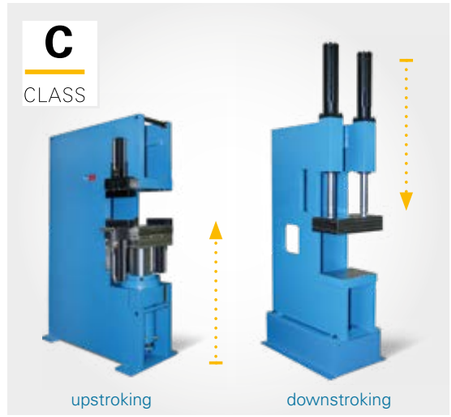
Be it for compression or injection, with vertical or horizontal clamping units, for the production of micro through to large moulded parts - our comprehensive service and product range offers a solution for every task. As such, the LWB machine range available today is the result of many years of experience in machine and system construction, in combination with the continuous development of various injection technologies.

The right frame for every application

The ergonomics of the machine constitute an important factor in elastomer processing. The soft elastic design structure and the hot mould environment during demoulding require free and ergonomically favourable access to the mould area. Different clamping systems and press frames are available, depending on the respective requirements and part classes.

C-FRAME DESIGN

- Good accessibility from three sides
- Vertical C-frame clamping unit configured for maximum rigidity in two designs:
  “t” (top) downstroking,
  “b” (bottom) upstroking
- “t” design with two parallel clamping cylinders on the top machine plate
- “b” design with one upstroking central clamping cylinder



FRAME DESIGN

- Extremely high rigidity
- Slimline mounting of the press frame from plates or plate framework elements in welded design
- Large and flexible clamping and heating platen dimensions
- Optimum mould access
- Available in downstroking or upstroking version
- Available in a “wide version” with synchronised twin or multi-clamping system

4-COLUMN DESIGN

- Space-saving design with ergonomic operating height
- Considerably increased daylight and large clamping stroke
- Low, minimum mould height
- Fast opening and closing times
- Position of the injection unit and strip intake selectable (right/left, rear), and therefore optimum alignment with factory space requirements
- Maintenance-friendly access to the clamping unit

PLATE DESIGN

- Specially designed for vacuum applications
- Stable, rigid plate design
- Complete evacuation of the mould loading area
- Through the modular design, application purely as a vacuum press or as a vacuum injection moulding machine
- Access to the mould area also possible from the rear via a maintenance door

VS

CLASS

VS Performance - our standard for ergonomics and efficiency.

With our VS Performance range, we combine improved ergonomic values with enhanced performance data and therefore significantly increase the benefit of the machine.

Prepared for the future - through its excellent accessibility, the VS Performance range offers comprehensive possibilities for operation and for the adaptation of automation and demoulding stations.

An added advantage is the flexibility in your production through a slimline, variable and compact machine installation without the requirement for platforms or pits.

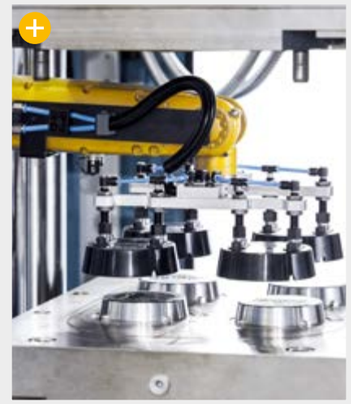
- Clamping force ..... 1,600 to 8,000 kN
- Injection volumes ..... 1,000 to 8,500 cm^3
- Daylight..... 850 to 1,350 mm
- Heating plate size ..... 560 x 630 mm to 1,000 x 1,200 mm

Variable installation area and position of the injection unit.

Large daylight

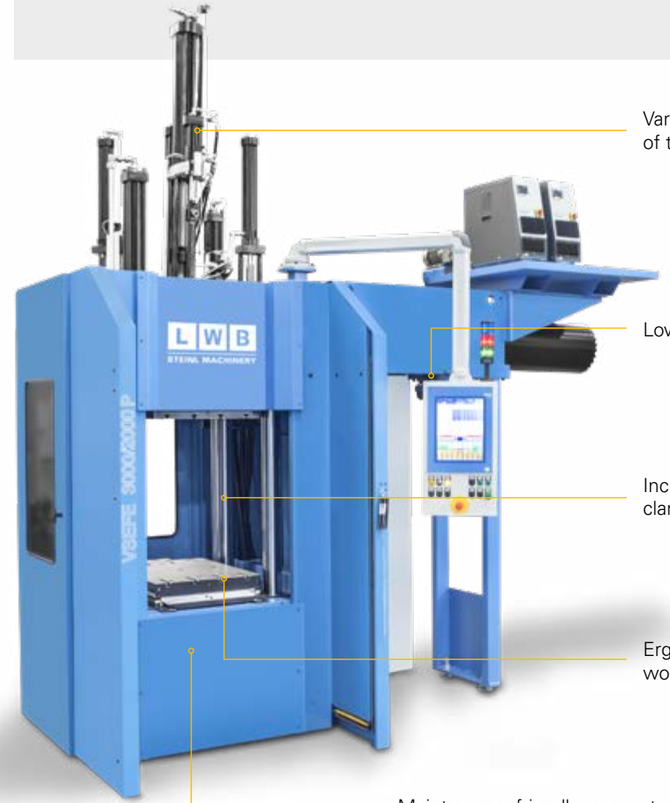
Low mould installation height

Cold runner technology in combination with EFE injection technology



Optimum accessibility, therefore perfect for automation solutions.

Equipment and demoulding stations



Variable selection of the injection unit

Low strip intake height

Increased daylight and larger clamping stroke

Ergonomic working height

Maintenance-friendly access to the clamping unit

EXAMPLES

MOULDED PARTS

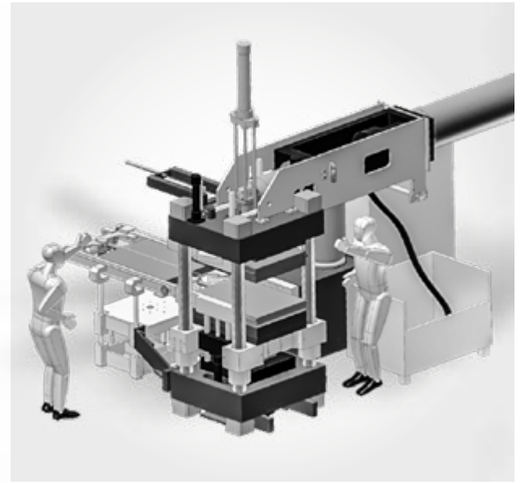
We know about different requirements - modularity is the answer.

For many years now, we have been developing a modular system that is applicable to every machine, which builds upon the proven base components and facilitates the configuration of individual machines in combination with other design variants. So that individuality becomes the standard.

The various possibilities of the equipment offer you cost advantages through optimum compatibility with your product. The machine concept is the initial basis - everything else is variable.

COMPACT FOOTPRINT

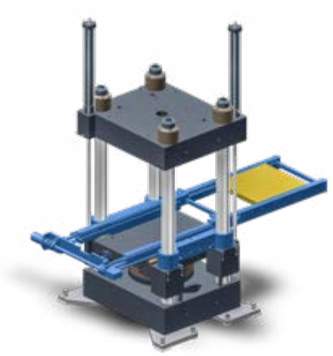
The clamping system of the VS Performance offers the best ergonomic conditions with a significantly reduced working height with increased daylight and large clamping stroke, and with access to the operating area and strip intake without platform or pits.



