



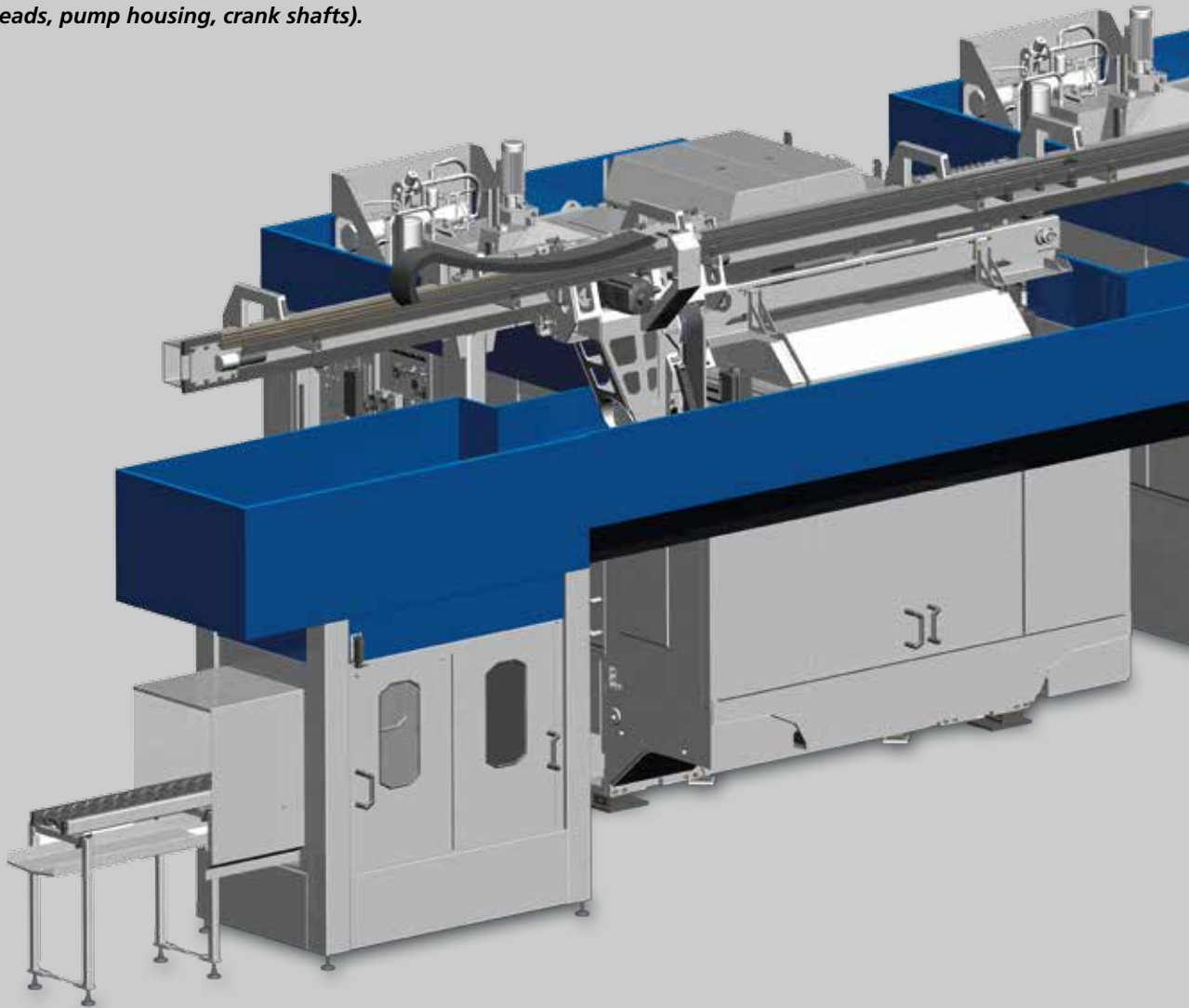
GROB

AUTOMATION
LOADING SYSTEMS
TRANSPORTATION SYSTEMS

AUTOMATION HIGHLY FLEXIBLE LOADING SYSTEMS

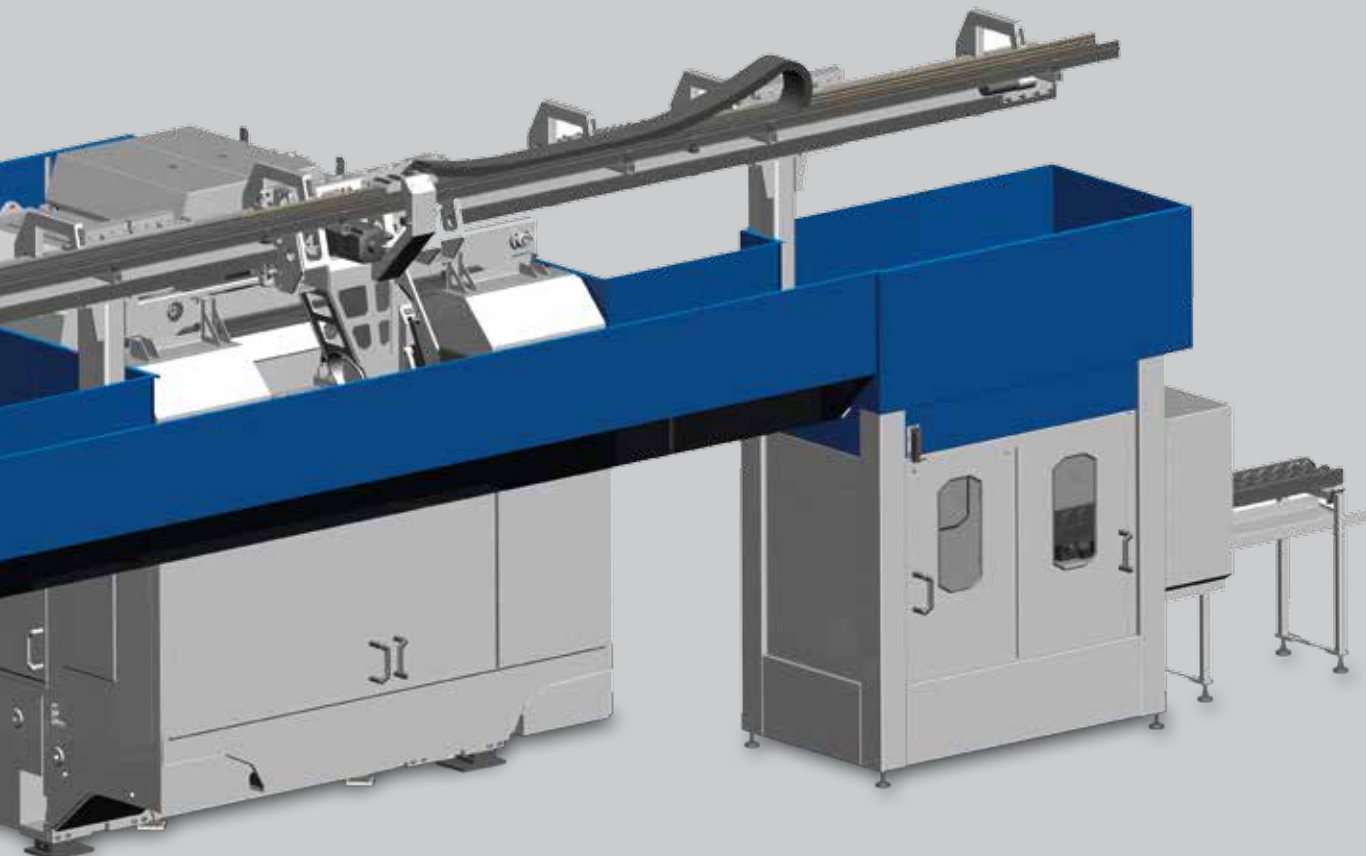
GROB automation systems – highly flexible, customized solutions

GROB automation systems are able to convey medium and large quantities of automotive parts (engines and transmission units) as well as components (cylinder heads, pump housing, crank shafts).



The new GROB loading concept

The new loading concept from GROB is characterized by impressive simplicity. It enables single and twin-spindle machines to be loaded. This development from GROB gives new meaning to the term "optimized flexibility". The new GROB loading concept consigns complex systems with their stringent requirements for operators and maintenance to the past.



