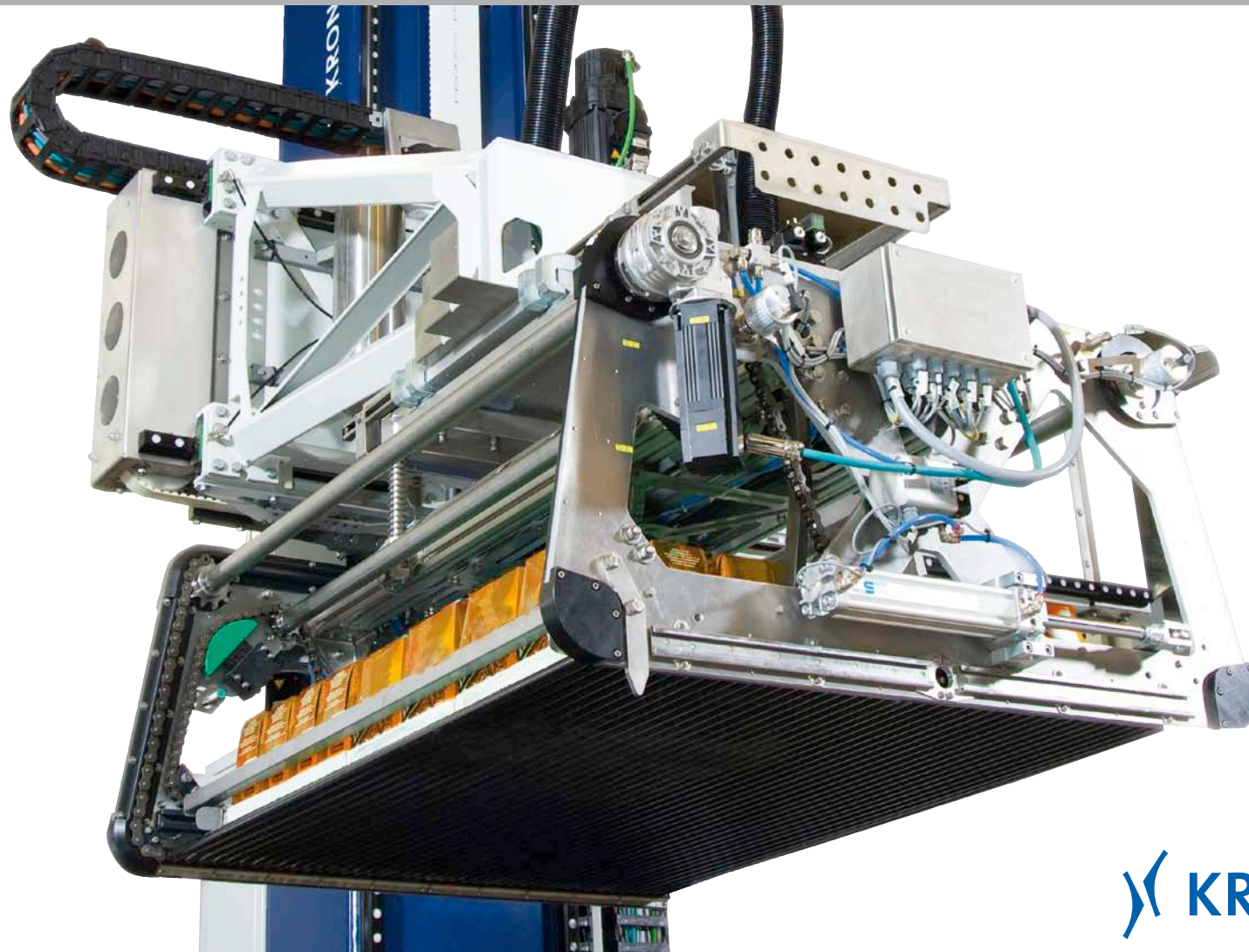


KRONES Modulpal

Single-column palletising robot



 KRONES

First combine, then palletise

KRONES Modulpal

The Modulpal series of robots offer you a wealth of possibilities when palletising. You can individually combine each of the modules to suit your requirements. And once installed, the Modulpal can even be adapted to suit future changes in the line layout or range of tasks without any complications. And despite their extreme versatility, the compact single-column robots require only a small amount of space – just like the motto: maximum freedom with minimum constraints.