INSERT LOADING AND DEMOULDING STATIONS

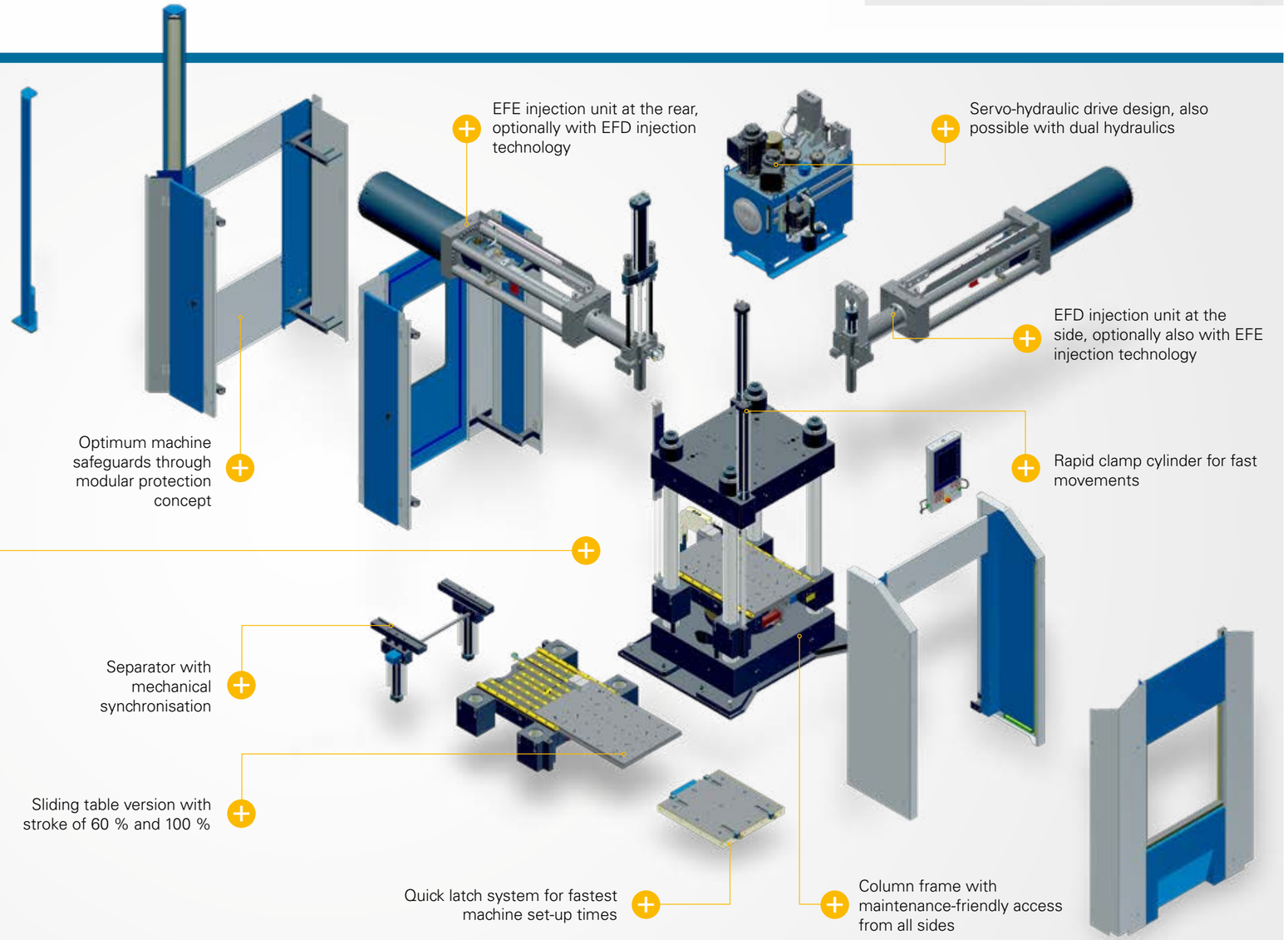
Kit ejector, top

Kit ejector, bottom



Middle plate ejector

Middle plate slider



EFE injection unit at the rear, optionally with EFD injection technology

Servo-hydraulic drive design, also possible with dual hydraulics

EFD injection unit at the side, optionally also with EFE injection technology

Optimum machine safeguards through modular protection concept

Rapid clamp cylinder for fast movements

Separator with mechanical synchronisation

Sliding table version with stroke of 60 % and 100 %

Quick latch system for fastest machine set-up times

Column frame with maintenance-friendly access from all sides

VC CLASS

VC Performance - our standard for limitless free space.

Our VC Performance range offers enlarged mould loading areas for highly complex injection and press moulds.

The VC Performance is ideal for profile processing due to its tiebarless configuration, because this design guarantees optimum accessibility from three sides.

We offer the tiebarless C-machines with up to 1,600 kN clamping force in a downstroking design. This is a particularly important aspect when profiles are to be joined, in order to avoid an unwanted movement during the closing process.

- Clamping force ..... 300 to 2,500 kN
- Injection volumes ..... 56 to 622 cm^3 (RS)
  100 to 1,000 cm^3 (E)
- Daylight..... 630 to 850 mm
- Heating platen size ..... 500 x 400 mm to 1,100 x 700 mm


Optimum for corner moulding


Demoulding with sliding table and separator


Shuttle for easy handling


Rotary table for glass encapsulation


For processing rubber or plastic


Sliding table with stroke 100 %


Energy-saving due to servo-hydraulic drive


Quick latch system on separator and heating platen

EXAMPLES

MOULDED PARTS

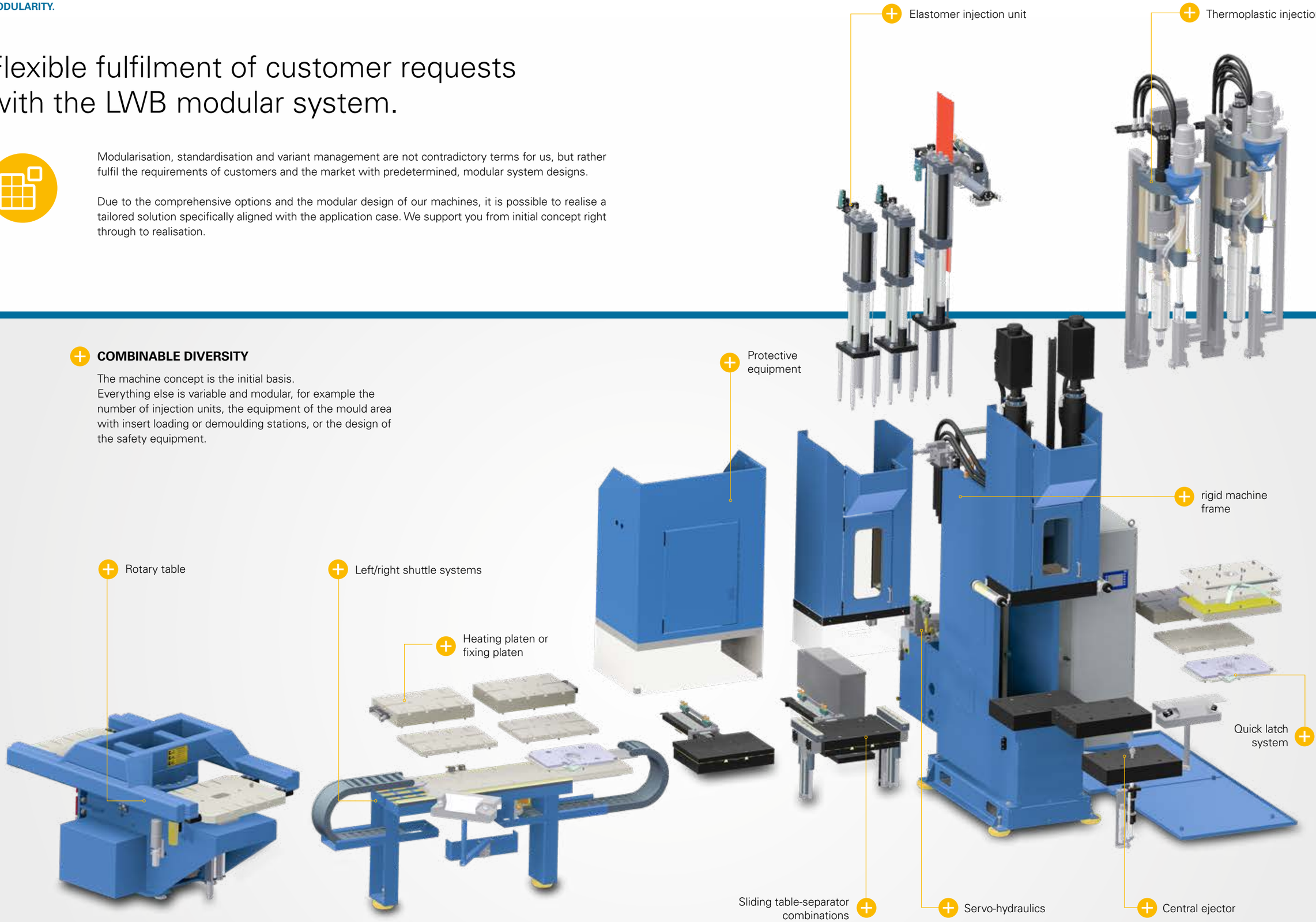
Flexible fulfilment of customer requests with the LWB modular system.