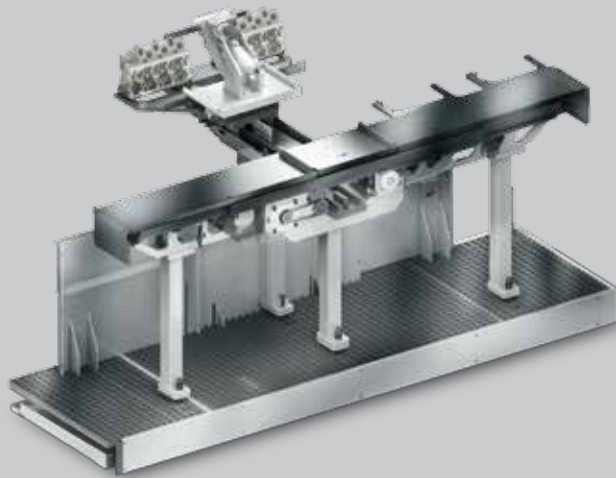
Direct loading with the kinematic gantry

The kinematic gantry with an articulated arm, is the most advanced solution of GROB for direct loading of G-modules and modular special machines. The arrangement of the X-beam in front of the machine allows a low stack height with simultaneous access to repair work above the machine. The stroke movement is performed by a specially developed articulating arm for GROB, in which torque motors are used as a drive. Therefore both serial as well as parallel work sequences can be loaded. And, as usual, at GROB, one-or two-spindle-machines.

AUTOMATION CONVENTIONAL LOADING SYSTEMS

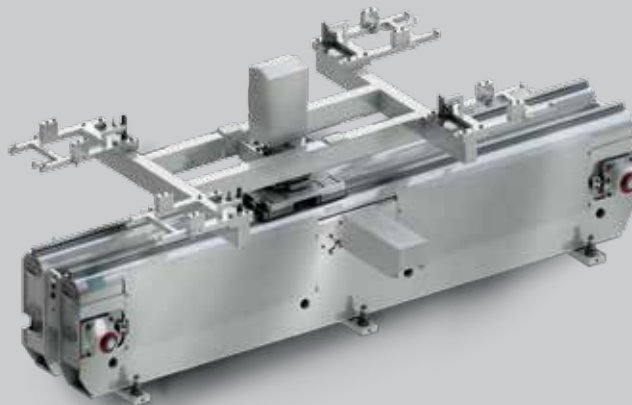
Automatic shift part changer

Loading processes which are decoupled from transport are achieved with shift part changers. The machine is loaded in two stages: The finished workpieces are removed from the machine with the empty loading fork; the unmachined parts are fed into the machine. This system supports loading of single and twin-spindle machines.



Swivel changer

The swivel changer decouples the transport from the loading process, which can be conducted manually as well as through a gantry. It is suitable both for partial and fully automatic loading. A swivel changer can load two machines, one immediately after the other. They can be set up facing one another, which is a space-efficient solution.