Method of operation

A gripper head is attached to the tool holder. This picks up the layer of packs at the grouping station or from the pallet. Servodrives allow the pick-up and deposit position to be approached highly dynamically. The tool holder carries the layer to the deposit position on the pallet or the pack discharge area. Depending on the Modulpal design, this is achieved with a horizontal or vertical movement or using a circular path.

Fields of application

- Palletising and depalletising crates
- Palletising cartons, packs with film and multipacks

Output range

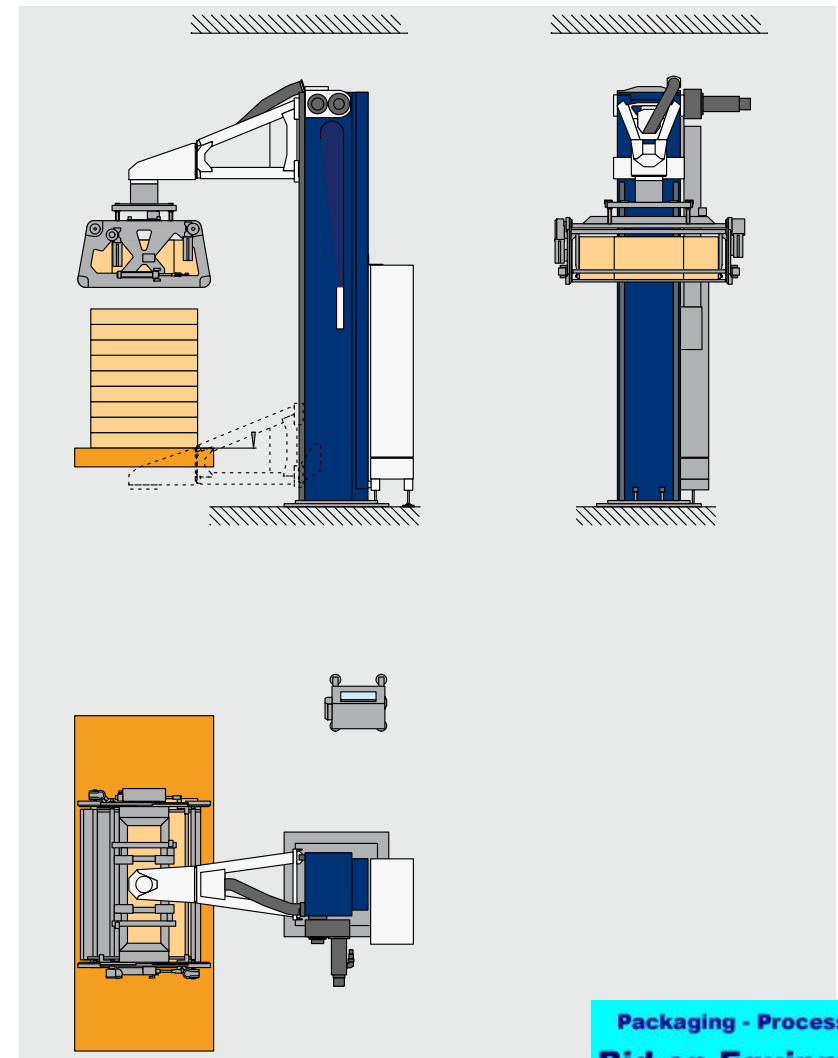
- Up to 500 layers/h, depending on the design