Modularisation, standardisation and variant management are not contradictory terms for us, but rather fulfil the requirements of customers and the market with predetermined, modular system designs.

Due to the comprehensive options and the modular design of our machines, it is possible to realise a tailored solution specifically aligned with the application case. We support you from initial concept right through to realisation.

COMBINABLE DIVERSITY

The machine concept is the initial basis.
Everything else is variable and modular, for example the number of injection units, the equipment of the mould area with insert loading or demoulding stations, or the design of the safety equipment.



VR
CLASS

Flexibility combined with maximum stability and rigidity.

The VR range impresses as an universal concept for the optimum design of the machine for special article and production requirements.

The high rigidity of the frame in conjunction with one or more fully hydraulic clamping cylinders guarantee optimum pressure distribution in the clamping level.

The design of the frame provides room for manoeuvres in terms of the alignment of the clamping surfaces, which are difficult to realise with other machine types.

- Clamping force ..... 1,100 to 8,000 kN
- Injection volumes ..... 630 to 8,500 cm^3
- Daylight..... 495 to 1,000 mm
- Heating platen size ..... 400 x 500 mm to 900 x 1,100 mm

Variable selection of the injection units

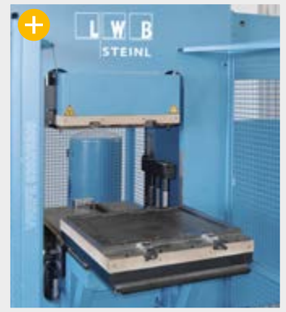
Flexible frame for customized sizes

Maximum rigidity

Maintenance-free framework

Multi daylight press


Enlarged frame design with two clamping cylinders



Sliding table for easy handling


Downstroking press with two horizontally arranged injection units


Optimum pressure distribution


Welded, rigid framework


Demoulding stations in accordance with customer wishes

EXAMPLES

MOULDED PARTS

H

CLASS

Horizontal machines for automated production.

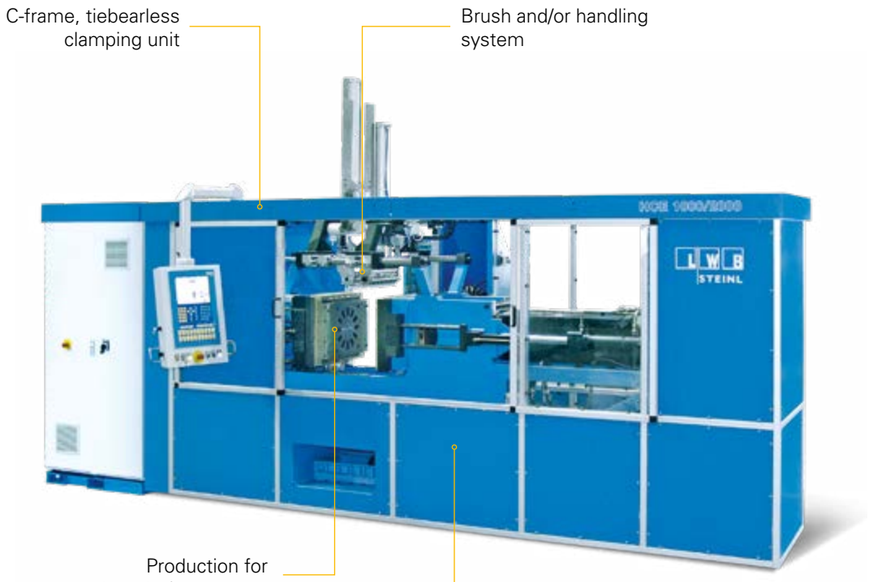
We offer machines in a horizontal design either in a traditional column version (HS) or with a tiebarless C-frame clamping unit (HC).

An outstanding feature of the HC range, with its up to 100 ton clamping force, is the tiebarless design of the clamping unit. This is based on the proven C-frame clamping unit and offers free access to the mould area for rapid mould change of the integration of automation devices.

The machines from the HS range, from 160 ton clamping force, are based on a clamping unit in 4-column design, equipped with a fully-hydraulic clamping system. Through the use of a large pressure piston, force will be brought evenly into the mould.

Large distances between the bars offer good access to the mould for rapid mould changes and the use of large heating platen. The increased daylight is particularly well-suited for the use of brush units and other handling devices.

- Clamping force ..... 500 to 6,300 kN
- Injection volumes ..... 50 to 8,500 cm^3
- Daylight ..... 475 to 915 mm
- Heating platen size ..... 400 x 400 mm to 810 x 1,000 mm



HS machine frame with EFE injection technology for cure time reduction

Optimum access to the mould area with HC machine frame for low clamping forces of up to 100 ton

Brush modules for automated part removal and mould cleaning

Horizontal C-frame machine for the production of isolators of liquid silicone

EXAMPLES

MOULDED PARTS

MICRO

CLASS

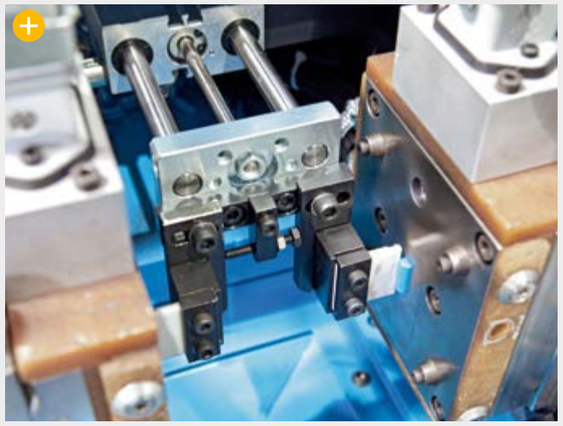
Small, smaller, micro-class. Machines in the smallest of sizes.

The Micro-Class injection moulding machines are equipped with a C-frame clamping unit with 100 kN clamping force and are available in both vertical and horizontal designs.

The machine concept is highly compact by design and is optimally suited for combination with handling equipment due to the accessible mould area. With the design of the machine, the focus was on maximum compactness, so that a space of about one square metre accommodates not only the machine itself, but also two temperature control units.

The precision injection unit is designed for the smallest volumes and guarantees highest repeatability and is optionally available for processing rubber or plastic.

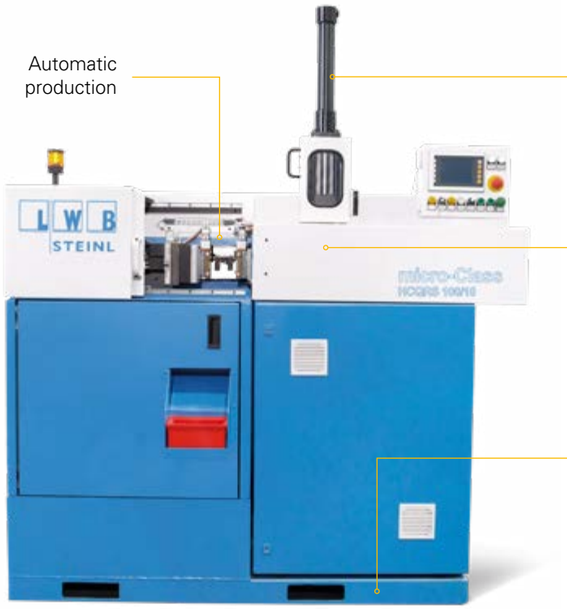
- Clamping force ..... 100 kN
- Injection volumes ..... 4.5 / 6 / 10 cm^3
- Daylight ..... 300 mm
- Heating platen size ..... 150 x 150 mm



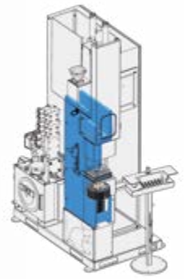
Ejector for automated processes

For the production of the smallest rubber and plastic parts

Compact Micro-Class production cell with fully integrated automation

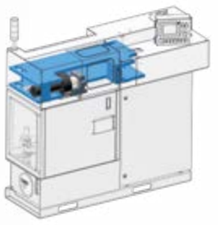


EXAMPLES



Vertical tiebarless design

- Smallest footprint
- Optimum accessibility
- Ergonomic moulding of inserts



Horizontal tiebarless design

- Automatic production
- Maximum shot volume consistency
- Hot or cold runner equipment

VP

CLASS

The specialists in vacuum applications.