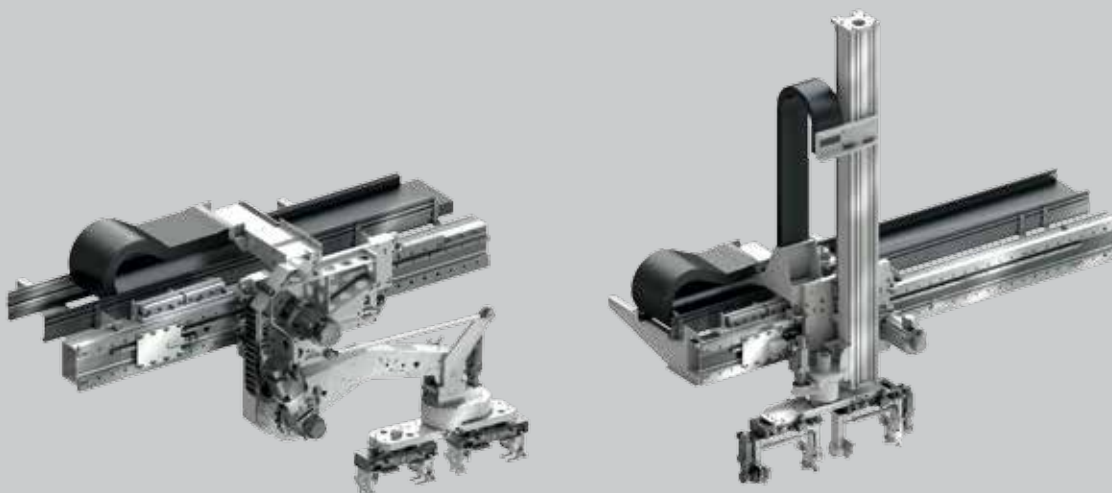
Agile gantry

This gantry is characterized by very high acceleration rates and velocities as well as by a very high positioning accuracy and is suitable for loading workpieces of average dimensions. A further advantage of the system is the ease with which it can be adapted to new types of workpieces. The low number of components guarantees the best possible availability.



Gantry

The Cartesian gantry is the cost-efficient standard for fully automatic loading from above and is also suitable for very large workpiece dimensions. Designed as an I or H loader, it possesses one or two vertical axes per trolley. The gantry with parallel kinematics in the vertical axis performs as well as the Cartesian gantry and can also be used in very low halls thanks to its extremely low design height. GROB gantries are characterized by their very high levels of positioning accuracy.

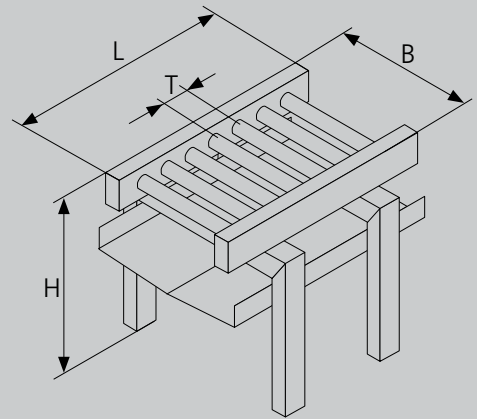


AUTOMATION AUTOMATION COMPONENTS

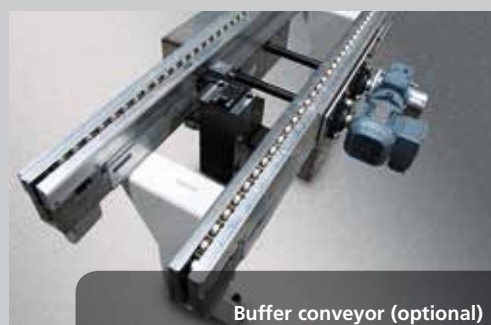
Conveyors

The standard conveyor is designed as a friction roller belt and can be used in all GROB machines. It is driven via a tangential chain which can drive all the rollers at the same time. The maximum torque which is transferable to the rollers is adapted precisely by means of friction-wheel units. The optional drip tray is made from galvanized sheet steel as standard, although it is also available in stainless steel. The height of the roller belt is adapted individually and, if necessary, special constructions can also be provided.

TECHNICAL DATA					
Width B [mm]		350	450	550	620
Length L [mm]	Roller pitch T [mm]				
	100	500 ... 2,000			–
	125	500 ... 2,000			–
	200	–			600 ... 1,600
Carrying load [kg/m]		300		400	
Height H min. [mm]		400			
Transport velocity max. [m/min]		12			



Drive variants



Transport and automation components

Together with the GROB conveyor, transport and automation components form a modular system from which complex automation systems can be combined. The high degree of standardization ensures an excellent cost-performance ratio as well as a high level of technical improvement.

Lifts

Lifts are used to compensate for differences in levels, enabling conveyor transport to be performed at multiple levels. It also enables transport to be conducted across obstacles and tracks. Lifts are often used in conjunction with conveyors in multiple levels as a storage system.

Swing gates

Swing gates create a walk through the conveyors, guaranteeing accessibility to individual parts of the plant. They are used wherever traversing of the conveyor is required at ground level.

Rotary tables

Rotary tables are used to change the direction of transport and also as switches. They enable changes of direction to be achieved in increments of 90°. The orientation of the pallet to the direction of transport is maintained at all times.

Swivelling devices

Swivelling devices allow you to change the orientation of pallets or workpieces. They can also be used in control stations, enabling the workpiece to be accessed from all sides.