Design features

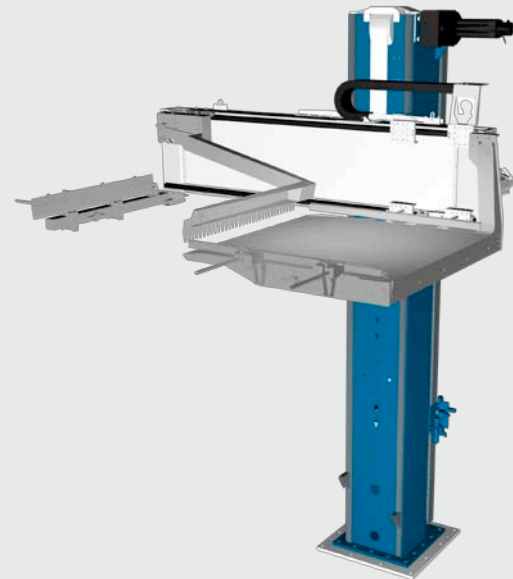
- Max. layer dimensions: 1,040 x 1,300 mm or 1,300 x 1,300 mm
- Maintenance-free servo drive technology in all machine areas
- Reduced spare parts inventory thanks to standardised components

Model	Load (kg)	Output (cycles/h) Non-returns* / returnables	Working range Horizontal movement/ pivoting area	Vertical movement (mm)
Modulpal 2AC	180	340 / —		
Modulpal 2A	700	360 / 500	3,400 mm	
Modulpal 3A	550	360 / 500	± 110°	max. 6,000
Modulpal 3AR	700	360 / 500	360°	
Modulpal 1A	700	400 / —		
Modulpal 1ADR	2 x 700	500 / 500	± 180°	

*) Output information given does not include layer pad handling

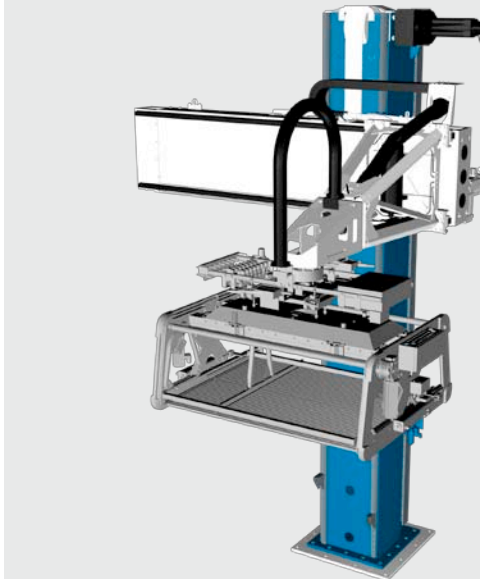


Modulpal 2AC



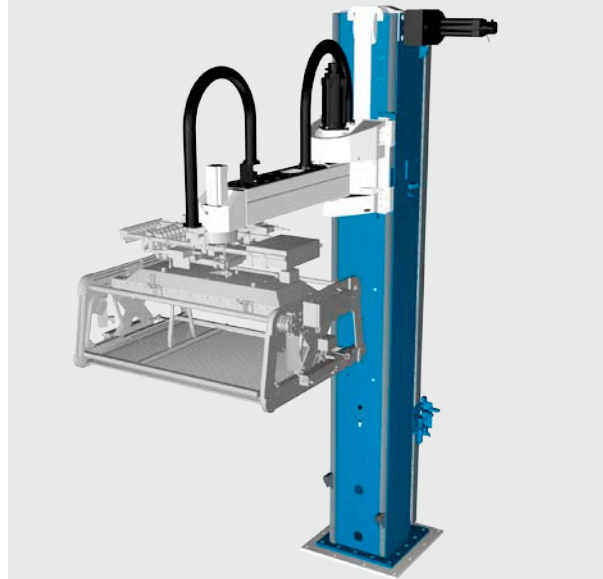
A row pusher moves the pre-grouped non-returnable packs onto the transfer plate. Then the palletiser, moving along two axes, deposits the layer on the pallet.