The VP machine range with integrated vacuum chamber is specifically designed for evacuation possibilities across the entire mould area.

The clamping unit consists of a bolted plate structure, the vertical side plates of which simultaneously act as walls for the vacuum chamber.

A vacuum system consisting of vacuum pump(s) and a vacuum tank ensures rapid and effective evacuation. Alternatively, other combinations can also be used if required.

- Clamping force ..... 1,100 to 6,300 kN
- Injection volumes ..... 160 to 8,500 cm^3
- Heating platen size ..... 400 x 500 mm to 810 x 1,000 mm

VP clamping unit in combination with a sliding table

Easy access to the vacuum chamber for maintenance and mould loading

Vacuum pump on the machine

Integration of a complete demoulding station

EXAMPLES

MOULDED PARTS

INJECTION TECHNOLOGY.

Different injection systems - perfect solutions for every application.

The injection technology for processing elastomers is our core competence. We offer a whole range of specific injection units across a broad size and performance spectrum. Our range also includes optimum solutions for the processing of thermoplastic elastomers.

We have introduced process innovations for a large number of processing fields, such as the E-injection system for maximum repetition accuracy and the EFE-injection system, which enables cure time reduction of up to 50 %.

INJECTION UNITS FOR

Elastomer processing

EFD INJECTION SYSTEM

E INJECTION SYSTEM

F INJECTION SYSTEM

EFE INJECTION SYSTEM

...NR | NBR | EPDM | FKM | ACM | HTV...

INJECTION UNIT FOR

Thermoplastic processing

...PP | TPS | TPV | PVC | TPU | PA...

RS INJECTION SYSTEM

Diverse requirements need individual solutions.

The result of concentrating all resources on the processing of rubber is a whole host of innovations, with which we have achieved remarkable productivity advances in elastomer processing.

We offer a comprehensive selection of different injection systems for different applications and tasks. The ongoing development of the injection systems reflects our competence in rubber processing and has contributed to making the injection systems more efficient, more precise and more controllable.

Specially developed for processing thermoplastics.

Due to the requirements in the automotive sector for high quality visible surfaces, increased cost-efficiency and recyclable materials, the use of thermoplastic elastomers (TPE) has grown in importance in recent years.

Originally developed for this application, today our RS injection technology covers a broad spectrum in a range of thermoplastic areas.

EFD
INJECTION SYSTEM

Our standard FIFO injection unit.

- Injection volumes ..... 1,000 to 8,500 cm³
- Injection pressure ..... 2,200 bar

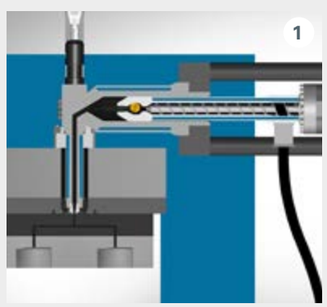
ERGONOMIC AND SUITABLE FOR MODULAR EXPANSION.

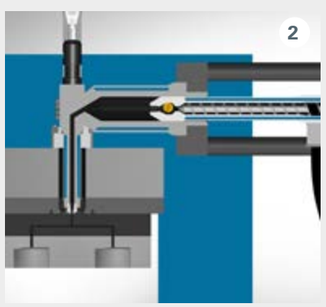
- Low strip feeding height and machine height
- High injection pressure of 2,200 bar
- Smaller opening in the machine and heating plates
- Cold runner-capable
- Suitable for retrofitting with Rapid Cure Function for reduced cure times

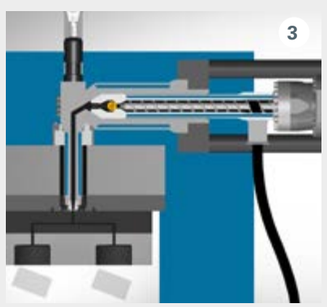
HOW DOES IT WORK?

With first in - first out technology the initially plasticised material is the first injected into the mould. The constant screw length in this system guarantees even and consistent use of energy throughout the entire plasticising process.

Due to the modular design it is possible to retrofit the EFD-injection unit, in order to obtain a FIFO-injection unit with Rapid Cure Function. This expansion stage, from EFD to EFE, offers considerable cure time reductions.







For processing thermoplastics.

RS
INJECTION SYSTEM

- Injection volumes ..... 36 to 2,000 cm³
- Injection pressure ..... 1,350 to 1,950 bar

THE ALL-ROUNDER FOR PLASTIC AND LIQUID SILICONE

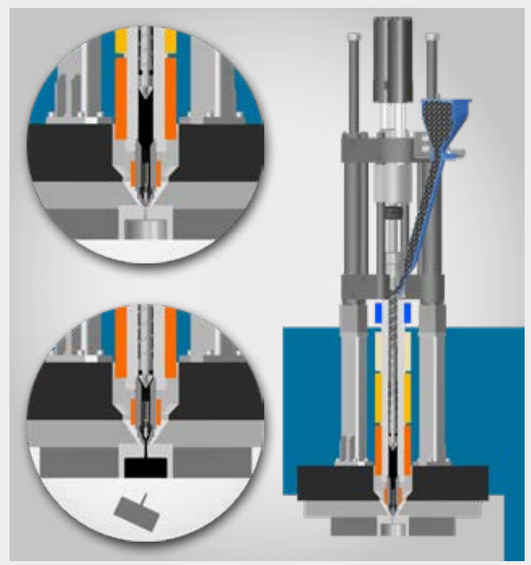
- High repeatability
- Ideal for processing of thermoplastics and liquid silicone
- High plasticising and injection capacity
- Suitable for horizontal or vertical machines
- Needle valve technology hydraulic, pneumatic, sprung (standard open nozzle)
- Different wear protection materials are available for a longer lifetime
- Application-specific variants available (e.g. for processing elastomers)

HOW DOES IT WORK?

The RS-injection unit has a rotating and axially moving screw. During plasticising, the screw moves axially to the rear, so that the compound is conveyed into the area in front of the screw tip. Once dosing of the preselected volume is complete, the compound is injected into the mould by the advancing screw - the tip of which is equipped with a non-return valve.

The screw movement is pressure and speed controlled by a servo valve. In conjunction with high-resolution potentiometers, this results in high positioning accuracy, which guarantees a reproducible fill quantity in every cycle.

The heating of the injection unit is done by independently controlled heating strips with self-optimising controllers.



E
INJECTION SYSTEM

Unsurpassed injection precision.

- Injection volumes ..... 50 to 2,000 cm^3
- Injection pressure ..... 1,800 bar

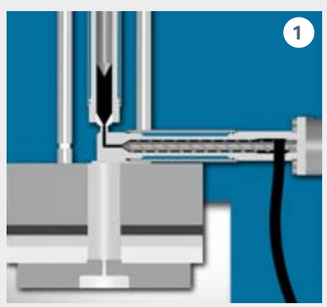
ALL-OUT TECHNOLOGY - NO COMPOUND REMAINING IN THE NOZZLE.

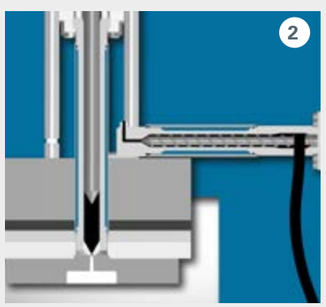
- Unsurpassed repeatability up to +/- 0.05 g.
- Good access to plasticising screw and injection cylinder for quick change of compound
- Without non-return valve
- Complete emptying of the injection cylinder with every shot; therefore no vulcanized compound in the injection chamber
- Lifting injection nozzle, therefore contact between the injection nozzle and hot mould only during the injection and back-pressure phase
- Even and gentle plasticising

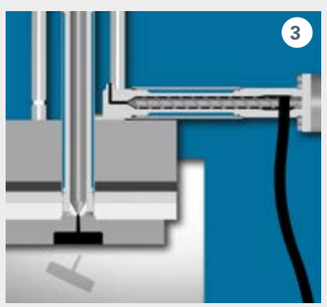
HOW DOES IT WORK?