Transverse ejectors

Like rotary tables, transverse ejectors can also be used as switches, with the orientation of the pallet to the direction of transport constantly changing. Transverse ejectors are frequently used for removing or inserting workpieces from or into the flow of materials for measuring and inspection tasks. A rotary table and transverse ejector can also be combined in a single unit.

Storage systems

There is a wide variety of storage systems available. Workpiece and pallet stores are available, as are component stores. Storage systems are mainly used for buffering and sorting tasks.



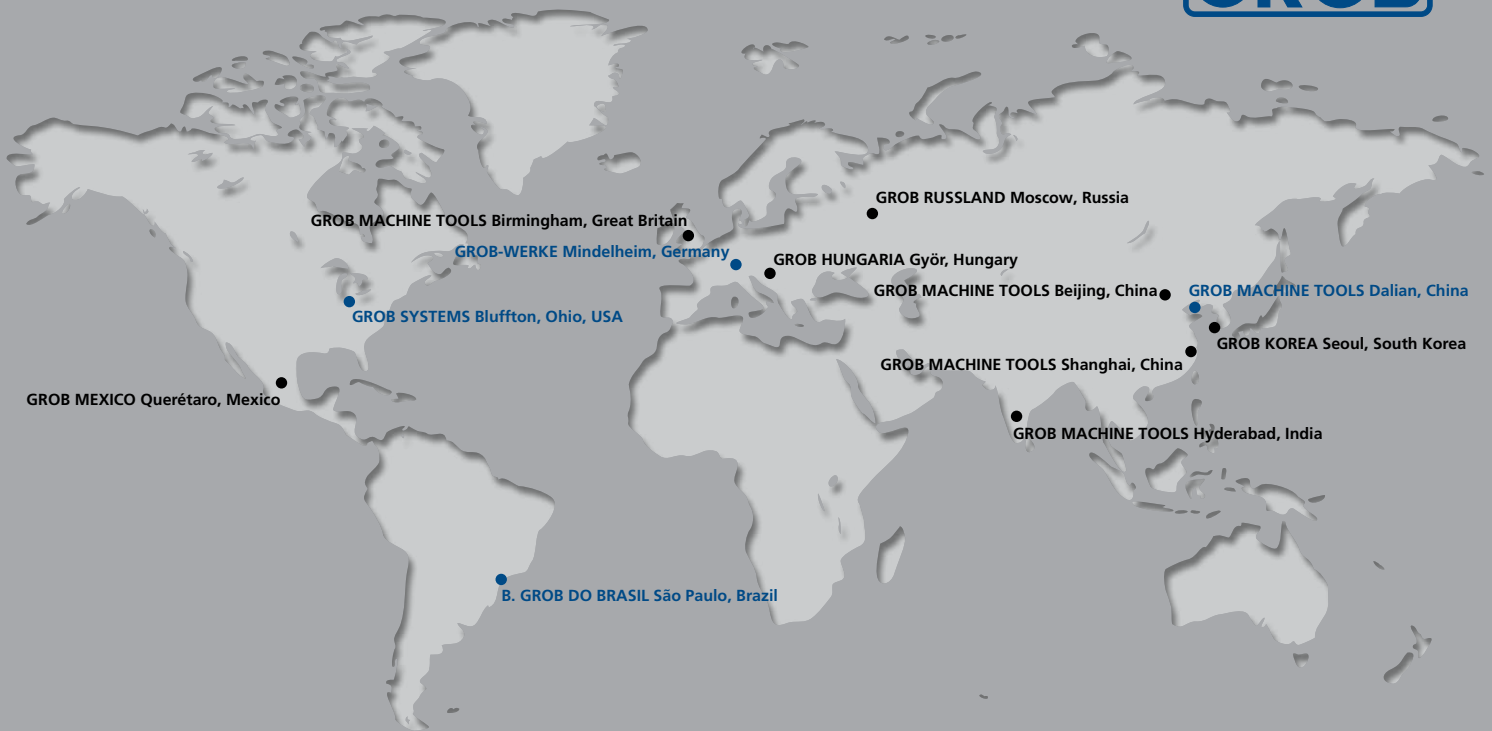
Lift



Rotary table



Transverse ejector



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