Modulpal 2A



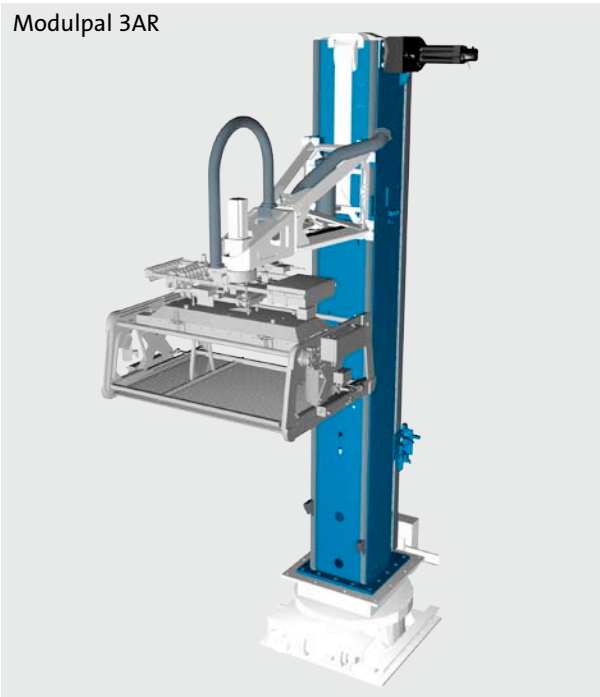
With both a laterally-adjustable and height-adjustable design, the palletiser picks up the pack at the grouping station and deposits it on the palletising station. The concept is suitable for palletising all types of packs and for depalletising returnable packs.

Modulpal 3A



The model 3A can master flexible tasks, both during palletising and depalletising. In addition to the linear lifting axis and a pivoting unit, this Modulpal is also equipped with a rotating gripper head axis. This combination can reach a working range of 2 x 110°.

Modulpal 3AR



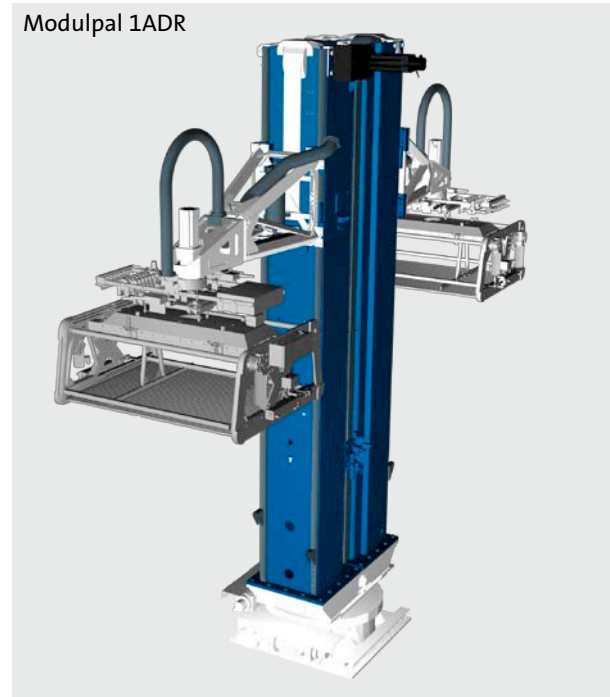
The basic pivoting unit allows the robot to rotate around its own axis. This makes it possible for this Modulpal to cover a working range of 360° during palletising and depalletising.

Modulpal 1A



In this high-performance model from the Modulpal series, the non-returnable pack is fed into the equipment at the top and the palletiser then deposits it onto the pallet which has been fed below.

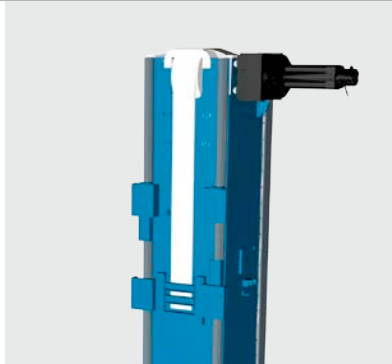
Modulpal 1ADR



This variant which is equipped with a pack infeed and a palletising station uses two lifting units and gripper heads which allow it to reach a high speed during palletising and depalletising.