The E-injection unit with the First In - All Out technology is based on a function principle that works without a non-return valve on the piston or screw. The injection cylinder is filled by a mobile plasticising unit through the machine nozzle, and subsequently emptied via the same nozzle. The injection cylinder is completely emptied with each cycle.

With this, no scorched compound is being transferred in the next injection cycle. The absence of a non-return valve and the easy access to the plasticising screw allows a much faster change of compound.







F
INJECTION SYSTEM

High precision FIFO injection system.

- Injection volumes ..... 160 and 250 cm^3
- Injection pressure ..... 2,500 bar

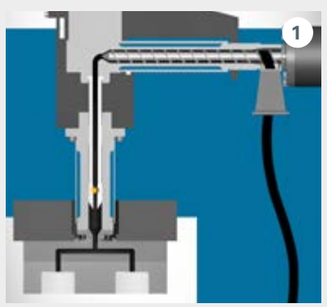
SPECIALLY DESIGNED FOR SMALL INJECTION VOLUMES.

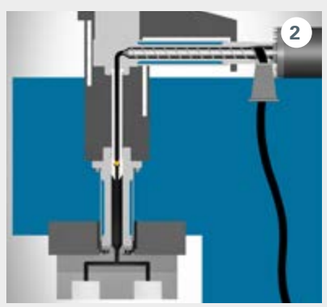
- Easy processing of high viscosity compounds
- Perfectly suited for cold runners
- Injection pressure 2,500 bar effective
- Smaller opening in the pressure plate for low deflection
- Lifting injection unit

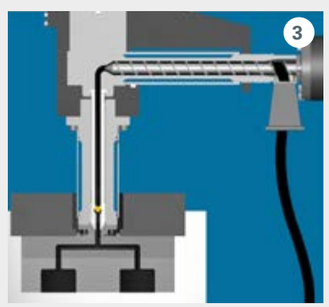
HOW DOES IT WORK?

The plasticising cylinder is fixed directly to the side of the injection piston and connected via a filler channel in the injection piston. At the end of the injection piston is a ball check valve with a small diameter for maximum precision. This arrangement enables a small injection piston diameter, which results in the high repeatability of the system.

Due to the small piston diameter and the resultant small diameter of the injection cylinder, it is also possible for the opening in the machine plate to be very small. This results in optimum conditions in terms of the deflection of the injection-side fixing plate.







EFE
INJECTION SYSTEM

Injection unit for cure time reduction.

- Injection volumes ..... 1,000 to 8,500 cm³
- Injection pressure ..... 2,200 bar

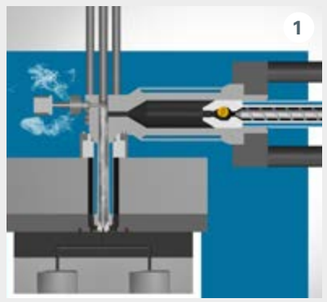
EFFICIENCY INCREASE THROUGH INCREASED OUTPUT.

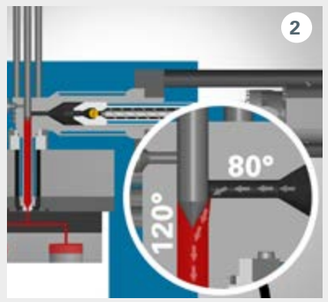
- Significantly shorter vulcanisation times
- Complete emptying of the injection chamber
- Reduced material viscosity with injection
- Production with conventional or increased processing temperatures
- Ergonomic strip feeding height
- Can be used with cold runner systems
- ACC (Adaptive Cure Control) for maximum process control

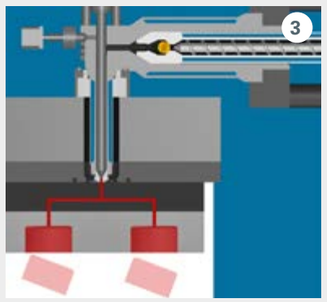
HOW DOES IT WORK?

The material is fed into the mould by the EF injection unit (FIFO), the secondary, vertically arranged E injection cylinder (ALL OUT) fully injects all the compound in the mould. Since no material remains in the injection unit it is possible to achieve higher process temperatures and therefore shorter cure times.

Compound temperature can be adjusted during injection via the machine control and is stored as a mould specific process parameter like any other. Depending on the compound used, part geometry and process, it is possible to achieve optimum settings.







Faster vulcanization. Increased productivity. Cost savings.

The EFE injection system opens up new and more efficient possibilities for moulded part production in comparison to conventional injection systems. In this way it is possible to achieve an increased machine output from the same size of machine - production orders are realised in a shorter time and with reduced energy consumption.

20 % Cure time reduction

Bearing bushing
Natural rubber
65° Shore

Bearing bushing
Natural rubber
60° Shore

30 % Cure time reduction

Belt pulley
Natural rubber
50° Shore

Motor bearing
Natural rubber
60° Shore

40 % Cure time reduction

Gasket
FKN
60° Shore

Profile corner
EPDM
70° Shore

50 % Cure time reduction

Damping element
Natural rubber
60° Shore

Damping element
Natural rubber
70° Shore

High efficiency - through integrated energy saving concept.

Saving energy is not just a cost factor in the calculation, but also a matter of general responsibility for our global future. LWB meets with this responsibility through an integrated energy saving concept, which simultaneously contributes to the optimisation of production efficiency.

ACC (ADAPTIVE CURE CONTROL SYSTEM)

The control system developed by LWB, in combination with the EFE injection system, enables self-optimising process point determination with changing conditions, e.g. with compound quality or operating time. This enables cure time reductions - in particular with moulded parts with greater wall thicknesses - of 30 to 50 % in comparison to conventional production methods, and therefore also higher part outputs per hour.

BSD (BLUE SERVO DRIVE)

Servo-hydraulic systems not only save energy but also offer other advantages to the user. Important features include faster, more precise movements, as well as significant noise reductions. Furthermore, in the majority of cases the quantity of oil used is reduced and no additional oil cooling is required.

AN INNOVATIVE HEATING PLATEN SYSTEM REDUCES HEAT DISSIPATION FROM MOULDS

LWB offers optional heating platen with insulation platen in a sandwich construction with central insulation layer. These also enable higher heating temperatures of up to 400 ° C with a significantly longer service life.

THERMAL INSULATION FOR INJECTION UNITS

A further option for reducing heat losses with a consequent improvement in process consistency is to add additional insulation to the plasticising unit.

Tangible advantages.

The added value of LWB technology is clearly apparent in the comparison of two machines in different designs. Both machines show an ergonomic working height and a large daylight. The variable position of the injection unit can result in a space-saving footprint.

LEAN TECHNOLOGY

- 300 ton clamping force
- 3,000 cm³ injection volume
- EFD injection system
- Proportional hydraulics
- Open cold runner - 4 nozzles
- CAS quality management

ARTICLE OUTPUT:

50
Parts per hour

Test product: Ash tray, EPDM 70A,
Volume 1,000 cm³ (4 x 250 cm³)

HIGH-TECH VERSION

- 300 ton closing force
- 4,000 cm³ injection volume
- EFE injection system with ACC
- Dual servo-hydraulics
- Needle valve - cold runner - 4 nozzles
- CAS quality management
- Energy management system

ARTICLE OUTPUT:

80
Parts per hour

15 % lower production costs
20 % lower injection pressure
40 % lower energy costs per part

CONTROL TECHNOLOGY.

Leading-edge control technology guarantees maximum precision and repeatability.

For our comprehensive product portfolio, we offer the perfect solution for every requirement!

In order to fully master the high number of variants, we utilise advanced hardware and software technology with this new generation of flexEVO control. For the user, the machine is particularly user-friendly due to the new operating philosophy and visualisation solution.

CONTROL

flex**EVO**

Intuitive - universal - flexible flexEVO with new operating philosophy and visualisation solution.