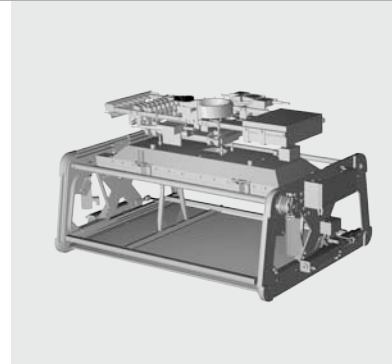
Additional equipment

- To allow heavier layers to be handled, the shutter gripper head is also available with carbon rollers instead of steel rollers.
- Bottom, intermediate and top layer pad inserters
- Packs are fed through a flush-grid belt grouping station



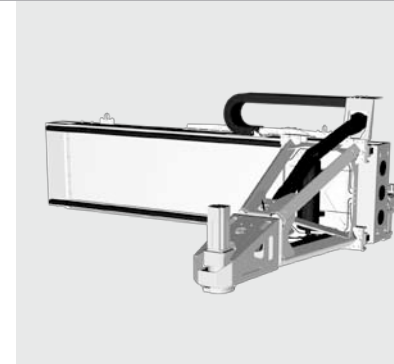
Lifting unit

- The newly conceived lifting column can master all applications, such as palletising and depalletising, packing and unpacking.
- Due to the newly positioned drive, the palletiser has a lower construction height.
- The widened belt means there is no need for a second drive belt. The high level of safety remains the same.
- The retrofittable guide carriage with pneumatic clamps allows for the installation of an automatic safety locking mechanism, if required.



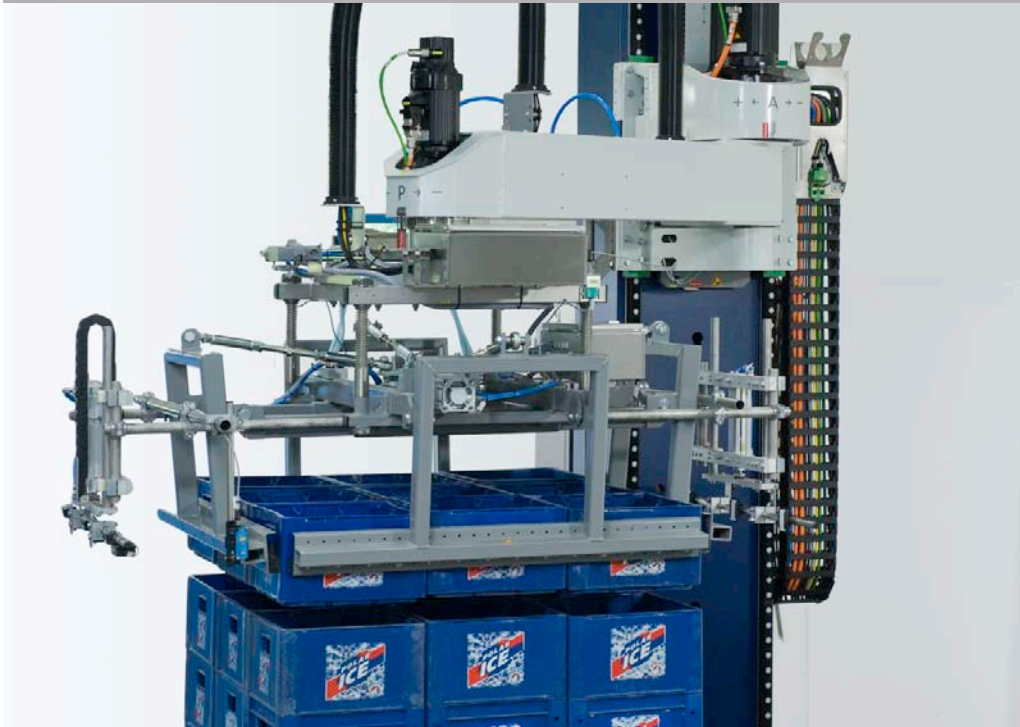
Gripper head and loading station

- The various gripping tools for returnable packs such as hook or clamping gripper head provide maximum flexibility for handling crates.
- The shutter gripper head used as standard for non-returnable packs offers high processing safety.
- The palletiser version with transfer plate is an inexpensive solution. It is especially suitable for low layer weights (up to max. 180 kg) in the low output range.
- Additional flexibility is provided by the optional, four-sided automatic guide adjustment system.