LWB-FLEXEVO

- Intuitive operation
  18.5 " multi-touch display. Simple and self-explanatory
- Ready for Industry 4.0 through the use of OPC - Unified Architecture (UA)
- APC – Adaptive Position Control
  Movement positions are monitored and automatically corrected
- Energy management
  Intelligent system, in order to control energy consumption and minimise costs

SMART FACTORY THROUGH OPC - UA TECHNOLOGY.

SIMPLE MACHINE OPERATION

Operation of the machine is particularly simple, due to the use of an HD multi-touch display. Its functionality is based on the modern smartphone, and it can even be operated while wearing gloves. The modular control panel with uniform control hardware is used in both standard and custom machines, and can be integrated in a pivot arm or in the switch cabinet.

DIAGNOSTICS AND AUXILIARY FUNCTIONS

The user can change the process sequence independently, directly in the visualisation. In this way, adjustments can be made quickly and easily. The control is equipped with freely selectable authorisation levels here. In addition to faster reaction speeds, many data acquisition possibilities and process monitoring options, we also offer our customers the new flexEVO diagnostic and help functions, which make their production even more efficient.

INTUITIVE OPERATING CONCEPT WITH VISUALISATION MODULES

With the advanced "mapp View Technology", the full potential of web technologies is made available directly in the automation software for the first time. With integrated visualisation modules, so-called widgets, all functions of the machine user interface are covered.

The Smartphone functionality combines with the control technology to create an intuitive new operating philosophy.

Animated graphics generated with CAD make inputs comprehensible and self-explanatory.

The operating concept is revolutionised through the graphical input of travel movements via gesture control.

AUTOMATION.

With our own
automation division
for a complete solution.

The use of robots and automation solutions is also becoming increasingly common in the rubber processing industry. LWB has recognised this trend for a long time now, and realises a wide range of innovative solutions for a broad spectrum of sectors.
With the foundation of LWB Automation, the spectrum of products and services was massively expanded once again.

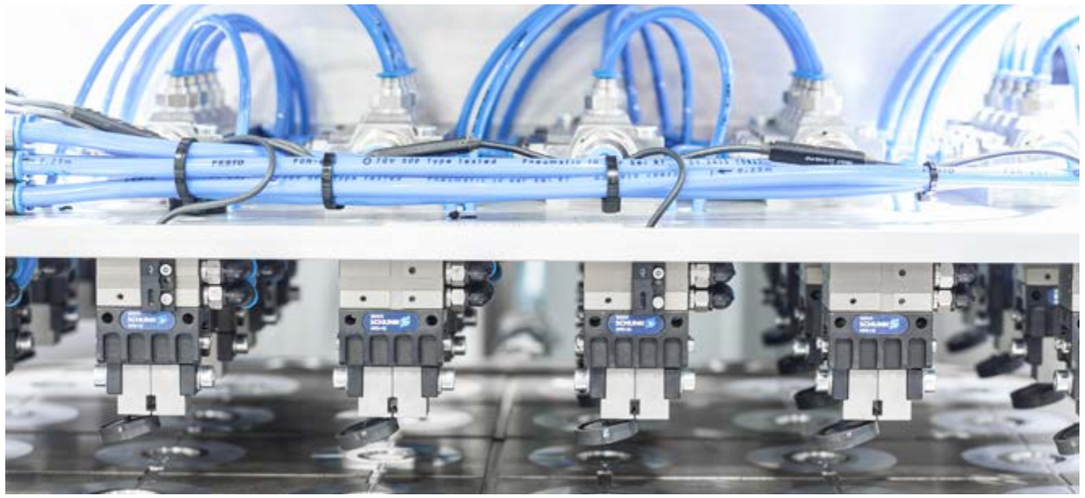
We deliver turnkey production systems with comprehensive handling peripherals including process technology - both in combination with vertical or horizontal presses, and injection moulding machines. You will have an experienced team standing alongside you, from concept right through to realisation.

AUTO
MATION

For first-class results in series production.

Due to the nature of the material and the high temperature in the mould area, rubber moulded parts are harder to “pick up” than thermoplastic moulded parts. Innovative solutions are therefore needed to automate the handling of moulded parts.

Our know-how is reflected in complex turnkey systems.

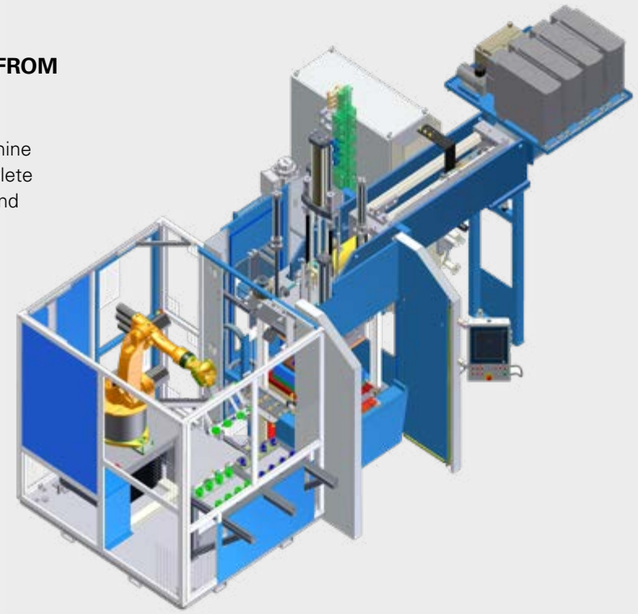


STANDARD AUTOMATION MODULES

- Sliding cavity plates, hydraulically or electrically driven, also in synchronised double version
- Rotary and sliding tables in a range of designs and operating methods
- Linear handling robots
- Gripper plates
- Sprue separators
- Sprue grippers
- We additionally use automation equipment from renowned suppliers, e.g. brush devices or industrial robots

MACHINES AND AUTOMATION FROM A SINGLE SOURCE

With us, you receive not only the machine and process technology but also complete automation solutions including robot and handling system.



PROCESS-RELATED ADVICE AND CONSULTANCY IS NATURALLY INCLUDED WITH US.

With complex automation tasks, it is advisable to consider the entire production process at an early point in time. Central points here are the sprue layout (hot or cold runner, position and number of cavities) and the resultant machine size.

It is necessary to consider whether a more economical solution might be to replace a complex multi-cavity layout with an alternative multi-system concept with smaller machines and easier automation.

We are able to get a grip on rubber.

The automation of parts starts with the integration of robots with the press. Then inserts can be loaded and finished parts - and runners - removed individually or together. This is followed by the placement of moulded parts either on pallets or their onward transport to a reworking station.

VERTICAL ELASTOMER INJECTION MOULDING MACHINE

For producing seals with automatic part removal and integrated conveyor for outward transport of the finished parts.

VERTICAL ELASTOMER INJECTION MOULDING MACHINE

For the production of radial shaft seals with automatic feed of the metal parts; removal of the finished parts and integrated conveyor belt for outward transport.

PRODUCTION CELLS

For the production of a 2K plastic/rubber composite part. With harmonised cycle times, a machine combination (elastomer and thermoplastic) together with a robot results in a fully-automated production cell.

DAMPING AND ASSEMBLY ELEMENT

For the solar industry in fully-automatic production. Special gripper and change plate technology enables the production of approx. 100 parts per cycle.

FULLY-AUTOMATIC PRODUCTION CELL FOR THE PRODUCTION OF FUEL CELL SEALS

For the automated production of metal bipolar plates from a silicone-metal combination. The concept is based on a frame machine with liquid silicone injection unit as well as handling units and silicone equipment. The first handling unit places the inserts in the position for the required pretreatment as well as loading the injection mould, the second handling unit performs removal from the injection mould, as well as outward transport of the inserts.

CUSTOM MACHINES.

Creative solutions for special requirements.

The modularity of our machine and options result in a high degree of design flexibility. Taking into account the individual requirements and applications of our customers in detail we develop perfectly tailored custom machines.