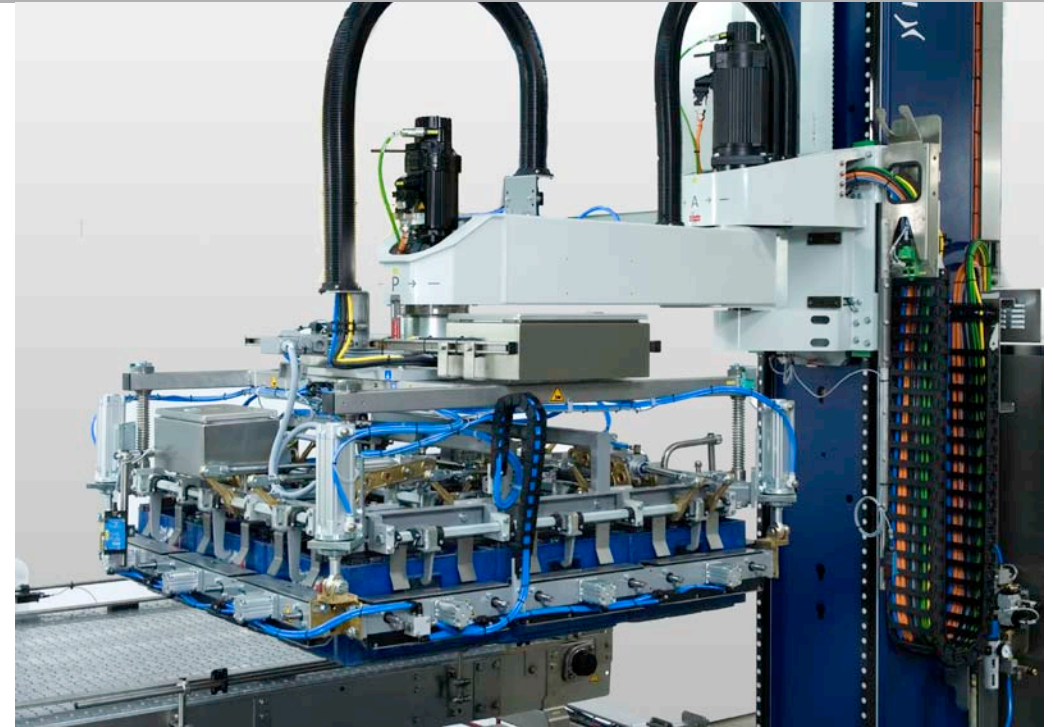
Linear unit, pivoting unit and tool holder

- All of the components have been designed to handle high bearing loads.
- The Modulpal palletising system is composed of the individual basic modules in accordance with the individual requirements and the case in question.



Hook gripper head

- The hook system grips the full crates.
- When palletising, an embracing centring unit ensures that the crates are gripped securely.
- A multiple hook system is optionally available for handling a range of layer patterns.



Clamping gripper head

- Complete layers with returnable bottles can be gripped from all four sides.
- The clamping bars are available as continuous bars or as single spring-supported clamping elements.
- Optionally, the movement of full crates can be supported by hooking into the window.

Grouping and discharge table

- Stations with rollers or flat-top chains are available for grouping packs.
- Layer separation with stopper bridge for handling crates during column palletising with linear structure
- Layer separation with separation roller for separating interlocked layer patterns with linear structure
- Layer separation with pulling device for handling layer patterns during palletising with interlocked stacking, for complex formations



Your advantages

■ Freedom to combine

All components can be flexibly combined depending on the planned range of tasks.

■ Handling of heavy bearing loads

The supporting installations have been designed for carrying heavy loads of up to 700 kg.

■ Easy maintenance and noise protection

When compared to the common chain systems, the integrated belt drive technology offers distinct advantages in terms of maintenance and noise emission.

■ High dynamics and precision

The servomotor drive system for the axes allows highly dynamic movements and maximum accuracy for repetition during palletisation.

■ Saving potential

If combined with the Robobox grouping station, an external distribution and turning system is omitted.

■ Flexibility and versatility

The standardised gripper head dimensions allow for flexible change-over to new patterns or pallets.

■ Cost efficiency

The modular design allows very economic stock-keeping of spare parts if several models are used.