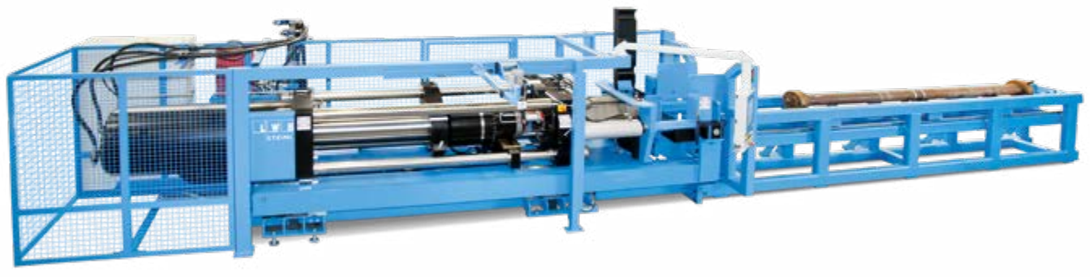
SPECIAL MACHINE FOR LARGE-SCALE PUMP STATORS

Custom machines are required for the production of pump stators with an injection volume of over 10 kg. Depending on the design, these essentially comprise one or more large-scale FIFO plasticising and injection units of type EF. The largest pump stators are more than 6 metres long and contain over 100 kg mixture.

With these sizes it is possible to utilise repetition injection moulding. Here, the injection unit injects a preselected volume into the mould cavity multiple times in succession.

EQUIPMENT FEATURES

- Stators over 6 metres long
- Shot weights of over 100 kg



LARGE-SCALE HEAVY CURRENT ISOLATORS

Heavy current isolators are frequently produced from silicone elastomers. With this, a GRP tube or rod is sheathed with silicone. The special systems designed for this build upon one or more synchronised VR machines, which are combined with a long-stroke sliding table. This special LWB machine combination enables very large clamping surfaces and injection volumes. The dual injection can be operated with electrically driven needle valve cold runners.

EQUIPMENT FEATURES

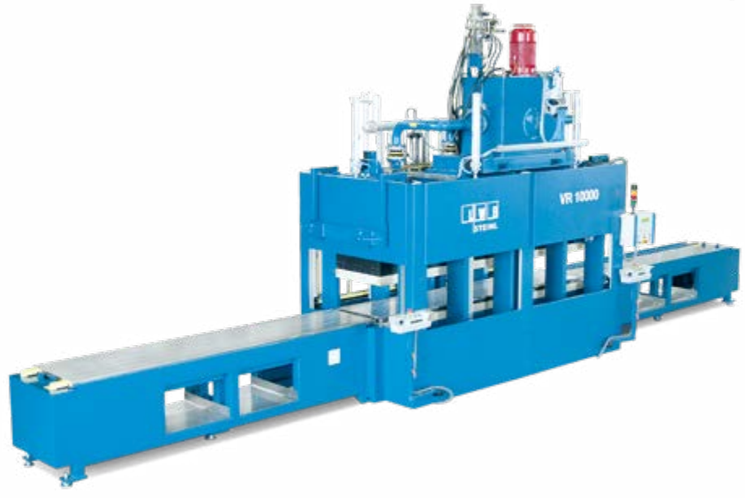
- Synchronised/combined VR machines
- Largest shot volume through dual injection
- Long stroke sliding table/ demoulding station
- Electrical needle valve cold runners

COMPRESSION PRESS FOR LARGE-SCALE RUBBER MATS

Downstroking press with a clamping force of 10,000 kN and heating platen with 600 mm width and a length of 3,000 mm are a special requirement, as used for example in mining applications. Combined with a left/right shuttle system, machine standstill times are reduced to an absolute minimum.

EQUIPMENT FEATURES

- Clamping force 10,000 kN top closing
- Heating platen 600 x 3,000 mm
- Left/right shuttle system

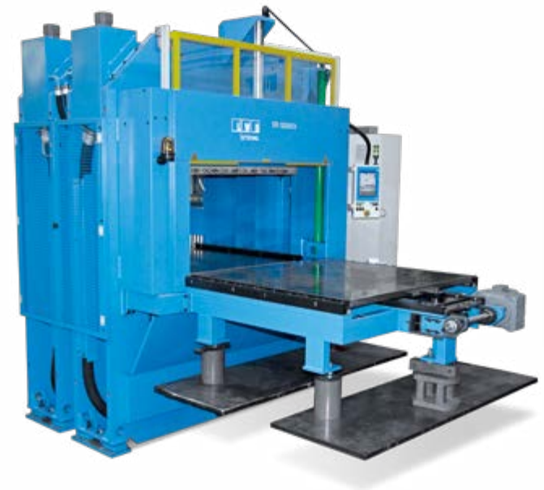


COMPRESSION PRESS FOR LARGE MATS AND MEMBRANES

Upstroking presses with a clamping force of 12,000 kN and a heating platen size of 2,000 x 2,000 mm are a requirement for large mats and membranes. With this technology, two VR presses are combined, which are equipped with a total of 4 individual clamping cylinders. This combination facilitates maximum precision with incomparable machine stiffness.

EQUIPMENT FEATURES

- Claming force 12,000 kN
- Combined VR machines
- Heating platen 2,000 x 2,000 mm
- Maximum precision through 4 clamping cylinders
- Incomparable machine stiffness



VERTICAL 2K THERMOPLASTIC INJECTION MOULDING MACHINE FOR PRODUCING SEALS FOR THE AUTOMOTIVE INDUSTRY

In the thermoplastics processing industry, articles are frequently required with dimensions that would need disproportionately large machines. With our modular system of C-frame machines, we are able to make vertical 200 ton thermoplastic injection moulding machines available with a mounting area of 1,600 x 600 mm and 2K injection technology. Free accessibility from three sides with the smallest footprint.

EQUIPMENT FEATURES

- Vertical thermoplastic machines
- 2K injection technology
- Mounting area 1,600 x 600 mm
- Free accessibility with the smallest footprint

THE ERGONOMICS AND EFFICIENCY MASTER - VERTICAL ROTARY TABLE MACHINE FOR TWO MOULDS AT THE SAME TIME

With our machine concept, we achieve a total mounting area of 2,200 x 700 mm with a rotary table diameter of almost 3 metres and a working height of just 850 mm. Two individual moulds are in use, each with its own thermoplastic injection unit.

EQUIPMENT FEATURES

- Vertical 300 ton machine, top closing
- Dual thermoplastic injection unit, horizontal
- Rotary table ø 2,900 mm
- Working height 850 mm
- Total mounting area 2,200 x 700 mm

SYSTEM FOR GLASS ENCAPSULATION

Short handling times are vital in the series of glass encapsulation. LWB therefore offers solutions for large mounting areas of 2,000 x 1,000 mm, which reduce handling times to a minimum. With our 450 ton left/right shuttle solution, we achieve this with a working height of just 700 mm even with a big daylight.

EQUIPMENT FEATURES

- Vertical 450 ton machine, top closing
- 1,000 cm³ thermoplastic injection unit, horizontal
- Mounting area 2,000 x 1,000 mm
- Working height 700 mm
- Left/right shot volume system

VERTICAL ROTARY TABLE MACHINE IN THERMOPLASTIC VERSION FOR GLASS ENCAPSULATION

A rotary table application offers shortest handling times for the series production of overmoulded glass panes. With this process, side access to the affected mould is frequently necessary, in order to guarantee the insertion and removal of parts. This special LWB rotary table machine development also permits exceptional access to the mould from the side.

EQUIPMENT FEATURES

- Vertical 250 ton C-frame machine
- Thermoplastic injection unit, horizontal
- Hydraulic height adjustment of the injection unit
- Mounting area 1,300 x 650 mm
- Rotary table with side access to the part

OPTIONAL EQUIPMENT.

Always the optimum setting - thanks to modular technology.

In addition to the machine components, the modular system for the configuration of presses encompasses a greater range of options allowing a basic machine to be in tune with parts it needs to produce, resulting in greater efficiency.

QUICK LATCH SYSTEMS

Frequent mould changes mean downtime. This should be avoided wherever possible. We offer different possibilities to keep it to a minimum.

This includes the use of solutions derived from combinations of roller bars and quick latch systems with clamping bars or magnetic clamping technology.

SLIDING TABLES

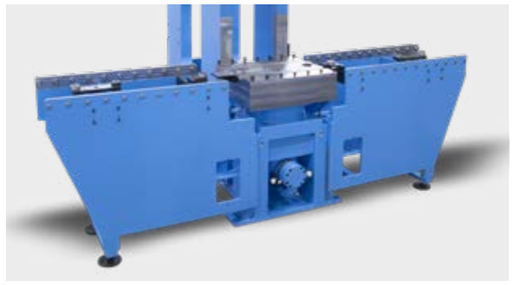
Access to the mould and thereby the article is the focus of this technology. It eases the process of loading inserts as well as demoulding finished parts, and also makes mould changing easier. Sliding tables can be supplied for all machine versions.

ROTARY TABLES

Long manipulation times by the operator (demoulding/loading of parts) can lead to an inefficient overall cycle time. In many cases, rotary tables are the ideal answer - because after opening the machine a second lower mould set is swivelled in and the machine can be closed again. With the outer station swivelled out, it is possible to perform demoulding or load new inserts whilst the machine remains productive.

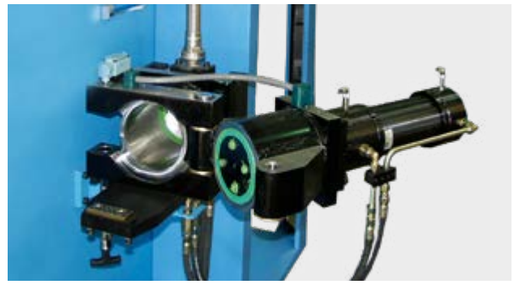
LEFT/RIGHT SHUTTLE SYSTEMS

As with the rotary tables, long manipulation times can also arise here whilst the operator is performing demoulding and loading, which can lead to an inefficient overall cycle time. This technology offers further possibilities for avoiding this, because demoulding and loading can take place in parallel to the injection moulding cycle. This system can be used with C-frame machines and column machines.



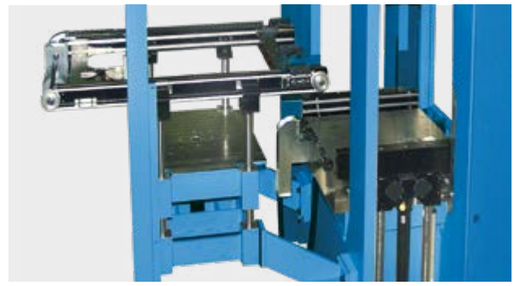
SOLID SILICONE STUFFER UNITS

We offer static and mobile stuffer units for the processing of silicone. Three sizes are available to choose from, with chamber volumes of 5,000, 10,000 and 14,000 cm^3 for the automatic supply of solid silicone to the plasticising unit.



SLIDING PLATE SYSTEMS

Our sliding plate system offers easier access for the loading of inserts and the removal of articles. This is an equipment module for relocating the parts handling from the hot mould area to the area in front of the machine. Optionally available as a synchronous sliding plate system, in which two identical cavity plates are moved in and out of a press or injection mould simultaneously.



CENTRAL EJECTOR

The ejector facilitates easy handling of sprue components or moulded parts from mould plates.

BRUSH UNITS

We recommend the use of a brush unit for cleaning the mould plates before the next cycle or demoulding O-rings and other suitable parts from multi-cavity moulds on horizontal machines. The unit is a combination of linear axis-driven rotating brushes, available both, single and double daylight moulds.

BSD (BLUE SERVO DRIVE)

Servo-hydraulic systems not only save energy but also offer other advantages.

Important features include precision and speed of movement, as well as significant noise reductions.

Furthermore, in the majority of cases the quantity of oil is reduced and no additional oil cooling is required.

COLD RUNNER TECHNOLOGY

Material savings and waste avoidance are the major advantages of cold runner systems. It is possible to choose between a range of versions, be it with open nozzles or needle valve systems, which can be driven hydraulically or electrically. Further advantages include a reduced distance between nozzles and sprue point, or a balancing of different shot weights per cavity via cascade control.

ROBOT TECHNOLOGY

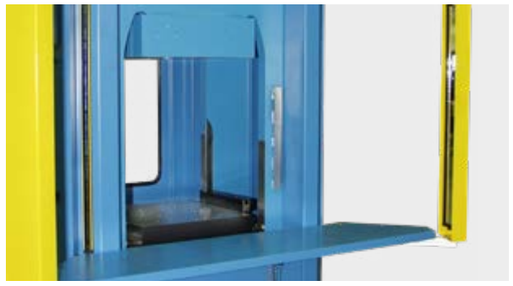
Automation is an integral part of many projects today. We therefore specialise in formulating the right concept together with our customers.

Be it robots, linear handling, feed technology or demoulding equipment - we have the right solution.

MACHINE GUARDS

Safety is the primary objective!

We utilise all conventional systems, from protective screen technologies to light barriers and laser scanners. Individual customisation and the highest standards are a given.



STRIP FEEDING AIDS

Unintentional tearing of the strip in the screw unit is avoided through the use of a strip feeding unit. The strip is fed into the plasticising unit via a drive and guarantees a continuous production process.

HYDRAULIC SEPARATOR

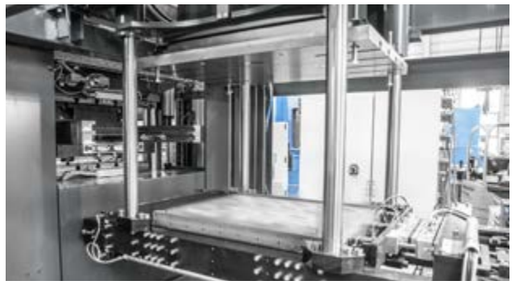
Hydraulic separators are attachment components on vertical machine clamping units, in order to separate the sprue plate from the base plate with every production cycle for example - and thus enable the removal of the sprue distributor.

TEMPERATURE CONTROL EQUIPMENT

Oil or water temperature control units can be supplied optionally for rapid-reaction liquid temperature control in plasticising units and/or moulds.

DEMOULDING STATIONS

Specifically designed demoulding stations can be supplied for situations, in which high forces are applied or complex movements must be executed.



SERVICE.

Exceptional service for outstanding technology.

We provide you with comprehensive and customer-oriented support throughout the entire life-cycle of your machines - on site anywhere in the world. Be it for set-up, process optimisation, maintenance or overhaul - our service staff are here for you at all times.

CUSTOMER SERVICE

With our technical customer service, as well as the LWB branches and representatives, you have competent support and many years of experience on hand constantly.

COMPETENT AND CUSTOMER-ORIENTED
Our competent technical service staff is available to you fast - anywhere in the world. We additionally support you via service hotlines and teleservice, and ensure trouble-shooting and fault rectification in the fastest possible time.

TRAINING

With requirements-oriented and tailored training, we support your employees in optimally utilising the full potential of a LWB machine.

CUSTOM TAILORED
In order to fully utilise the efficient technologies, we train your employees in machine operation and process technology. The diverse programme is targeted specifically at your focal areas and the knowledge level of your employees.

MAINTENANCE

With specialist maintenance from LWB, you ensure the best preconditions for a long service life and the optimum performance of your machines.

RELIABLE & COMPETENT
Our maintenance service also offers you “Quality - Made in Germany” - around the world at every customer site. With every action and step, our employees ensure fully reliable machine operation.

SPARE PARTS SUPPLY

Original LWB wearing and spare parts are available to you around the world.

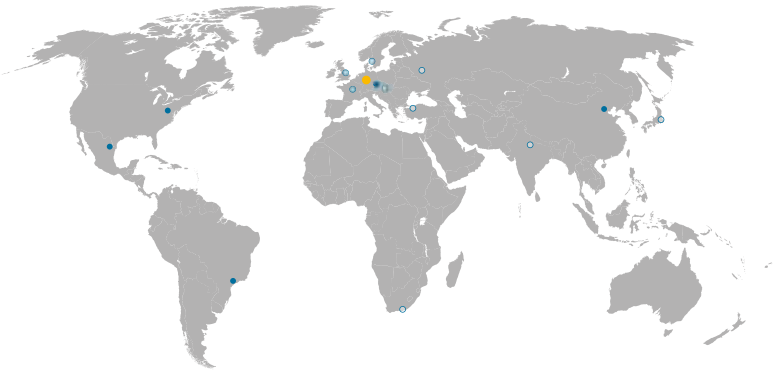
QUICK & UNCOMPLICATED
We ensure the fastest reaction times and rapid delivery of all the LWB machine parts you require - to ensure seamless production processes for our customers.

You can find further information and details on our range of services in our service brochure.

INTERNATIONAL.

LOCATIONS.

LWB is represented in all important markets. You can find an overview of all important representatives on our website.



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